Towards a Merleau-Pontian account of the phenomenon of digital technology: From disembodiment to the Embodied Screen

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Abstract

Digital technology is a contemporaneous, encompassing phenomenon that necessitates philosophical investigation, particularly with regard to how the individual relates to digital technology artefacts. However, contemporary methodologies in Philosophy of Technology, that became prominent after the empirical turn, such as pragmatism and social constructivism, reduce the phenomenon of digital technology to a form of social epistemology far removed in scope from the individual. On the other hand, posthumanism as approach towards technology questions the inherent embodied facticity of the individual by speculatively postulating a modification and alteration of the human being in such inquiries. These methodological approaches suggest a rationalistically motivated disembodiment that underlies descriptions of the phenomenon of digital technology – in such accounts there is little recognition of the individual beyond the social, little recognition of facticity in terms of the individual's embodiment, and little understanding of the digital technology artefact beyond the artefactual. A full understanding of the richly intertwined and mutable dialectical relation between the embodied individual and the digital technological artefact is absent.

Embodiment, per the phenomenology of Merleau-Ponty, presents an alternative methodological approach for seeing this relationship within the phenomenon of digital technology anew. The facticity of the individual's body serves as vital framework for perception of the world and for interpersonal interaction, while also presenting a crucial point of access to the phenomenon of digital technology (which is itself continually changing and which may become hidden through continued use).

Merleau-Ponty's concept of embodiment (and his later ontological concept of flesh) suggest the potential for a re-conceptualization of the phenomenon of digital technology by means of the concept of the Embodied Screen, which encompasses the embodied individual and the digital technology artefact to enlighten unique emergent characteristics in the phenomenon of digital technology that arise in this relation. These characteristics, rather than being tangential, must vitally be accounted for to allow a foundational, encompassing and multimodal description of the phenomenon of digital technology.

Digital technology artefacts challenge the individual's perceptual faith through the constant immersion of the individual by digital technology artefacts. This challenge to perceptual faith necessitates imaginative signification, but through the Embodied Screen a continual and prominent level of imaginative signification is revealed that alters the individual's perception and behaviour. Furthermore, language use is revealed to be an ontologically concretizing force by means of the Embodied Screen. Such emergent characteristics fundamentally alter the individual's sense-making of the self, the world and the other, through the phenomenon of digital technology. The Embodied Screen thus also allows a re-evaluation of the digital technology artefact itself, which is seen to function as conduit for the individual's sense-making of the world by its capacities for latticing storytelling.

Key words: Phenomenology, Philosophy of Technology, Merleau-Ponty, Digital technology, Embodiment, Flesh, Perceptual faith, Imaginative signification, Language, Embodied Screen, Storytelling.

Dedicated to Baba Maphanga
The world has been rendered a touch less gentle for his departure

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[1] Bram Stoker.

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[2] John Green.

“Penny Lane is in my ears and in my eyes”

The Beatles

Table of Contents

Abbreviations (referencing specifically Merleau-Ponty's works)

AD	*Adventures of the Dialectic*. Trans. Joseph Bien. Evanston: Northwestern University Press, 1973
CAL	*Consciousness and the Acquisition of Language*. Trans. Hugh Silverman. Evanston: Northwestern University Press, 1973.
HT	*Humanism and Terror.* Trans. John O'Neill. Boston: Beacon Press, 1969.
IM	"*On Sartre's Imagination." In Texts and Dialogues: Maurice Merleau-Ponty,* edited by Hugh Silverman and James Barry, translated by Michael B. Smith. Humanities Press: New Jersey, 1992.
IPP	*In Praise of Philosophy*. Trans. John Wild and James M. Edie. Evanston: Northwestern University Press, 1963.
N	*La Nature: Notes*. Cours du Collège de France. Trans. Dominique Seglard. Northwestern University Press. 1952-1960.
PP	*Phenomenology of Perception.* Trans. Colin Smith. London: Routledge and Kegan Paul, 1962.
PrP	*The Primacy of Perception*. Trans. James M. Edie. Evanston: Northwestern University Press, 1964.
POW	*The Prose of the World*. Ed. Claude Lefort. Trans. John O'Neill. Evanston: Northwestern University Press, 1973.
SNS	*Sense and Non-Sense*. Trans. Hubert L. Dreyfus and Patricia Allen Dreyfus. Evanston: Northwestern University Press, 1964.
S	*Signs*. Trans. Richard McCleary. Evanston: Northwestern University Press, 1964.
SB	*The Structure of Behaviour.* Trans. Alden L. Fisher. Boston: Beacon Press, 1963.
TFL	*Themes from the Lectures at the College de France 1952-1960*. Trans. John O'Neill. Evanston: Northwestern University Press, 1970.
VI	*The Visible and the Invisible*. Ed. Claude Lefort. Trans. Alphonso Lingis. Evanston: Northwestern University Press, 1968.

Study Introduction

Study background: Setting the stage for digital technology

Following the Holocene calendar,[3] roughly 10 000 years should be added to the Western Gregorian calendar (Emiliani, 1993).[4] If it is now 2018, the Holocene calendar reflects a date of 12 018. The start of this calendar is the beginning of the Neolithic Revolution, when ancient humans transitioned from a hunter-gatherer lifestyle to a lifestyle with an agricultural and architectural focus. The Holocene calendar reflects not the culturally and religiously specific milieu of the Western world (in contrast to the challenges of the current Anno Domini era calendar), instead serving to link culturally and religiously diverse societies in a more universalizable view of history.

On the Holocene calendar, the year zero would be the start of the current geological era and the start of the Neolithic Revolution, the period wherein there is archaeological data of humanity's first settlements and agricultural activities (cultivation of primitive forms of millet and rice), and when humans first began erecting temples and monuments to worship ancient gods (construction began of the temple complex at Göbekli Tepe, found in modern-day Turkey, and religious worship is reflected in cave paintings of the Mesolithic period). This act of building and cultivating, the first instances of technological revolution, is taken by the Holocene calendar as the moment when humanity's history truly began. The Holocene calendar suggests that the technological (from the start of agriculture and architectural construction) and humanity are a closely intertwined phenomenon, a duet in the history of civilization.[5]

[3] Holocene is a geological adjective that denotes the *entirely recent or current* epoch. Holocene represents the second epoch in the Quaternary period and follows the Pleistocene (Walker, Johnsen, Rasmussen, Popp, Steffensen, Gibbard, Hoek, Lowe, Andrews, Björck and Cwynar, 2009).

[4] Estimates of the start of the Holocene era place the date at 9701 BC, roughly 11 700 years before the year 2000 on the Gregorian calendar. The Holocene calendar is based in the Holocene era or Human era.

[5] This statement begs the question: Is *homo faber,* the human as artisan or mechanic (Achterhuis, 2001: 3), inherently humanity's essential definition? How closely are technology and the human intertwined? Mitcham (1994a) states that there are two general theories of human being: that humans are *homo faber* (a productive being) or the human as *homo loquax* (a being characterized by the linguistic). The Holocene calendar makes a suggestion for *homo faber*, but the concept of the Embodied Screen developed in this study links the two broad conceptualizations described by Mitcham: Humanity uses digital technology to lattice the linguistic as storytelling.

Technology is historically an even older phenomenon than the Holocene calendar seems to suggest, however. Malcolm Gay argues that "we've been enmeshing our lives with tools ever since Homo sapiens emerged from the hominid line some 200,000 years ago" (2015: 25–26). Instances of technology have been a part of human existence since antiquity, from the first caveperson that cloaked themselves against the elements and split flint to form a sharp edge (the earliest examples tracing back to almost 2.5 million years at Gona, in the Awash Valley in Ethiopia). In China, around 500 000 years ago, the burning of fires in hearths saw a Promethean leap in the way humans encountered and made sense of their environment (primarily as something to be weathered and survived). Furthermore, artefacts have been traced from various ancient civilizations, showing tool use through cave paintings in Africa, metal-working in Mesopotamia and papyrus in Egypt. The invention of technology (and thinking about how technology can benefit individuals on a practical level) has been present since the dawn of human civilization.

Ancient Greek philosophers addressed questions regarding tools and technology in terms of *the making of things*. Plato (428/427 or 424/423 BC to 348/347 BC) and Aristotle (384 BC–322 BC),[6] the philosophers who typified Ancient Greek thought, were appreciative of what was called *technē*, derived etymologically from 'craft' and 'art'. This ancient Greek notion, of *technē* as the body of knowledge related to making things, is the root of modern conceptions of 'technique' and 'technology'. Plato argues that in *technē* the craftsman, through the making of things, learns from or imitates nature (*Nomoi* X, 899aff; *Laws* X, 899a).[7] He describes, for example, how weaving and house-building were invented by artisans' imitation of spiders weaving webs or swallows building nests, but the way of life of inventors and artisans was regarded as inferior to the ways of philosophers, who gained knowledge through the eye of the soul. Aristotle emphasizes the teleological nature of

[6] Holocene calendar dates are given for the birth and death of these philosophical figures, with the intention of situating these philosophers' thought in the context of the broader Human Era. For Plato, these dates are 9573/9574 or 9577/9578 to 9653/9654 and for Aristotle these dates are 9617 to 9679. It is fascinating to note the period within the Human Era wherein these thinkers arose and contributed their philosophical thought. The Holocene dates recast the history of philosophy against the broader history of humanity and highlight how Greek thought altered human and Western civilization. The Holocene dates for later thinkers will not be given, although the sketching of influential philosophical thinkers against the broader Human Era remains an interesting exercise in terms of the contextualization of such thinkers.

[7] Plato utilized imagery of the artisan, as basis of *technē*, in his description of the formation of the world as the work of an artisan, the Divine Artisan or Demiurge, who was charged with fashioning and maintaining the physical universe (*Timaeus*, 28a6).

technē – it is craft-making that is always directed towards some purpose (an early instrumental description of technology).

Both Plato and Aristotle present hierarchical conceptions of knowledge that emphasize the universal above the specific, with craft seen as a lower order of activity or knowledge, whilst activities such as philosophy are considered a higher order of activity. The tendency in philosophy, since Ancient Greece up to the Modern period, was thus to emphasize intellectual and theoretical knowledge (through questions such as 'What is the Good Life?') above practical inquiries (such as 'How does the stage machinery in *Herakles* work?').[8] This perspective on *technē* may be seen as a central reason for the rather late development of an academic field that focuses solely on the philosophical questions of technology (Philosophy of Technology), as such a hierarchical conception of knowledge would lead philosophers in the ages that followed to disregard the importance of broader philosophizing on technology.

From the 5th to the 15th centuries, from the fall of the Roman Empire to at least around 1450, there came a shift in the ways philosophers perceived technology. This period is characterized by the philosophical thought of Augustine (354 AD–430 AD) and Aquinas (1225–1274). During the Middle Ages, Christian thinkers emphasized the theologically inspired idea of humanity as superior to nature, interpreting history theologically as directed towards salvation.[9] The dominance of humanity over nature served to underscore

[8] In the Ancient Greek system of thought, there thus existed (except for some nuanced and minor differences) a hierarchy of thought that placed eternal, immutable ideas (linked to ethics) above perishable contingent sensory information (which is the realm wherein technology functions). In *The Republic* (circa 380 BC), Plato makes a distinction between practical, or "lower, sense-experientially-based understanding focused on specific practical affairs" and theoretical understanding, or higher knowledge related to the good life, that shaped the perspective on the appropriate role of philosophers in the ages to come (*The Republic*, 526–527; Scharff & Dusek, 2003: 4). In other words, philosophers should focus on 'higher questions' such as the 'good life' and not on 'lower issues' like *technē*. This disdain of the practical was also seen in Aristotle's works. In book XII of his *Metaphysics*, Aristotle identifies three types of substances: a) sensible and perishable, b) sensible and eternal, and c) non-sensible and eternal (immovable). The first kind of substance is the plants, animals and everything else in the world. The second kind of substance is the heavenly bodies, which move eternally. The third kind of substance is not perceivable at all by the senses but Aristotle reasons that it must exist because: "substances are primarily existing things, and if they are all destructible, all things are destructible" (*Metaphysics* XII, 6). This third kind of substance thus forms the pinnacle of a hierarchical conception of thought in not just Aristotle's work, but also in the works of other Greek philosophers such as Pythagoras and Plato. The technological falls on the lower rungs of the hierarchy and is thus of less philosophical importance. This distinction between 'higher' and 'lower' forms of understanding was echoed in Aristotle's *Nichomachean Ethics*.

[9] Such early concepts eventually inspired "notions of linear scientific and technological progress", which developed as the building-blocks of modernity (Scharff & Dusek, 2003: 5).

the potential usefulness of technological development, as based in a Judaeo-Christian doctrine typified in the command in Genesis that humanity exercise dominion over the natural world (Tarnas, 2010: 346).[10]

Furthermore, in contrast to ancient views on work and craftsmanship, the medieval Christian faith proclaimed that dignity was to be found in physical work (as reflected in the feudal system). The reinterpretation of the role of physical work elevated the idea of technology from a 'lower' activity to a means of 'doing God's work', which encouraged future technological and scientific revolutions and led to a higher esteem of both technology and those who work with it (Scharff & Dusek, 2003: 5; Dusek, 2006: 85, 102). It is against this background that Jose Ortega y Gassett (1972: 310) describes the Middle Ages as the era of the artisan, wherein technology and the nature of man serve as counterbalance to each other. He notes that, following the Ancient Greek conception of technology as imitating nature, the human talent and ability for adapting nature to human needs (through technology) was achieved in the Middle Ages without imagining a denaturalization of the human being and without destruction of nature (Ortega y Gassett, 1972: 310).[11]

[10] New inventions during the Middle Ages began shaping a new way of human interaction with each other, their work and with nature in ways that differed from earlier forms of technology. A prominent and revolutionary technological development in Europe during this historical period was the development of the hand-cranked grain mill, which introduced the crank to mechanics (Dusek, 2006: 138). Prominent inventions such as spectacles, the weight-driven clock (the forerunner of the mechanical clock), the horse collar and the heavy plough (which revolutionized architecture) formed the basis of a technological revolution that, along with cultural, economic and political shifts during this period, would shape both the Middle Ages and later the Modern era (Mumford, 1934; Nielson, 2009: 24). Lewis Mumford describes the wide-reaching impact of the mechanical clock, developed during this period, when he argues that "the clock, not the steam-engine, is the key-machine of the modern industrial age" (Mumford, 1934: 14). The mechanical clock gave a form and structure to humanity's conceptualization of something as fleeting and intangible as time. Also, Chinese inventions during this historical period spread from Central Asia to Europe. These inventions included stirrups, the wheelbarrow and the fishing rod and reel (Dusek, 2006: 169). Inventions such as the spinning wheel, paper, guns and gunpowder and the compass were also imported from outside medieval Europe (Nielson, 2009: 24). These inventions at once highlighted the usefulness of technology to the medieval mind and showed that humanity could indeed gain dominance over nature to a large degree by making use of technology.

[11] The close relation between humanity and nature, with regard to technology, stands as a major contrast to perspectives on technology in the modern period. In the modern period, concepts such as humanity's ruling over nature and the beneficence of technological development, as extension of the esteem of physical work that developed in the Middle Ages, became principal ideals. However, there was no longer a close relation between technology and nature on the one hand, and the human being on the other. By the modern era, technology became increasingly viewed as developed to the detriment of both nature and humanity.

Modernity describes the broader historical period that began during the mid-16th century and wherein concepts such as capitalization, industrialization and rationalization came to the forefront in Western society. The traditional ways of ordering society were replaced by the authorities of modernity, namely science, democracy, economic growth and law (Lyon, 1994: 21). Throughout this modernization process, technology became one of the dominant and most influential aspects of the modern era in the last 200 years. Martin Heidegger (1889–1976), in his later work, argues that the modern era is characterized by technology in the same way that religion characterized the Middle Ages, and in the same way that nature epitomized the Ancient Greek worldview (Heidegger, 1977: 317). A defining characteristic of the modern era is thus the technological, for it formed a central part of the development of modern Western civilization and Western modes of behaviour and production.[12] Francis Bacon (1561–1626),[13] Immanuel Kant (1724–1804),[14] Auguste Comte (1798–1857)[15] and Karl Marx (1818–1883)[16] each present a prominent early thinker on technology during this era.

[12] Here is a shift in perspective, from the almost background influence of technology on human civilization from the Neolithic era to a prominent emphasis on technology in the structuring of modern Western civilization.

[13] Bacon expounded the claim in *The New Atlantis* (1624) that knowledge is directly correlative to power and that scientists and technologists should gather in a Saloman's (or Solomon's) House to lay the groundwork for a coming utopia (Bacon, 1989: 71–74, 77, 79–83). Also inherent in the Saloman's House concept is the medieval ideal of human superiority over nature, and the belief that history is directed towards salvation. In contrast to the Middle Ages, however, salvation (in Bacon's utopia) is something that humans will obtain themselves through technology. The centrality of technology in Modernity thus supersedes Christian eschatology, as does knowledge of the natural sciences and mathematics. Alternatively, Modernity absorbs a Christian eschatology into the secular narrative of humanity's self-perfection.

[14] Kant was highly optimistic with regard to the Enlightenment ideal of humanity as sovereign over nature, due to the inherent promise of progress contained therein (Kant, 1957: 11–26).

[15] Comte (1798–1857) argued for the replacement of traditional theology with a 'religion of humanity' (with Positivist churches) in his discussion of historical development. A replacement of traditional theology would progress, argued Comte, through three phases: the theological (or fictive), the metaphysical (or abstractly speculative) and the scientific or 'positive' (Comte, 1988: 1–33; Scharff & Dusek, 2003: 6). The scientific or 'positive' phase is the period wherein technology holds prominent sway, wherein science is entrusted to bring about 'salvation' and to lead to the development of humanity. A new utopia, brought about through technology, is envisioned. The dominance of technology and the reverence for developers of technology, serving as 'high priests' of progress, is especially clear in Comte's vision of a technological utopia.

[16] Marx and Friedrich Engels (1820–1895) also present prominent early thinkers on technological issues. A similar high appraisal of technology is also found in the dialectical materialism of Marx, though Marx scorned Comte's idealistic vision of a technological utopia. Marx was optimistic concerning the role that technology could play to benefit humanity, in a communist system, while recognizing the influence mechanization would have on the labour activity (Marx, 1967: 173–177). In *Preface to a Contribution to a Critique of Political Economy* (1904), Marx identifies technology as a foundation of society, but also warns that society is encapsulated in the social power relations of production (Marx, 1976). Marx and Engels argue in *The German Ideology* (1932) that "human beings modify their environment with tools because this is our nature, and insofar as we do, we exhibit our difference from other animals" (Marx & Engels, 1972: 42–43, 46–49). The centrality of technology in this view is apparent. Important to note though is Marx's theory of alienation which casts a different light on technology. In alienation, there is especially the isolation of the worker from her product, or from her production. Alienation intensifies through the entry of machines into production, because automation removes the worker from interesting or challenging aspects of her

Technological developments had a global and globalizing impact on human societies, and a profound impact on nature during this period. The central shift in the modern era from a rural-agricultural economy to an urban-industrial one was at its core technological. Importantly, the prominent emphasis on technology in the modern world went hand in hand with a rapid development of seemingly wondrous new technological developments, such as widespread use of electricity and the development of the automobile (through the development of the production line as means of quickly developing and producing new technological artefacts).

By the mid-20th century there has arisen a prominent critique against technology as a dehumanizing and controlling force. Human beings found themselves in ugly, uniform and artificial environments filled with gadgets. Technology was no longer seen as merely being examples of wondrous progress and development that could enhance human existence; a darker and more insidious side to technology had been revealed. The increasing production and labour desires of modern societies were causing a 'mechanization' of human beings, a structuring of human life according to rational modernistic ideals of optimization.[17] The value of humanity was decreasing, whilst the value of technology was increasing. The result was a scientific-technological mindset wherein true existential questions were being put aside in favour of problem-solving and cost-benefit analyses. Human beings, these critics argued, were being dislodged from their primordial relationship with the Earth in favour of self-propelling technical functioning and the mechanization of humanity itself. Perhaps the clearest problems with the modern technological revolution became visible in the destruction of nature through industrialization (Tarnas, 2010: 390).[18]

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work – leading to boredom and repetitiveness for the worker. One recourse to alienation is a worker's revolt, the smashing of the machines, whereby workers become "alienated from the tools of material production, misrecognizing themselves, undermining the production of great wealth, and repudiating the accumulated science that is the distinguishing mark of the human species' progressive conquest of natural scarcity" (Wendling, 2009: 2–3). Whilst Marx evaluated technology in a broad and socially embedded sense (as founded in wider social and political praxis), his reduction of technology to primarily socio-political aspects differs from accounts of the phenomenon of technology that would later be a primary impetus for early Philosophers of Technology (Ihde, 1993: 31). However, in Marx's thought we see an early evaluation of technology (as correlative to social systems) that serves as a springboard for further inquiries into technology (Reinfelder, 1980: 9, 12-13).

[17] Compare Heidegger's *The Question concerning Technology* (1977). Originally published in German in 1954 as *Die Frage nach der Technik*.

[18] Technology has become so 'elevated' that it almost takes on a life of its own, is considered valuable to a massive degree and is seen as controlling. The clearest example of this effect is the destruction of nature, which is the means of humanity's survival (Tarnas, 2010: 390).

Whilst this study does not focus on history per se, nor on the historical development of technology per se, it is important to set the stage for the study by taking an historical line at this juncture to characterize the way in which humanity is still (and even more closely) intertwined with and even more typified by the technological in the modern era.[19] In the contemporary world, one is continually met by instances of technology through the constructed environments one inhabits and the non-digital artefacts with which one engages. Such forms of technology form the background and context of industrialized living. In fact, it is challenging to describe the role of technology in the modern world precisely because it is so difficult to imagine the modern individual not at least tangentially engaging with some form of device or machine as part of a complex of power systems, structures and transportation (as technological system built upon technological system). Modern technologies shape the cultural world, the environment and the individual herself in ways that are sometimes difficult to describe because the removal of the modern individual from the technological happens so rarely and is so challenging a feat. Even brief retreats from the technological are met with the anticipation of re-engagement with the technological world. A tourist visiting a remote village, for example, soon misses her car. The anxious teenager is habituated to communicate with friends instantly and continually through their smart phones, rendering even a church service more a nuisance than an engaging encounter with one's God. Even individual disengagement, the technological hermit or the isolated Luddite, does not echo a broader disengagement with technology by individuals in contemporary societies. Societies tend to develop from industrialization to hyper-industrialization and hyper-connectedness.[20]

Due to the dominance of technology, the modern individual is always confronted by and immersed in technology, and technology in turn is put to use by the individual (according to a pragmatic view on technology, as something always practically useful).[21] The interactive moulding effects of technology on the individual and on human society are not only interesting, but also have basic philosophical implications. Furthermore, technology

[19] Particularly by digital technology at the dawn of the digital era.

[20] In fact, only a major catastrophe may lead to broader societal removal of individuals from technology in its multitudinous forms.

[21] The continual to-and-fro relationship between the individual and technology artefacts, the intertwined and reciprocal relationship, is important for this study in terms of the phenomenon of digital technology.

is not just philosophically interesting, but (as Philosophy of Technology highlights) presents a moment wherein a bridging of the many philosophical disciplines may take place. Technology engages with the basic areas of philosophy (such as epistemology, metaphysics, moral and political philosophy, and environmental ethics) – it presents a means of engagement with these varying fields through its omnipresence in the historical development of human civilization.

As stated before, technology was a neglected theme in the history of philosophy (at least prior to the Modern era)[22], likely due to the distinction made in Ancient Greece by Plato between "higher" philosophical ideas such as ethics and a view of the good life, and "lower" technical forms of knowledge, associated with technology (Scharff & Dusek, 2003: 4; Plato, 1997). During the late 20th century and early 21st century, however, interest in philosophy of technology increased dramatically – due to events such as the detonation of the atomic and hydrogen bombs at Hiroshima and Nagasaki in 1945. Rachel Carson's publication of *Silent Spring* in 1963 highlighted the effect of agricultural pesticides, and the claims of possible human cloning and genetic engineering in the 1970s led to widespread moral panic, culminating in the omnipresence of digital technologies in contemporary society (Callicott, 1984: 299; Carson, 2000; Dusek, 2006: 1,2; Lyon, 1994; Sylvan, 1973). It is particularly the phenomenon of digital technologies that influences the contemporary world, for in the few short years since its development it has altered how individuals relate to the world and to each other. Digital technology presents a question to philosophy, a question that is just as salient as those presented to philosophy by the detonation of the first atomic bomb.

Digital technology may initially be distinguished from technology of ages past due to its increased focus not on industrialization and mass production, but rather on communication, information access and dissemination (Feenberg, 1999; Toffler, Longul & Forbes, 1981). The rise of digital technology from the 1950s to the late 1970s has intensified the contemporary ways in which human sense-making of the self, the world and the other are latticed around digital technology artefacts.[23] The internet, as example of digital

[22] Compare, for example, the insights of Francis Bacon in *The New Atlantis* (1627).

[23] On the Holocene calendar, these dates would be early 11 950 to late 11 970. The Holocene dates are given here to illustrate how much later, after the dawn of technological innovation by early humans, academic and philosophical thought on the phenomenon of technology became formalized (in contrast to theorizing on the natural world through natural philosophy, for example).

technology, allows the individual constant access to information and social opinion through its interlinking of academic books and research papers, along with popular sites and message boards – all of which contribute to a certain way of making sense of the self, the world and the other. It is not only the extent of the information on the internet, nor the speed of access to this information, nor that information is shared collaboratively and interactively, that allows the phenomenon of digital technology to function as a powerful sensory organ. Rather, it is the unique intertwining and interrelation of the embodied individual and the digital technology artefact that expands the individual's perceptual horizon – an interaction that may only be described from the basis of embodiment, as is argued in this study.

Merleau-Ponty's phenomenology is par excellence a description of the lived experience of the world, through perception, from the basis of the body. He argues that both rationalist and empiricist thought on human consciousness mistakenly suggest objective thought that is "unaware of the subject of perception" (PP 240).[24] Merleau-Ponty suggests embodiment as an alternative, the inherent 'being-in' the body of the perceiving subject, which in this study will be taken to allow a starting point for an embodied re-interpretation of the phenomenon of digital technology. The body, as described through the phenomenology of Merleau-Ponty, serves as crucial framework for perception and interpersonal interaction (beyond rationalistic and empirical accounts of the body as object) and provides a promising avenue of investigation for an encompassing description of digital technology.[25] Embodiment is suggested in contrast to prominent disembodied perspectives on digital technology, for found in Merleau-Ponty's concept of the flesh and perceptual faith is the genesis of a different view on digital technology that enriches the early account of technology found in Merleau-Ponty's work (of a walking stick, typewriter, for example). In approaching the phenomenon of digital technology as intertwined with the body, the study does not take a posthuman approach. The body is that constant, though dynamic,

[24] Compare Priest, 1998: 6.

[25] In this study, the concept of 'virtual' and 'virtuality' is problematized. In discussions of digital technology, the term is used to denote a disembodiment, a separation from the self into the unreal, which is untenable with regard to tracing the relation between the embodied individual and the phenomenon of digital technology. Jones, similarly, is critical of the "rhetoric of virtuality" (Jones, 2006: 2). She discusses how one should trace the "dichotomy between virtuality and corporeality" through new media art, while the phenomenological approach suggested in this study traces the intertwined relationship between the individual and digital technology artefacts.

framework from which the phenomenon of digital technology is experienced by the individual and which affects individual behaviour.

Thesis statement

How does Merleau-Ponty's phenomenology of embodiment account for the phenomenon of digital technology? Can one, in other words, through the re-deployment of Merleau-Ponty's thought in the contemporary context, move away from disembodied accounts of technology to a new foundational, encompassing and multimodal account of the phenomenon of digital technology that traces the intertwined and mutable dialectical relationship between the embodied individual and digital technology artefacts?

As the title of the study suggests, the problem statement can be summarized as follows: How would a Merleau-Pontian account of the phenomenon of digital technology – from disembodiment to the Embodied Screen – look?

Study aim

The aim of this study is not to define digital technology post hoc through rationalism, analysis or theorizing, through thinking that comes after the perception of digital technology itself. Rather, this study seeks to grapple with the phenomenon of digital technology as it is found in the individual's lived experience. The Embodied Screen, following Merleau-Ponty's phenomenology of embodiment, suggests that methodologically, the individual's lived experience should be the basis for describing the phenomenon of digital technology to reach, conceptually, a novel description of the phenomenon of digital technology. The title of the study summarizes this: Towards a Merleau-Pontian account of the phenomenon of digital technology: 'From disembodiment to the Embodied Screen'.

In this study, it is argued that the phenomenon of digital technology may be better understood if it is described through a neologism: The Embodied Screen. Although the concept is circumscribed later in this study, at this point it may be simply described as the

conceptual framework that allows a description and deeper understanding of the emergent characteristics that arise in the phenomenon of digital technology through the relationship between the embodied individual and digital technology artefacts. Such characteristics are not merely tangential, instead forming an inherent part of the entirety of the phenomenon of digital technology which affects individual perception and behaviour. This has specific implications for the digital technological artefact itself. The Embodied Screen is a move away from prominent disembodied accounts of technology. By tracing key concepts from Merleau-Ponty's work, and re-deploying and developing these concepts in the context of the phenomenon of digital technology, a novel description of the intertwined and mutable dialectical relationship between the embodied individual and digital technology artefacts (both vital concepts for understanding the phenomenon of digital technology) may be developed.[26] It is argued in this study that digital technology should be described and re-interpreted through the Embodied Screen to foundationally, encompassingly and multimodally circumscribe the phenomenon of digital technology.[27] Both the embodied individual and the digital technology artefact are hereby re-interpreted.

Methodological background

The current study is phenomenological in terms of its central methodology and it functions through description to develop a new conceptualization of the phenomenon of digital technology. The goal of this methodology, as qualitative phenomenological research, is to describe the 'lived experience' by the individual[28] of a phenomenon, or the 'lived

[26] Concepts such as embodiment, flesh (*char*), perceptual faith, imagination and the use of language take on an altered character in the phenomenon of modern digital technology, and the altered character of these concepts in digital technology shows that the phenomenon of digital technology should crucially be re-conceptualized by means of a neologism: The Embodied Screen

[27] It is foundational in the sense that this account is found in the embodied lived experience of the individual, and encompassing in that this embodied framework allows for a description of the entirety of engagement of the individual with digital technology artefacts from the basis of the individual's lived experience. It is further multimodal in the sense that the embodied account is characterized by several different modes of activity or occurrence through an incorporation of the body and of the senses.

[28] The use of the term 'individual' should be noted here. The methodology of phenomenology offers little with regards to the notion of an 'isolated individual', because the experiencing subject is continually embodied and therefore deeply, and constitutively, characterized by its relationality. While this study will critique specific dominant methodologies in the Philosophy of Technology that focus on social and systemic processes to the detriment of the lived experience of the individual user of digital technology, the use of the term in the phenomenological sections are merely denotive with regards to the embodied experiencing body-subject. However, terminological constancy requires some degree of continuation of these terms while remaining conscious of the limits of their use in a phenomenological study.

phenomenal experience' (in this study, the phenomenon of digital technology). The phenomenological project concerns a first-person descriptive account of the structures of experience, perception and consciousness; an account based in an objective, third-person perspective on the structures of first-personally, lived experience. Its central project is labelled a form of pure description, without theoretical models outside the realm of experience (Thomson, 2009: 195).[29] Phenomenological arguments occur centrally through the application and development of concepts based in real-world experience, rather than rationalistic theorizing. It is that attitude whereby one observes and describes previously "overlooked" things, of which the phenomenon of digital technology is a prime example (as is argued in this study).

The phenomenological methodology of this study is focused on an analysis, synthesis and critical engagement with literature to reach a new conceptual suggestion in the field of Philosophy of Technology. No fieldwork or empirical experiments as such were done, and therefore only existing sources of literature and philosophical theorizing were employed. Relevant literature sources (with special focus on Merleau-Ponty, and canonical texts in Philosophy of Technology) were analysed and synthesized via critical interpretation and development of these sources. The intention was to make a creative contribution to Philosophy of Technology and phenomenology through philosophical-critical phenomenological investigation into the phenomenon of digital technology as found in the individual's lived experience of the phenomenon of digital technology.

Significance of the study

The study aims to make a contribution to contemporary philosophy of technology by presenting a conceptual framework (the Embodied Screen) that allows one to describe and re-interpret the phenomenon of digital technology in a novel way. Such a conceptualization is necessary because it allows for a circumspective description of the complexity of the phenomenon of digital technology, the ways in which individuals are embedded therein,

[29] As method, phenomenology may be described as reflective analysis. It entails a resistance against the forcing of conceptual categories onto human experience (Thomson, 2009: 195) and achieves insight through reflective observation of the things themselves (i.e. phenomena), correcting where possible observations and descriptions phenomenologically and where they are incomplete extending these observations and descriptions phenomenologically.

and the co-operation and unity experienced between individuals, by accurately reflecting the phenomenological aspects of said technology. The Embodied Screen serves to highlight both the perceptual and behavioural aspects of the phenomenon of digital technology.

To reach this aim, this study also needed to make a methodological contribution to the field of Philosophy of Technology by suggesting a conceptual and methodological re-evaluation of the ways in which the phenomenon of digital technology should be described. Instead of utilizing social epistemological, disembodied and rationalist methodologies, one should start from the methodological basis of embodiment and the individual's lived experience. It is argued that the individual's lived experience of the phenomenon of digital technology is crucial for conceptualizing the phenomenon of digital technology.

Study overview

In Chapter One, digital technology as the theme under investigation in this study is described through an analysis of the 'digital frontier' (the omnipresence of digital technology artefacts in the lived experience of the modern individual). Attention is given to the specific artefactual nature of digital technology, and the specific challenges for philosophical reflection on digital technology are presented. The most prominent contemporary approaches towards technology found in Philosophy of Technology after the empirical turn, pragmatism and social constructivism of technology, are critically evaluated with regard to digital technology to show that their primary focus on micro-analyses and social epistemology is insufficient, as such, to address digital technology from the basis of the individual's lived experience. Posthumanism, as alternative, is shown to be similarly limited through its focus on empiricism, its speculative thought, and the implicit disembodiment in its methodological starting points. These approaches are largely insufficient in describing digital technology broadly, as phenomenon, and from the facticity of the embodied individual, due to the bias of an inherent disembodied instrumental rationality.

In *Chapter Two*, phenomenology as this study's central methodological approach, as regarding the *phenomenon* of digital technology, is presented. Classic phenomenological

approaches toward technology are evaluated, specifically Husserl's and Heidegger's approaches towards technology. Postphenomenology, as prominent development of phenomenological thought on technology, is also described. Although each of these approaches provides specific philosophical insight into technology, the lived experience of the embodied individual (as central point of access to the phenomenon of digital technology) is explored through Merleau-Ponty's thought.

In *Chapter Three*, Merleau-Ponty's phenomenology of embodiment is described to excavate its potential for commenting on the phenomenon of digital technology. This methodological approach is argued to overcome the methodological limitations of pragmatism, social constructivism of technology, and posthumanism. His phenomenology of embodiment is taken as starting point for the development of a description of the phenomenon of digital technology from the basis of the body as the foundation for encountering and describing the phenomenon of digital technology. Concepts such as perceptual faith, flesh, imagination and language are also explored to this end in a Merleau-Pontian tenor. Merleau-Ponty's proto-account of technology is also presented in this chapter, but it is argued that the fully lived experience of the phenomenon of digital technology must be described with a neologism: The Embodied Screen.

In *Chapter Four*, the concept of the Embodied Screen (developed as a creative expansion and re-deployment of Merleau-Pontian concepts that had been left largely unexcavated in the context of the phenomenon of digital technology) is delineated. The Embodied Screen encapsulates the phenomenon of digital technology from the basis of lived experience, from the individual's embodied engagement with digital technology artefacts through specific modulations of the flesh that are caused by digital technology artefacts that lead to specific and unique emergent characteristics in the phenomenon of digital technology. The Embodied Screen captures the encompassing immersion of the individual within digital technology artefacts (spatially and temporally) as access point to crystalize the phenomenon of digital technology. Through this neologism, discussions on the phenomenon of digital technology are opened as foundational, encompassing and multimodal insights. It is these insights that are missing from the traditional approaches in Philosophy of Technology to digital technology.

In *Chapter Five*, the digital technology artefact is described anew through the Embodied Screen. Digital technology artefacts challenge one's perceptual faith, which necessitates imaginative signification for sense-making of oneself, the world and the other. Such artefacts function both as points of embodiment modulation through their engagement with the individual, and as lattices for the creative construction and re-construction of world by means of language as ontologically constructive force. Shared, transpersonal and communal imaginative spaces are opened by the functioning of the digital technology artefact in relation to other digital technology artefacts.

Scope of study

This study specifically investigated digital technology, but its phenomenological methodology diverts from a focus on micro-studies that investigate only specific modern digital technology artefacts to investigate instead the phenomenon of digital technology as broadly conceptualized (as both spatially and temporally immersive) and as engaging with the lived experience of the embodied individual. The Embodied Screen suggests an encompassing perspective on how the phenomenon of digital technology influences the modern embodied individual's experience and behaviour, suggesting a creative contribution to Philosophy of Technology.

There is, in this study, a predominant focus on the works of Merleau-Ponty and a description of representative works in the Philosophy of Technology. This literature was obtained by use of the NWU library catalogue and the NWU's one search library digital database, which links to Philosopher's Index, EBSCOhost, the Catalogue of the Ferdinand Postma Library of the North-West University, SABINET: SACAT & UCTD, EBSCO, JSTOR, SA e-Publications, and NEXUS.

Chapter One: Digital technology - Disembodiment and other methodological challenges

1.1. Introduction

Technology evolves, as is exemplified by shifts from the rudimentary architectural constructions of antiquity to the large-scale industrialization in societies today, from the printing press to digital media, from the steam train to drones. These changes show how changeable the phenomenon under investigation by philosophers of technology is. With such shifts in the character of technology, the need for novel approaches to technology have become pressing since the rise of the digital technology frontier.[30] The increasingly enmeshed and interrelated relationship between human beings and digital technology artefacts, a relationship that affects a broad spectrum of the modern human's perception and behaviour, highlights the importance of appropriate contemporary philosophical-critical approaches to this phenomenon. Such reflection should not only be based on the social or societal level, but should, as will be argued, already begin from the basis of the individual as embodied being, which would allow insight into the lived experience of modern individuals.

This chapter is an evaluation of prominent contemporary approaches to technology in the field of Philosophy of Technology.[31] However, it will be argued that the two most prominent contemporary approaches in Philosophy of Technology (pragmatism and social constructivism) are inadequate for describing digital technology, which entails unique challenges that separate it from older forms of technology. Importantly, thus, one must ask whether these contemporary methodological approaches that have gained prominence in

[30] See Section 1.2 for a description of the digital frontier.

[31] Examples of anthologies that deal with the field of Philosophy of Technology, which explore the foundations and methodologies that are prevalent in the field, include *Philosophy of technology: An introduction* (Ihde, 1993), *Thinking through technology: The path between engineering and philosophy* (Mitcham, 1994b), *Philosophy of technology* (Ferré, 1995), *Thinking about technology: Foundations of the philosophy of technology* (Pitt, 2000), *Philosophy of technology: The technological condition: an anthology* (Scharff & Dusek, 2003), *Readings in the philosophy of technology* (Kaplan, 2009), *Philosophy of technology : An introduction* (Dusek, 2006), *A companion to the philosophy of technology* (Olsen, Pederson & Hendricks, 2009), and *Philosophy of technology and engineering sciences* (Meijers, Gabbay, Thagard & Woods, 2009).

the field since this field's empirical turn, present an understanding of technology that could adequately address the questions raised by digital technology today. Insights from posthuman methodologies are also investigated, due to the extensive attention this approach has gained. It will be argued that these approaches are unable to trace the ways in which the human being (as embodied being) and digital technology artefacts form a mutable and intertwined relation.

This chapter serves thus as an initial 'clearing away' of prominent methodological approaches which, applied reductionistically, hinder in-depth philosophical investigation into digital technology. In the next chapter, phenomenology, and more specifically Merleau-Ponty's phenomenology of embodiment, is suggested as curative for the possible shortcomings of these prominent approaches in Philosophy of Technology. The phenomenological approach is brought to bear on digital technology (to gain a foundational, encompassing and multimodal account of the phenomenon of digital technology) in the third chapter.

1.2. The digital frontier

The contemporary age is typified by technology (Kroes & Meijers, 2016: 12; Mitcham, 1985: 73) in much the same way that thinking (in Plato's philosophy), the metaphysical and moral (in Aristotelean philosophy), and the spiritual and religious (in medieval thought) characterized Classical and Medieval worldviews. The pervasiveness of technology is highlighted by philosophers of technology in the Modern worldview, but while older forms of technology persist, it is the information exchange capabilities of digital technology that typifies the current era.

Digital technology is an increasingly important phenomenon to be investigated by philosophers in the contemporary milieu because their use is increasingly ubiquitous and embedded in the ways that the modern individual makes sense of herself, the world and the other. The modern individual does not perceive instant communication (via particularly cell phones), open access to knowledge (through the database that is the internet) and continuous entertainment (through streaming of television and movie

content) a negligible addition to her lived experience, or a mere accessory. Rather, digital technology and the possibilities (and perils) that it provides have become an intrinsic part of the experiential and behavioural expectations of the modern individual when engaging with the world, and in many cases fundamentally shapes the way in which that individual interacts with the world and other individuals.[32]

However, before the rise of digital technologies between the early 1950s and the late 1970s, few thinkers would have predicted the immense change that such technological development would bring about in individuals' sense-making of the world (and perhaps more basically, how it would change one's conceptualization of technology itself).[33] Thus, while philosophical reflection on technology has a long history, it is this contemporary form of technology that again highlights the importance of in-depth philosophical inquiry into contemporary technology – for the digital frontier presents immersive and encompassing characteristics[34] that distinguish the phenomenon of digital technology from older forms of technology.[35] New methodological and conceptual approaches are demanded to describe digital technology. Next, digital technology from an artefactual level will be described, followed by a critical evaluation of an artefactual approach towards digital technology.

1.2.1. What is digital technology?

[32] Compare, for example, Jean Baudrillard's argument that modern objects are rooted in their technology, and that these technological qualities of objects are essential, in *The System of Objects* (1968: 5).

[33] Beyond some examples from science fiction such as Jules Verne's *Paris in the 20th Century* (1863), Mark Twain's *From the 'London Times' of 1904* (1898), E.M. Forster's *The Machine Stops* (1909), Frederik Pohl's *The Age of the Pussyfoot* (1969) and most notably William Gibson's *Neuromancer* (1984), there are few hints of the potential revolution that the rise of digital technologies would precipitate in human society.

[34] 'Immersive and encompassing characteristics' is used in the sense that Murray (1997) defines immersion: "Immersion is a metaphorical term derived from the physical experience of being submerged in water. We seek the same feeling from a psychologically immersive experience that we do from a plunge in the ocean or a swimming pool; the sensation of being surrounded by a completely other reality… that takes over all of our attention, our whole perceptual apparatus…" (98-99). In this study such immersion is described both spatially and temporally, with the recognition that the individual may disconnect from the digital technology artefact. This study does not investigate the phenomenon of digital technology solely in terms of IVEs (immersive virtual environments) that, in a concerted manner, surround the user with sensory stimulation. For a discussion on the phenomenological dimensions of IVEs and VR (virtual reality), refer to Ryan (2001: 69-74).

[35] The scope of this study is limited to the phenomenon of digital technology, for digital technology entails characteristics that separate it from the broader phenomenon of technology. Digital technology thus necessitates a reformulated form of inquiry.

Digital technology refers to a base two process wherein digitized information is recoded and processed in binary combinations of 0 and 1 through digital technology devices, or artefacts. Digital technology artefacts allow massive amounts of data to be compressed into small storage devices, to be easily preserved and to be transferred at great speeds. The development of digital technology has been so overwhelming an influence on contemporary societies (from highly industrialized countries such as Germany to emerging countries such as South Africa) that, globally, humanity has crossed a digital frontier that is typified by digital technology. In the same way technology may be said to define the Modern age, so digital technology typifies the contemporary era since its development. One associates digital technology with the way in which it is encountered in everyday lived experience: the artefact. Digital technology artefacts include the myriad of ways in which the individual links with the internet and other sources of data, including devices such as cell phones, computers, tablets, and GPS devices. The information storage and transfer characteristics of digital technologies have transformed how individuals communicate and exchange ideas. This alters how humans make sense of themselves, the world and the other.

The internet is an important example of digital technology and, more than any single device to connect to it, reflects the shift from older forms of technology to the contemporary digital frontier. The internet is a global system of interconnected computer networks that use the standard internet protocol suite (TCP/IP – based on Vint Cerf's work) to link several billion devices worldwide. The rise of the internet in the public sphere in the 1990s, after its mostly closed-off development in the late 1960s and early 1970s,[36] heralded a new age of communication and information exchange – humanity has never been able to integrate and access information as easily. Words such as *Google*, *Facebook* and *Twitter* have entered the cultural lexis to describe innovative ways of connecting people of different social spheres, cultures and widely separated geographic locations. The internet heralded a new age, an Information Age, wherein the creation and exchange of information have taken a prominent role in the lives of individuals globally. The consequence of digital technology development is that humanity may be described as living in a simulated village, a global

[36] There is some debate on who invented the internet, similar to a debate of Edison and Tesla as the discoverer and first inventor of electric devices. There are a variety of institutions that shaped what is today known as the Internet, and Vint Cerf played a central role in developing the underlying TCP/IP protocols. However, the TCP/IP protocol would not have been developed without Leonard Kleinrock's work on queuing theory or the modern work of Tim Berners-Lee.

village that extends across the surface of the Earth, which allows people to communicate with astonishing ease and swiftness. This interconnected village and the easy availability of information has made individuals more aware of global issues, but it has also changed how individuals make sense of these issues.[37]

The digital era thus presents a shift in the forms of technology at play in the individual's lived experience and a shift in how those technologies interact with the individual. The distinction between older forms of technology and modern digital technology is thus not without justification. Lewis Mumford distinguishes in *Technics and Civilization* (1934) between three phases of human civilization grounded in technological development: The *Eotechnic* (Middle Ages), *Paleotechnic* (period of the Industrial Revolution) and *Neotechnic* (later period of the Modern Era) (Mumford, 1934). Written in 1934, however, *Technics and Civilization* could not take account of the next phase of technological development, digital technology, and the specific challenges that it presents for philosophical reflection.

1.2.2. Challenges in the description of technology (and digital technology)

The description of digital technology in the previous section focuses on the artefactual, on the devices and technologies that underlie digital technology. However, concepts such as sense-making and descriptions of a global village reach well beyond mere artefactual descriptions – these descriptions engage with broader issues related to technology (in this case, from a societal perspective). Such concepts are not found in digital technology artefacts, but rather arise as emergent characteristics through the interaction of the individual with digital technology artefacts.

In digital technology, it is argued that there is a tension between 'what this technology is' as experienced by the embodied person, and the 'object(s)' of digital technology, i.e. the technological artefact or device that is merely encountered as inert object by the individual. The crux of digital technology, as experienced by the individual and described in this study as the phenomenon of digital technology, is the focus of this study. Between the two poles

[37] The internet should be critically evaluated under the auspices of Philosophy of Technology. For example, what is prevalent in contemporary evaluations of the internet and new media are fears concerning security and privacy, human dignity and social inequality are thematically important in Philosophy of Technology (Finley, 2014: par. 2).

of the perceived individual–artefact dualism there is a space for at least two ways of describing technology: on a merely artefactual level, on the one hand, and on the level of the individual's encounter of the artefact, on the other. The former is found in naïve (or direct) experience (prior to phenomenological thinking), and can be studied through empirical means, and presents arguably less of a philosophical challenge to the theorist. The latter is similarly found in naïve experience and is often similarly investigated empirically.[38] The question arises: what challenges does digital technology present for such a description? Looking at technology in general, two challenges become apparent.

Firstly, technology is often hidden from human estimation after a period of continued human use. Clothing, for example, no longer takes on a uniquely 'technological' character even though clothes are technological artefacts that are produced using technological techniques. The use of a car, that technological artefact so challenging to utilize for the learner driver, becomes merely a vessel to carry the individual from one location to another for the experienced driver. Both clothing and a car remain technological in nature, but their 'technological' character is lost to the user after continued use.[39] The telephone is an excellent example of how technology becomes hidden from human estimation. Invented in 1876, and by 1900 there were thirty-thousand telephones in France. By 1907, Proust wrote regarding the telephone that it was once "a supernatural instrument before whose miracle we used to stand amazed, and which we now employ without giving it a thought, to summon our tailor or to order an ice cream" (De Botton, 1997: 175; Proust, 1907). The telephone had gone from technological marvel to household item – "Since we are children who play with divine forces without shuddering before their mystery, we only find the telephone 'convenient', or rather, as we are spoilt children, we find that 'it isn't convenient', we fill *Le Figaro* with our complaints" (Proust, 1907).

[38] A third avenue that is suggested in this study is to investigate the emergent characteristics that arise in the relation between the digital technology artefact, understood through the phenomenon of digital technology, and the individual, understood as embodied. This third avenue will be described as this study proceeds. An assumption at this point, which will be supported through phenomenological inquiry in Chapters Two and Three, is that the embodied individual is a necessary element in describing digital technology. As mentioned above, without the individual, the device remains an inert object. It is through human interaction with the digital technology artefact that, firstly, a description of digital technology is possible and, secondly, digital technology functions. It is through the embodied individual's engagement with the digital technology artefact that the phenomenon of digital technology is describable and functions.

[39] Until the car breaks down or the piece of clothing is torn, returning the 'hidden' artefact to the forefront of the individual's thinking. Compare Heidegger's description of the hammer, which goes from ready-to-hand through its use to present-at-hand once it breaks (Heidegger, 1962: 96-107).

Digital technology presents this same challenge, though an in-depth inquiry is much more important here because digital technology plays such an enveloping and encompassing role in the very fabric of one's sense-making. Compare the use of a cell phone by a person on the first day of access to the device to her use of the device six months later. The challenges present during the artefact's initial use become less obvious and noticeable through her skilled use of the object – she now lacks a clear (unfiltered) estimation of digital technology and soon she does not recognize how fundamentally and encompassingly her perception of the world is modulated by it. One is accustomed, acclimatized, to the constant modulation of one's perception of the world through digital technology.

The internet (as example of digital technology) provides constant access to a huge swath of the knowledge that humanity has generated. Such access is not strange, for the individual becomes habituated to expect such access. The individual's expectations have changed, unobservable except through taking a conceptual step back, to allow the individual always to expect to be in contact with all this information and with other individuals at the touch of a button via smart phones. These expectations are no longer strange or different to one's experience of the world, having been assimilated into one's daily living to such an extent that even memories of one's life before the prevalent rise of digital technology has an (almost irrational) expectation of having had access to digital technology at that earlier time. One may think back to one's school days, how one contacted one's friends, and question why one did not use instant communication to contact them at that time. Only upon deeper reflection does one realize how one's present expectations shape even the memory of expectations at a time when digital technology was not prevalent.[40] Digital technology thus becomes so interwoven with one's engagement with the world that it becomes 'invisible', an invisible expectation, an invisible requirement for one's engagement with the world.

Digital technology has become *transparent technology*, "a technology that is so well fitted to, and integrated with, our own lives, biological capacities, and projects as to become

[40] Compare Bragh & McKenna's *The Internet and Social Life* (2004) for a psychological perspective on how the internet has changed how one expresses oneself and alters one's interactions with others.

almost invisible in use" – in contrast to an *opaque technology* (Clark, 2001: 17-24). It is therefore necessary to scrutinize digital technology closely, a reflection that goes beyond merely a specific device, to uncover one's lived experience of digital technology in an encompassing manner as an embodied individual. Such a critical philosophical reflection allows one to identify, recognize and see the hidden nature of digital technology anew.[41] Without critical reflection, one is not aware of how digital technology changes one's perception of the world.

Secondly, inherent in philosophical reflection on technology is the recognition that the technological artefact is open to continual revision, redevelopment and replacement. Elizabeth Ströker argues that, in one's philosophical reflection on technology, one should be aware of the 'paradox' of the field's 'continual beginning' and the continuing development and changing nature of technological artefacts (Ströker, 1983: 323). If there were no dynamic change in technology, there would be no new technologies developed and, for example, no need for the Apple Corporation to number their iPhone releases.[42]

Such continual artefactual changes presented a challenge to conceptualizing technology from the moment the first Ford rolled off an assembly line to usher in a new era of increasingly rapid production of technological artefacts. Through digital technology, one is confronted by artefacts that develop much more rapidly and become obsolete much more quickly. A modern smart phone functions well for roughly two years before it becomes too slow to run the latest apps (the same apps that were initially installed, but which have become much more taxing to the cell phone's specs through increasing visual bells and whistles, and a variety of further cosmetic alterations). The half-life of an app

[41] Through an initial making-strange of digital technology. Compare "[a]s perception becomes habitual, it also becomes automatic and unconscious; our daily routines are based on 'learning to ignore' – we hardly notice ourselves performing habitual actions; we no longer really see our surroundings; we go about our daily business almost as if we were blindfolded. We settle for partial, token indications of things rather than for the things themselves" (Erdinast-Vulcan, 2007: 403). While this description serves in Erdinast-Vulcan's article to circumscribe Shklovsky's concept of defamiliarization in formalist aesthetics, it also relates to this study's initial approach towards digital technology from a phenomenological perspective.

[42] One should crucially note here the capitalist agendas underlying this development as well. Consumerist behaviour is encouraged through the continual replacement of digital technology devices, beyond any quantifiable development of features and capabilities. Capitalism and technological development are closely intertwined and should be crucially investigated utilizing the frameworks of Critical Theory. Such considerations are beyond the scope of this study, which describes the individual's experience of digital technology. While not negating the importance of such inquiries, this study investigates the encounter of digital technology by the individual after the construction of the artefact (which may carry politics and capitalist agendas).

itself is even shorter, with updates rolling in monthly or even weekly. There is constant change, constant alteration, of the artefact. A perspective that takes the artefact as basis of description must be open to constant dynamic and dramatic shifts. The rate of innovation and development of technology may not yet have reached the point of Singularity,[43] but due to the rapid rate of technological change it is argued that it would be challenging to postulate a merely artefactual account of digital technology that is stable and encompassing.

That digital technology may become hidden and that it has a paradoxical 'continual beginning' present descriptive challenges, especially when digital technology is investigated only from the artefactual level. Furthermore, the artefactual is inherently inert. When the individual walks away from the cell phone, or when the charge runs out on its battery, when the connection to the internet is lost, the artefact is revealed as being inert. It is not broken; it is not useless. It is merely an inert object. The uniqueness of digital technology thus lies in the highly interactive and intertwined nature of the relation between the embodied individual and digital technology artefacts.

Thus, while the distinction between older forms of technology and the modern incarnations of digital technology must necessarily be permeable, it is particularly digital technologies that present a challenge when attempting to describe the embodiment relations (between the human and digital technology artefacts) found therein. While such mediated embodied experiences also exist in traditional instances of technological engagement, such as watching television or reading a book (Reeves & Nass, 1996), the phenomenon of digital technology extends beyond passive viewership into active participation and engagement – a real-time interactivity.[44] Inherent in this participation and engagement is sensory immersion of the individual by means of digital technology[45], an immersion that is fundamentally embodied through the emergent characteristics inherent in the phenomenon of digital technology.

[43] The singularity describes how the ever-accelerating progress of technology may lead to a point where technological progress itself will have become incomprehensively fast and inexplicably complicated.
[44] Compare Heeter's *Reflections on real presence by a virtual person* (2003) and Lombard & Ditton's *At the heart of it all: The concept of presence* (1997).
[45] Compare Grigorovici's *Persuasive effects of presence in immersive virtual environments* (2003). Note, however, that presence and immersion may be distinguished despite conceptual similarities.

Importantly, these emergent characteristics of digital technology broaden the horizon of what would traditionally have been described as technology. Digital technology has an emergent aspect that is intertwined with information processing and communicability, based in the body. Digital technology artefacts par excellence allow the transfer of data. Newer digital technology is also portable in a way that is not found in other technologies. Digital technology artefacts have a small size and may be removed from the restrictions of a continuous power grid. For example, the businesswoman may not take her television with her on a transcontinental flight but would never leave her smartphone or tablet at home.[46] Digital technologies present something new in the phenomenon of technology. Traditional technology functions to add something to expand human capabilities, to perform some form of physical task. Digital technology is not directed to physical tasks in this way.

While older forms of technology may also have such challenging characteristics, with digital technology one is confronted by a hyper-intensification of such challenges. Software, for example, changes many times faster than physical devices, and due to the close intertwining of sense-making of the world it becomes much more easily hidden against the background of human life. Reductionist perspectives cannot address these hyper-intensified challenges adequately, neither from the perspective of the artefact alone nor from the individual as social being. In the next section, a problematic reductionist description of the artefactual is illustrated.[47]

1.2.3. The artefactual as problematic approach towards digital technology

An artefactual perspective on digital technology entails a specific approach regarding the 'object' under investigation. Investigating the 'object' of digital technology means, from this perspective, simply investigating the artefacts. The logic is that an analysis of individual artefacts should provide an adequate description of the phenomenon of digital technology.

[46] Norway has in 2016, across the board, switched from FM radio to digital. Older analogue television broadcasters are being switched to digital as well. The switch in Norway is telling of how the digital technology revolution challenges the relevance of older forms of technology. Imagine, for example, the potential to tele-conference around the world via the internet rather than needing a motorized vehicle to go to work.

[47] This is followed by a problematic description of the social in Sections 1.3. and 1.4.

Micro-studies and micro-investigations into technology are typical of this approach – for example, a focus on cell phone use in a car.[48]

It will be argued that such narrow investigations do not coherently and encompassingly describe the phenomenon of digital technology, because the 'object' of digital technology is not an 'object' that one might encounter in the world alongside other objects as such.[49] A particularist account of technology (focusing on only a particular artefact) is not sufficient to describe the relationship between the individual and the digital technology artefact on a broader scale, which is suggested by an essentialist perspective.[50] It is argued that digital technology artefacts do not provide the whole picture of the phenomenon of technology, due to the phenomenon's intensified 'continual beginning' and potential to become 'hidden'. Thus, micro-studies and a focus on the artefactual are only sufficient for investigating the 'phenomenon' of technology to a limited degree. But how then should one trace such a nebulous 'object' as technology? And if one cannot even identify the 'object' clearly, how one may describe the 'essential structures' of the experience (experiencing phenomena)?[51] To find this crux, this 'what it is', of technology requires an investigation into the prominent methodologies found in contemporary Philosophy of Technology, the field that functions to ask philosophical questions regarding digital technology.

1.3. Philosophy of Technology

It is with the end of the Modern Era that Philosophy of Technology developed as a sub-discipline in philosophy, mainly due to the massive technological developments made during the 18th and 19th centuries. Philosophy of Technology is "one of the most recent sub-specializations in philosophy" (Ihde, 1993: 3) that arose as a distinct field in philosophy only during the middle of the 20th century. Up to the 20th century there had been a historical

[48] This assumption will be challenged again in Section 1.3.2.

[49] The lack of 'objectness' in terms of tracing digital technology is the central motivation for this study's focus on the phenomenon itself, rather than on the artefactual or the social epistemological. This point will be argued in Chapter Three.

[50] Such an essentialist description is typical of earlier Philosophy of Technology. Compare Section 1.3.

[51] What is suggested is a form of 'uncovering and seeing with more depth', as described through Merleau-Ponty's idea of 'stepping back'.

philosophical disregard of technology (beyond thinkers such as Francis Bacon, and prominent philosophers of modernity), as discussed in the background to this study.[52] This disregard of technology was due to a lack of concern for praxis and a dominant focus on theoretical reasoning in philosophy (which was taken to extend beyond the practical), and the fact that technology remained a 'background phenomenon' in societies (Ihde, 1993: 26; Ströker, 1983: 323). According to Ihde, before the 20th century technology had simply not played such a visible role in human societies, but since then (and especially in the 21st century) philosophical reflection on the phenomenon of technology (beyond philosophical reflection on science) became necessary.

Until the 20th century, technology was relegated to realm of scientists and engineers. The genesis of Philosophy of Technology lies therefore, not surprisingly, in the works of engineers such as Ernst Kapp, Friedrich Dessauer, Simon Moser, Hans Lenk, Günter Ropohl, Mario Bunge, Samuel Florman, and Henry Petroski. They initially presented a more general theoretical meaning to technology through reflection on their non-philosophical science and engineering (Mitcham, 1995: 1). Initially, this philosophizing of technology was suggested through a critical attitude towards technology, as distinguished from science. However, the 20th century saw an increased prevalence of technology that had an influence on human societies in ways that extended beyond the realms of science and engineering. This impact on society was especially visible in the two World Wars (with the use of radar, poison gas, submarines and high-powered explosives), in increased automation of production (the assembly line) and in communist revolutions (mechanization of labour).[53] These historical events brought the topic of technology to the forefront of global thinking, giving rise to new philosophizing on technology (later to become the academic field known as Philosophy of Technology) during the 1930s. Philosophy of Technology, as a newly established academic field, initially saw a wide variety of philosophical-critical methodologies and epistemological approaches brought to bear on the question(s) of technology.

[52] Compare Study Introduction.

[53] Especially with the triumph of Engelian Marxist thought after Marx's death, which led to a very technocratic view of the communist utopia. However, Reinfelder describes already the predominance of technicism in Marxist writings on the transition to socialism (1980: 9).

Philosophy of Technology is the academic field wherein philosophers approach technology, as object or theme, through systematic reflection (Mitcham, 1985: 73).[54] The philosopher of technology is interested in technology and related practices, instead of merely the philosophical implications, consequences and risks of making and using things – including the simple influence of technology on society as isolated theme. The philosopher of technology thus analyses the nature and significance of technology, but also the ways that technology mediates and changes human experience (Kaplan, 2009a: xiv).

Early Philosophy of Technology was intended as a means to investigate technology in just such a broad sense, with all reflective inquiries directed towards illuminating "features of the *phenomenon of technology itself*" (Ihde, 1993: 38).[55] Olsen presents a succinct account of the aims of early Philosophy of Technology: "The philosophy of technology taken as a whole is an understanding of the consequences of technological impacts relating to the environment, the society and human existence" (Olsen, Pedersen, and Hendricks, 2009: 1).[56] Centrally, in this early period, Philosophy of Technology functioned to enable philosophical analysis, interpretation and communication between disparate, and often apparently unrelated, branches of knowledge within a multitude of disciplines. Important insights into technology itself were provided during this initial phase by philosophers such as Nicolas Berdyayev (1874–1948), José Ortega y Gasset (1883–1955), and Martin Heidegger

[54] Questions such as "what is technology?" and "what is the relationship between human beings and technology?" for example, are asked in Philosophy of Technology to elucidate technology as object or theme.

[55] Compare philosophy as the attempt to understand things in the broadest sense possible (Sellars, 1962). Technology and its practices have broad philosophical implications, and correspondingly in Philosophy of Technology the traditional areas of philosophical reflection are encapsulated as well (e.g. ontology, epistemology, ethics).

[56] In an important way, especially visible in early philosophers of technology, a philosophizing on technology entailed a reconceptualization of technology. Heidegger, for example, described technology as a systematic 'way of seeing'. Humans frame the totality of the world as a type of resource well (*Bestand*, or standing reserve) wherein the world becomes a source for instrumental human use. This model is characteristic of the Modern Era and provides a coherent reconceptualization of technology (as Technology for Heidegger, which emphasizes the encompassing way that technologies function). Thus, Heidegger functions as a philosopher of technology because he places technology as central for understanding the human world (Ihde, 1993: 41). John Dewey's philosophizing on technology has a similar role during this period. Dewey describes a technological mode of inquiry whereupon he models his philosophical system. He is most closely associated with pragmatism (which he called instrumentalism) as a means to describe the distinctive quality of science as knowledge. Knowledge, for Dewey, is a process of problem-solving through inquiry (along the lines of practical or *praxical* action) – a process whereby technology, science and philosophy function. He dissolves much of the hierarchical distinction between philosophy and science, and the instrumental (or technological) mode of practice. In this way, technology becomes a central phenomenon for his philosophical investigation (Ihde, 1993: 42–44). These two pioneers shaped early Philosophy of Technology and gave a distinct flavour and character to the field. Between them, we find an interesting and fruitful middle ground for philosophizing on technology to take place.

(1889–1976).[57] These three thinkers were from Europe, whilst the philosopher John Dewey (1859–1952) investigated the phenomenon of technology from North America. Later joining this corpus of philosophers of technology was Jacques Ellul (1912–1994), Herbert Marcuse (1898–1979) and later Jürgen Habermas (1929–). These figures shaped early Philosophy of Technology and would direct the development of the field, focusing specifically in this early period on the historical and transcendental conditions of technology (Achterhuis, 2001: 3).[58]

Philosophy of Technology was thus initially typified by a multi-disciplinary and integrative approach towards technology, most prominently from the late 1930s to the 1970s. During this initial period, a surprisingly varied influx of wide-ranging intellectual perspectives, often from historically non-communicative academic fields[59], was brought to bear on technology. Thus, Philosophy of Technology was initially not a strictly consolidated field of inquiry. It involved a broad range of different fields of knowledge, such as the history and philosophy of science, psychology, ethics, feminism, politics, aesthetics and anthropology. Notable participants in this initial interdisciplinary phase of philosophical reflection on technology included thinkers from a variety of intellectual backgrounds, such as Lewis Mumford (social science research and literary criticism), Jacques Ellul[60] (law / theology), Langdon Winner[61] (political science), Albert Borgmann[62] (literary studies), Martin Heidegger[63] (existential phenomenology), Erich Fromm[64] and Herbert Marcuse[65] (critical theory, psychoanalysis), as well as Hans Jonas[66] (religion, phenomenology and

[57] Kroes and Meijers, functioning from an empirical perspective (Compare Section 1.3.1.), argue that this earlier phase of Philosophy of Technology was "dominated mainly by metaphysical analyses of technology (under the influence of Heidegger), and by critical reflections on the consequences of science and technology for the individual and social form of life" (Kroes & Meijers, 2001: xvii). Kroes and Meijers argue that philosophers working during this period did not truly take technology, as the output of engineering and inventive activities, seriously (Franssen & Koller, 2016: 32, 33). In this study, it is argued that such empirical approaches miss the *phenomenon* of technology, especially the phenomenon of digital technology with its specific challenges (Compare Section 1.2.2.), and that a turn to phenomenology may present further insights.

[58] Ellul, for example, referred to technology as a "system" and Mumford as the "megamachine".

[59] In other words, fields that were in the past focused on their own academic development and progression with little flow of ideas or development between them.

[60] *The Technological Society* (1964).

[61] *Autonomous Technology* (1977) and *The Myth of the Machine* (two volumes: 1967 and 1970).

[62] *Technology and the Character of Contemporary Life: A Philosophical Enquiry* (1984).

[63] *Sein und Zeit* (trans. *Being and Time*) (1927) and *Die Frage nach der Technik* (trans. *The Question concerning Technology*) (1949).

[64] *Marx's Concept of Man* (1961).

[65] *Eros and Civilization: A Philosophical Inquiry into Freud* (1955) and *One-Dimensional Man* (1964).

[66] *Immortality and the modern temper: The Ingersoll lecture, 1961* (Cambridge: Harvard Divinity School, 1962).

environmental ethics), to name but a few (Franssen, Lokhorst & Van de Poel, 2015). One need not view this lack of disciplinary cohesion in Philosophy of Technology at this time as a deficiency. In fact, this multi-disciplinary approach was crucial for allowing an integrative philosophical view on technology to develop. Whilst various perspectives were brought to bear on technological issues, these perspectives contributed together to a broad participatory analysis of technology as phenomenon. On the one hand, this dynamic character of the field may be attributed to the start of any young philosophical field, but on the other hand this dynamism may reflect something of the challenging character of the theme under investigation.

However, from the early 1980s onward there was a marked shift away from this initial inter-disciplinary and integrative approach to technology towards pragmatic and sociological philosophies that became dominant interpretative frameworks for understanding technology.[67] In short, Philosophy of Technology is an in-depth questioning of technology, but the pertinent question at this point is whether the contemporary methodologies can investigate digital technology in a sufficient manner.[68]

1.3.1. The Empirical Turn

The methodological shift in Philosophy of Technology is attributed to the 'empirical turn' in the field, occurring from the 1980s onward, which would come to characterize the field as constructivist (Achterhuis, 2001: 6; Kaplan, 2009b: 1). The empirical turn in Philosophy of Technology marked a shift from broader understanding of technology to a focus on empiricism, rationalism and micro-investigations. Prominent concerns in the initial phase of Philosophy of Technology, such as the broader phenomenon of technology, were no longer deemed appropriate for philosophical questions of technology after the empirical turn. Technology was now perceived as linked to the unpredictable transformation of society, and the process of technological development came down to socio-cultural factors and cultural determinants that could be perceived empirically (Achterhuis, 2001: 6). Thus,

[67] Another dominant methodology after the Empirical Turn is actor-network theory, which will not be discussed in this study. It should merely be noted at this point that the central focus of this methodology is based in social epistemology.

[68] Refer to Section 1.5.1 for a description of the type of methodology that may be required to adequately describe digital technology.

there was a shift in focus to methodologies that could produce quantifiable and manageable insight into technology, and a de-emphasis on the role of the phenomenon of technology and normativity in technology philosophizing (Kroes & Meijers, 2016: 14). This methodological, epistemological, ontological, and ethical shift was viewed as a 'bringing into focus' of philosophizing on technology, and as positively increasing systematization of the field by thinkers such as Franssen and Koller (2016: 31–33) and Kroes and Meijers (2001: xv). This shift "calls for an empirically informed philosophy of technology" (Kroes & Meijers, 2016: 13).

The empirical turn reflects not just a methodological shift, but also a theoretical petition to focus on philosophizing of technology through the *practice* of technology (through an emphasis on the *practice* of engineering, found in the creation and development of technology artefacts) (Franssen, Vermaas, Kroes & Meijers, 2016: 1).[69] The empirical turn in philosophy of technology thus steered the debate in the field away from "broad abstract reflections on technology as a general phenomenon" toward the work done by engineers and inventors in terms of how technology is made, designed and works (Franssen et al., 2016: 2). Pursuing major questions in the field *empirically* was argued to potentially lead to concrete solutions to many of the main problems regarding technology, instead of the perceived antagonistic relationship and apocalyptic views that earlier Philosophy of Technology, found in Heidegger's and Ellul's thought, was perceived to hold (Pitt, 2000: chapters 5 & 6).[70] Such concrete solutions could be provided particularly by pragmatism, and from the perceived 'objective' perspective of social science and social theory.

A major motivation for the empirical turn is described by Kroes and Meijers as a reaction to the approach towards technology as a "black box" and the dominance of critical normative starting points underlying many older Philosophy of Technology analyses (Kroes & Meijers, 2000; Kroes & Meijers, 2016: 11).[71] Opening the black box, as described by Langdon Winner in *Upon opening the black box and finding it empty: Social constructivism*

[69] Compare also *The Social Construction of Facts and Artifacts: Or How the Sociology of Science and the Sociology of Technology Might Benefit Each Other* (Pinch & Bijker, 1987) and *The empirical turn in the philosophy of technology* (Kroes & Meijers, 2001).
[70] Compare *Philosophy of technology after the empirical turn* (Brey, 2010).
[71] Compare also *Philosophy of Technology and Engineering Sciences* edited by Meijers (2009) and *The Dual Nature of Technical Artifacts* by Kroes (2012).

and the philosophy of technology (1993), refers to looking beyond the givenness of technology artefacts at the development and formation thereof. Technology is not perceived as autonomous; rather, there are a variety of social forces, and actors are involved. The stated aim, after the empirical turn, is to render technology open to 'better' normative analyses and evaluations, against the "old-style normative evaluations of technology as a whole" that typify an 'ivory tower' approach towards the topic of technology in the view of Kroes and Meijers (2016: 12-13).[72] Kroes and Meijers see the empirical turn in Philosophy of Technology as vital for ensuring mainstream contributions from theorizing on technology and for addressing concrete technological practices and developments, which affect the normative frameworks of culture (Achterhuis, 2001: 5).[73] The empirical turn reflects two major shifts in Philosophy of Technology: the society-orientated turn of science, technology and society studies, or science and technology studies (STS) and the engineering turn of Kroes and Meijers (Franssen et al., 2016: 2, 3; Kroes & Meijers, 2016).

A prominent emphasis on two distinct theoretical approaches gained prominence after the empirical turn, both based in conceptualizations of technology as neutral and as socially constructed – based in a form of technological rationality, or instrumental reason.[74] The first approach that perceived technology as neutral was codified in pragmatist philosophy, and from the 1980s onwards, the second approach that conceptualized technology as socially constructed was codified in theoretical and methodological frameworks of sociological origin. The prominent emphasis on these two approaches led to a limitation of

[72] Earlier reflections on technology, by thinkers such as Heidegger and Ellul, were dismissed as grand narratives and overarching theses by analytic philosophers and postmodernists alike (Dusek, 2006: 53). This study argues that, in lieu of empirical approaches (Compare Section 1.3.2, 1.4.1 and 1.5), such methodological starting points are necessitated by digital technology to allow deeper insight into phenomena that are challenging to place in the world of 'objects'.

[73] One would be remiss not to note here that practical applicability is not a primary judgement of truth-claim. Regarding questions of the inadequacy of empiricism, Kroes and Meijers claim that no adequate distinction can be made between empirical claims and philosophical claims. In fact, empiricism is taken to be correlative to truth, which is an epistemological assumption based on the claim that conceptual coherence is crucial to philosophy (Kroes & Meijers, 2016: 14, 15). Compare Section 3.2.2., wherein a Merleau-Pontian critique of empiricism is presented in answer to empiricism, which is in this study taken to be foundational in inadequate disembodied perspectives on the phenomenon of digital technology. Compare also Quine's criticism of the analytic-synthetic distinction in terms of the adequacy of empirical analyses (Quine, 1951: 42).

[74] It should be noted that in *Toward an Axiological Turn in the Philosophy of Technology* (2016), Kroes and Meijers argue for the incorporation of normative considerations into Philosophy of Technology after the empirical turn in the field (constrained, however, by the values and norms of empiricism in the engineering sciences). Yet one should be careful not to overemphasize the dominance of such approaches. Thinkers such as Zizek and Malabou offer considered responses to technology from continental philosophical approaches that are not constrained by the type of analytical perspectives prominent after the empirical turn in Philosophy of Technology.

what could be investigated under the banner of Philosophy of Technology – technology could be described through rationalist, empiricist, and contextual and practical means alone. These approaches now took prominence in a field that had been originally marked by the notable lack of agreement amongst its practitioners with regard to which approach (or approaches) should be followed.[75] Not only is this systematization seen as beneficial to the field, philosophers such as Maarten Frassen and Stefan Koller argue that contemporaneously "work in the philosophy of technology is still too fragmented and isolated, both internally, in how its various themes are mutually related, and externally, in how well its themes are linked up to what happens in the established major fields that make up philosophy as a whole" (Frassen & Koller, 2016: 31).

Philosophy of Technology moved away from multi-disciplinary and even transcendental perspectives, to the contextual and practical analysis of tools and artefacts within a specific historical and societal context that could be analysed through instrumental rationality and empiricism (Kaplan, 2009a: 1). Kaplan describes the empirical turn in Philosophy of Technology as treating "technology as a social construction that interacts with other social forces rather than as an autonomous entity with its own rationality" (Kaplan, 2009a: 1). The assumption was that technology is dependent on society and a continuous reference to both is taken to be needed for intelligibility.[76]

One may therefore ask whether Philosophy of Technology, after the 1980s, is still capable of investigating technology qua technology in anything other than its most scientific forms, and whether this investigative potential could describe the hidden and dynamic nature of digital technology – as well as the emergent characteristics found therein.[77] It is argued

[75] Whilst sociological and pragmatist approaches have contributed to philosophical technology studies, and have provided a meta-theoretical structure for the Philosophy of Technology after the Empirical Turn, the question is whether the prominent emphasis on such strictly demarcated approaches truly allowed a nuanced and comprehensive account of the phenomenon of technology to arise in Philosophy of Technology. In fact, the opposite may have taken place: an impoverishment of the investigative aspects inherent in initial Philosophy of Technology may have occurred through the limited investigative potential of pragmatism and social constructivism with regard to the broader phenomenon of technology.

[76] At this point it will only be noted that the ways these approaches are limiting for the broader field of Philosophy of Technology present only one problem, and that the focus on objectivist 'views from nowhere' presents a more foundational problem (lived experience is not taken into account). These 'views from nowhere' are addressed through Merleau-Ponty's critique of rationality.

[77] Elisabeth Ströker gives an illuminating example of how a focus on technology solely from approaches that absolutize the rationalistic (such as pragmatism and social constructivism) may delimit the investigative potential of Philosophy of Technology when she reflects on the problematique inherent in tracing the identity or subject matter

that, in delimiting its investigative focus, Philosophy of Technology became increasingly and exclusively a 'philosophy of the technical sciences' and that such delimitation can limit the possibility for insight into digital technology. The continuing prominent influence of sociology and pragmatic approaches in Philosophy of Technology rather enhance reductionist tendencies; furthermore, these two approaches create an increasing fragmentation of research on technology (there is an increasing focus on micro-studies). These two approaches will now be described in turn, and then they will be critically evaluated.

1.3.1.1. Social constructivism of technology (SCOT)

In the mid-1980s the social constructivist approach became viewed as the proper or accepted method to study the phenomenon of technology (Brey, 2009: 100). The social constructivists understood technological problems not as part of the broad field of Philosophy of Technology, but as part of the sociology of knowledge. The sociology of technology asserts that all scientific knowledge has sociological explanations (an evaluation that extends to technology as well) and that any broader conception of 'the world' is both unnecessary and undesirable (Brey, 2009: 100–101). In other words, to understand technology 'scientifically', one merely had to investigate technology's sociological meaning.

The sociological approach to Philosophy of Technology is derived from the Strong Programme in the Sociology of Knowledge (SSK) in the Philosophy of Science (Frassen et al., 2016: 2).[78] The Strong Programme describes a mostly Edinburgh-based school of thought that is centrally associated with Barry Barnes, David Bloor, Harry Collins, John Henry and Donald A. MacKenzie.[79] SSK developed in the late 1960s and early 1970s, with

with which Philosophy of Technology deals (Ströker, 1983: 326). The identity or subject matter of Philosophy of Technology may be clarified by comparing it to similarly delimited investigative frameworks in other fields. For example, the concept 'nature' in Philosophy of Nature has been transformed from its original conception of nature in a very broad sense to such an extent that, as the field developed, only 'scientifically investigated nature' could later be characterized and explored in this field. The field of Philosophy of Nature has thus been changed into a 'philosophy of science' that could no longer conduct its philosophical investigations in the same way that the Philosophy of Nature had originally done (Ströker, 1983: 326).

[78] Compare *Knowledge and Social Imagery* (Bloor, 1976).

[79] Thomas Kuhn's *The Structure of Scientific Revolutions* (1962) already lay the foundations for the confronting theories of scientific belief, and questioning the scientific acceptance of theories, from a sociological perspective on

the inherent later goal of "socially explaining all of science … in sociological terms" (Frassen et al., 2016: 2). The strong programme argues that both 'true' and 'false' theories in science are caused similarly by socio-cultural contexts and social factors such as self-interest.[80] According to sociological approach, all knowledge (including knowledge of technology) maintains a fundamental social component in its formation, and it is this formation (or construction) and the effects thereof that should be investigated. This approach is most clearly reflected in STS, which focus on how scientific concepts and technological innovation and development are affected by, and in turn affect, society, politics and culture.[81] The concept of technoscience is central in this approach, further suggesting the inseparability of science from technology.

Many prominent researchers utilizing the sociological approach started out in science studies and only later focused on the investigation of technology (Bloor, 1976; Woolgar, 1991). The consequence of the sociological approach is that technology must be understood as a socio-cultural artefact that is created via an instrumental, rational mode of artefact production. The social constructivist approach amounts to a form of social epistemology with a central focus on knowledge creation in social environments. The technological knowledge production process, in this view, is typically (though tacitly) focused on what is advantageous or useful in societies (i.e. an instrumentalist evaluation). Due to this inherent focus in the sociology of knowledge, a researcher will specifically avoid making claims about the nature of the phenomenon of technology beyond its societal links. Topics of a normative nature are taboo in this view. Such normative topics include the "(in)operativity of artifacts, technological (in)efficiency, success or failure in technical change, the (ir)rationality of technological choices and procedures, technological progress, the real function or purpose of an artifact, and intrinsic effects of technology" (Brey, 2009: 101).

Within the social constructivist approach towards technology, with its social constructivist epistemology, a specific approach developed, namely the Social Construction of

science itself (science as practiced by scientists) in the view of the SSK programme. Compare also *How the Laws of Physics Lie* (Cartwright, 1983), *Representing and Intervening: Introductory Topics in the Philosophy of Natural Science* (Hacking, 1983), *How experiments end* (Galison, 1987), and *The new experimentalism, topical hypotheses, and learning from error* (Mayo, 1994).

[80] Questions of technology may thus be reduced to the social.

[81] Compare Feenberg's argument that the technical and the social cannot be seen as separate domains (Feenberg, 2012: vii).

Technology (SCOT) approach.[82] SCOT focuses on (1) interpretative flexibility, whereby the meaning of any technological artefact is deemed fluid and malleable to a degree that is fully dependent on shifting social relations (primarily between producer and consumer) and (2) design flexibility, whereby the design of a technological artefact is held to be open-ended and realisable in a multitude of different ways (Klein & Kleinman, 2002: 29). All knowledge forms/systemized methodologies are to be regarded as social products in the social constructivist view, just as technology. These forms of knowledge should be treated in such a way that their aims are likewise viewed as social products, a perception that includes all sciences except sociology.

Wiebe Bijker and Trevor Pinch, two key proponents of the SCOT approach, in arguing for the superiority of their approach above classic 'models' of technology, have claimed that the Philosophy of Technology required "more realistic models of both science and technology" (Pinch & Bijker, 1987: 19). The suggested "realistic models" are associated with empirical studies which direct Philosophy of Technology to arrive "at analyses that are more concrete and detailed, and that are empirically more realistic" (Brey, 2009: 99). These models of technology are based on an evaluation of the empirical claims made or presupposed by theories of Philosophy of Technology; it is only the empirical that could speak to the truth or falseness of an account of technology. Such empirical claims may lend support for a specific model, or approach, or may lead to the rejection of a specific model, or approach. Any models of, or approaches in, technology studies may thus be influenced by "claims about technological change and technological innovation, the way technology impacts society, and the characteristics of different types of technology, and by suggesting alternative empirical claims" (Brey, 2009: 99). The central approach of SCOT is therefore that empirical results are needed to corroborate, amend and reject theories that have an empirical component, such as theories of technology.[83] However, it is argued that the empirical focus also advocates a reduction of the phenomenon of technology to the empirical.

[82] The SCOT movement was initially based in the Science Studies Unit at the University of Edinburgh, or the Edinburgh School, during the 1980s and early 1990s.

[83] According to Brey, such approaches are especially crucial in "social and political philosophy of technology and technology ethics, because such studies typically presuppose some empirical model of technology dynamics" (Brey, 2009: 99).

What is problematic with such approaches is that such studies present only micro-elaborations on prominent theories of technology, especially on those developed during the 1950s (what has been termed the 'initial period' of Philosophy of Technology). The main problem inherent in a focus on micro-studies is that these micro-studies fail to consider the broader tapestry of technology theorizing (the phenomenon, of technology). Such social constructivist approaches merely present fragments of philosophizing on technology that do not describe the phenomenon of technology in lived experience. A critical evaluation of these positions will be given in Section 1.3.2 after a discussion of another limiting approach towards technology (pragmatism).

1.3.1.2. Pragmatism and technology

In 1898, William James first described his philosophy of pragmatism, crediting it to Charles Sanders Peirce, before John Dewey brought the field to prominence (Ihde, 2009: 9).[84] Dewey's 'scientific philosophy' presents a naturalization of the prevalent Hegelian idealism of his time, in the form of a prominent pragmatic instrumentalism that had a concern for human affairs (Schrader Jr, 1967: 4).[85] In pragmatism, technology is limited to a product of the knowledge production processes (similar to social constructivism) with the goal of fulfilling a specific 'useful' function. Philosophy of Technology should thus be directed towards analysing particular technologies as something that contains a virtue or use, in the view of pragmatism.

The key tenets of pragmatism, as regarding technology, are an instrumentalism that is directed towards 'solving problems' in a specific society, which functions to develop democratic societies (thus, a focus on 'utility') and a value reductionism wherein the 'utility' of a technological artefact is the only normative criterion for technology evaluation. This

[84] William James was an early influence on Husserl. It should be noted at this point that while some similarities exist between pragmatism and Husserl's phenomenology (which takes Kant's philosophy as a starting point), there are also notable differences (such as the pragmatic emphasis on practice, rather than representation) (Ihde, 2009: 9).

[85] Dewey's perennial 'quest for certainty', and his scientific methodology, led to an expansion of the field of logical positivism (or, more broadly, analytical philosophy) that held further promise for more exact verification of facts than pragmatism itself could offer (Schrader Jr, 1967: 4). Logical positivism claims a monopoly on the organization of empirical data, and resists recourse to ordinary experience – science is the paradigm of empirical knowledge and stands as verifier of truth claims. Analytic philosophy generally presents a form of empiricism through which sense impressions may be analysed atomistically, a major point of contention for Merleau-Ponty's account of perception. Compare Section 3.2.2.

implies not just an instrumentalism, but a pragmatic instrumentalism.[86] An example of this instrumentalism is North America's capitalist society, wherein virtue or value is correlated directly to utility (which is, in and of itself, an intrinsically value-laden judgement).

The pragmatist approach to technology introduced three central tenets: (1) an opposition to foundational theorizing on technology and the cognitive powers claimed thereby (with the clear focus on practices instead of theory and philosophy); (2) that theories of technology, and the rationalistic methods that underlie such theories, must be sufficiently grounded in a pragmatic reality that continued human survival is ensured (reality is thus understood in terms of human survival); and (3) that the cognitive success of philosophical inquiry regarding technology should be continuous with and based upon the conditions of social praxis (priority given to praxis above theory and philosophy) (Margolis, 1983: 299-300). The practical concern is omnipresent in these three tenets.[87]

Dewey describes how 'technology' signifies all the intelligent techniques through which the energy of humanity and nature are directed for instrumental use in satisfying human needs (Hickman, 2009: 44). In the Deweyan approach, *all* problem solving is technological and technology thus "cannot be limited to a few outer and comparatively mechanical forms" (Dewey, 1969–91: 5.270). Hickman develops this Deweyan stance into a pragmatic definition of technology that is based on "invention, development, and cognitive deployment of tools and other artefacts, brought to bear on raw materials and intermediate stock parts, with a view to the resolution of perceived problems" (Hickman, 2001: 12; Mullis, 2009: 115). Hickman argues against technology as artefact (what he calls "tools") having an essential essence, choosing rather to focus on the pragmatic elements thereof by suggesting that "we instead speak of the ways in which [tools] can and do serve to enhance delight and

[86] Ihde notes that in contemporary Philosophy of Technology, the pragmatic tendency that focuses on the 'usefulness' of technology replaced earlier classic views of technology by instead focusing centrally on the "salient, determinate, convergent tendencies" of technology (Ihde, 2004: 123; Margolis, 1983: 299).

[87] This pragmatic approach, introduced to Philosophy of Technology, is exemplified by the works of Larry A. Hickman and Joe Pitt. Hickman gives a reinterpretation of John Dewey's pragmatism in relation to technology in *John Dewey's pragmatic technology* (1990) and *Philosophical Tools for Technological Culture: Putting Pragmatism to Work* (2001). He suggests a reformulation of the theoretical approaches found in the initial period of Philosophy of Technology, namely a Deweyian philosophy of technology that is embedded in pragmatic philosophy. Hickman is critical of the phenomenological search for unchanging, essential structures. He pronounces the field incapable of generating "a viable program for productive engagement at the level of cultural reform and renewal" due to the unchanging character of these so-called essences (Hickman, 2001: 172, 178).

to resolve problems, that is, to enlarge the meanings of our experiences" (Hickman, 2001: 122).[88]

What is prominent here is a 'salvation view' of technology. Technology is a means to solve human problems and to expand our experiences beneficially. Hickman stresses that artefacts have no fixed essence, an important theoretical assumption in productive pragmatism, when he says that in technological description one should "put an end to speaking of tools … as having complete essences that predetermine and provide the measure of our ways of involvement with them" (Hickman, 2001: 122). There is thus no central phenomenon of technology to describe; there is only the use (and usefulness) of technology.

John Dewey's instrumentalism does not portray technology in a negative light, but rather always as useful. The pragmatic ideal is in putative contrast to most 'classic' philosophers of technology's rather dystopian attitude towards technology (Ihde 2004: 123). In fact, both Dewey and Hickman claim definitely that pragmatic inquiry into questions of technology provides a means to solve societal problems, leading in turn to the development of democratic societies. In their view the pragmatic approach to technology should take priority because philosophical investigations into technology in this mode are more 'empirical' and allow particular technologies to be analysed (Mullis, 2009: 115). In this context, the 'usefulness' or efficiency of the tools studied indicates ways in which one might eventually develop 'better' (i.e. 'more effective') societies.

Joe Pitt, who follows the same pragmatic line in his philosophy of technology as Hickman and Dewey, also argues against a phenomenological analysis of technology. His reasons are based on ethical and political considerations. Pitt argues that technology plays the practical role of developing societies that are democratic in a 'non-political' fashion. Technology helps to develop democratic societies because these types of societies are linked with pragmatism, and thus physical work (Pitt, 2000). In the pragmatic approach, there is inherently a romanticism towards technology, but also a failure to encapsulate descriptively the entire phenomenon of technology. This shortcoming will be discussed in

[88] Compare also Mullis, 2009: 115.

the next section, wherein socio-pragmatic approaches such as pragmatism in Philosophy of Technology will be critically evaluated.

1.3.2. Pragmatism and social constructivism as problematic approaches towards digital technology

In the following sections, the problem of micro-analyses and delimitation of investigative approaches in lieu of a form of social epistemology as basic problems in pragmatism and SCOT will be discussed with reference to digital technology.

1.3.2.1. Micro-analyses

Firstly, one may question these socio-pragmatic approaches' preferred mode of analysis; namely the micro-study. One must query the applicability of micro-studies for broader evaluative studies of technology, such as "empirical studies of impacts of technology and of initial settings of the agenda and the exclusion of social groups in technological innovation, or for 'deeper' social and cultural factors that play a role in technological development", due to the narrow focus and lack of broader scope of micro-studies (Brey, 2009: 103). Critically, it may be questioned whether there is a possibility that the progressive accumulation of 'empirical' micro-studies, divorced from a wider interpretative theoretical framework, could yield information of any great philosophical significance regarding the phenomenon of technology (and specifically, the phenomenon of digital technology).[89] An approach with regard to technology should investigate the 'bigger picture' presented by the phenomenon of technology.

Both approaches favour micro-studies over macro-level analyses of technology. Whilst useful for developing empirical accounts of specific technological instances, there can be only limited foundational theorizing on the phenomenon of technology itself. Philosophical vision and investigative capability are thereby reduced (or rejected), as each of these micro-studies present only a fragmentary sketch of the phenomenon of

[89] Indeed, the socio-pragmatic focus on micro-studies calls to mind Darwin's criticism of induction, that one might as well sit in the gravel pit and count the pebbles.

technology. These approaches do not aim towards a greater comprehensive and coherent account of technology (and are insufficient for tracing the phenomenon of digital technology). A focus on micro-studies also disregards systematic elaborations in Philosophy of Technology.

Sufficient theoretical grounding that may incorporate the possible political construction of artefacts is necessary with regard to technology, and for such acknowledgement an opening up of methodological approaches is required.[90] Such considerations place Philosophy of Technology back into the purely philosophical realm (and not merely in the space of the sociological or pragmatic).[91] Such an opening up of methodologies would potentially lead to a more 'mature' Philosophy of Technology, reflecting considerations of early Philosophy of Technology. Contemporary socio-pragmatic approaches therefore fail to address the nature of technology as such, to deal with the phenomenon of technology in its broad sense. In other words, the most important question in Philosophy of Technology is not sufficiently addressed by these two approaches, namely: What is the phenomenon of technology? And in specific relation to this study: What is the phenomenon of digital technology?

[90] The narrowing of philosophical perspective on technology that resulted from the influence of the social constructivist approaches in Philosophy of Technology was echoed and furthered by pragmatist philosophy. Kristin Shrader-Frechette's critique of the pragmatic approach towards technology echoes the critique of social constructivism (Shrader-Frechette, 2000). Criticising pragmatist philosophy of technology, especially as typified in the philosophy of Pitt, Schrader-Frechette highlights the problematic value of neutralism that forms an integral part of the pragmatic approach. The pragmatic approach asserts that all technology should be viewed as neutral, and it is assumed that ethical and political analyses of technology are not needed in reflection on the phenomenon of technology. The problem here is, again, that the pragmatic approach disregards the ethical and political, rather than suggesting that such themes may provide additional insight into the phenomenon of technology. There is not an opening up to multi-disciplinarity and multimodality as is suggested in this study, but rather a shutting of methodological borders. Pragmatism considers technology as self-correcting. The pragmatic approach to technology is therefore not critical with regard to the increasingly prominent and unregulated role of technological experts, such as engineers, in societal decision-making (Shrader-Frechette, 2000, sec. 4, par. 7). In both approaches, value relativism becomes an argumentative basis, which leads to the divorcing of the descriptive from the normative. This implies that technology is understood as neutral, and the implication is that any further investigation into aspects beyond this central assumption is deemed superfluous. It may be argued that the suggested methodology of this study, phenomenology, also does not provide a normative basis for analysing technology. However, phenomenology opens up a space for normative discussion through its insights and multimodal openness, whereas social constructivism and pragmatism specifically disregard the normative.

[91] For example, technology cannot be defined solely as a knowledge production process if we are to consider the individual's lived experience in encountering the phenomenon of technology.

1.3.2.2. Delimiting methodological approaches in favour of social epistemology

The predominance of social constructivist and pragmatic approaches in Philosophy of Technology have resulted in a re-categorization (and, as argued earlier, delimitation) of the field's scope and methodology. The delimiting of Philosophy of Technology results in a lack of philosophical reflection on the phenomenon of technology and a lack of understanding of technology qua technology, which translates to a lack of foundational, encompassing and multimodal description of digital technology.[92] It may even be the case that if socio-pragmatic approaches could describe the phenomenon of technology, they may be insufficient for tracing the modern phenomenon of digital technology.[93]

In social constructivism, technology is reduced to the artefactual, a theoretical shift that is attributable to the prominent instrumentalism that is inherent in this approach.[94] Technology is not to be approached systemically or collectively, but piecemeal (on an individual artefact-by-artefact basis). Each artefact, furthermore, is historically and socially isolated from the process of its development. This lack of focus on technological innovation and development may present an under-emphasis of the possible social consequences of technical decision-making – presenting technology as a 'black box' (Brey, 2009: 102; Winner, 1993). When social consequences are acknowledged in this approach, there is generally an emphasis on those who construct technologies rather than the social groups that are affected (or even suppressed or excluded) in the technological processes. Winner therefore argues that the social constructivist approach "ignores deep-seated political biases in technological choice, and power struggles by which the initial agenda of technological development was set" (Winner, 1993).[95] In social constructivism, all technological development and change is reduced to the activities of specific social groups with no exploration of deeper intellectual, philosophical or cultural dynamics that have a role in technology and technological development.

[92] Compare Section 1.2.2. and Section 1.5.1.

[93] Socio-pragmatic approaches in Philosophy of Technology, as "philosophical procedures, traditionally proved satisfactory … [but now] no longer have 'bite'" (Ströker, 1983: 325).

[94] Compare Kroes and Meijers' arguments for technology as societal phenomenon, for a move from normative to descriptive, and for a move from moral to non-moral issues in philosophizing on technology (Kroes & Meijers, 2001; Kroes & Meijers, 2016: 11).

[95] Compare also Brey, 2009: 102.

One may concede that social constructivism may have a role to play in the development of a foundational, encompassing and multimodal description of the phenomenon of technology, but the social epistemological focus of this approach does not per se provide insight into the lived experience of technology by the individual. To an extent pragmatism may also contribute to a foundational, encompassing and multimodal account of the phenomenon of technology, but in contrast to social constructivism in technology it is challenging to integrate pragmatism with other approaches in Philosophy of Technology. Heidegger is particularly critical of the pragmatics of these types of approaches (or, inherently, definitions) of technology. He argues that instrumental and anthropological definitions of technology create a 'blind spot' that prevents a clearer understanding of technology, for they do not trace the phenomenon of technology (Heidegger, 1977: 5). In pragmatism, thinking about technology is dominated by instrumental perspectives on technology (what it does and how humans use it), rather than being focused on asking the questions that are important for Heidegger: What is technology's relation to Being and how does technology affect Being?

Thus, the reductionist approach to the phenomenon of technology that typifies social constructivism in technology is shared by the pragmatist approach in technology. Schrader-Frechette argues that for all pragmatism's empiricism and neutrality in technology, this approach actually functions in an ideological manner that is typified by "value-relative, positivist, autocratic, technocratic, and [which is] supportive of laissez-faire technological development" (Shrader-Frechette, 2000, sec. 1, par. 4). Schrader-Frechette (2000, sec. 7, par. 1) argues as follows:

> If one does not point out the ethical, political and democratic flaws that have led to technological disasters, then it is certain that there will be more such catastrophes. Pitt's ideological stance seems likely to have the effect of sanctioning the status quo, accepting laissez-faire technology, and accepting the opinions of experts, regardless of their errors or vested interests.

Schrader-Frechette's critique here of Pitt's pragmatism (which she describes as an ideology) calls to mind the Frankfurt School's critique of the purported value-neutrality of

positivism. An uncritical acceptance of the social constructivist and pragmatic approach to technology would thus disallow a more comprehensive and even ethical understanding of technology.[96] However, such an understanding is assumed to be the central task of Philosophy of Technology.

In sociological and pragmatic approaches towards technology, all Philosophy of Technology is reduced to social epistemology, while all other related topics of philosophical inquiry into technology are abandoned.[97] These topics include the moral, metaphysical, political, aesthetic, and ontological. Such a reduction of Philosophy of Technology after the empirical turn allows very little multi-disciplinary investigation to occur.[98] More importantly, the individual's lived experience of the phenomenon of technology is either disregarded or is deemed superfluous and tangential in terms of sociological or pragmatic considerations.[99]

While this study is not hostile towards possible contributions from these socio-pragmatic approaches, it is necessary to indicate the theoretical flaws of such approaches regarding the phenomenon of technology (and later, regarding the phenomenon of digital technology). An ideological estimation of the potential of either sociology or pragmatism to describe the phenomenon of technology leads to an impoverishment and delimitation

[96] The inherent problem is these methodological approaches' theoretical manifesto to disregard other forms of reflection on the phenomenon of technology in a broader sense.

[97] Such a reductionism is argued to be delimiting in terms of investigating technology. The phenomenological approach is argued to function to open up the dialogue, particularly by allowing a space to investigate phenomena beyond the socio-pragmatic in their relation to consciousness. Themes such as the political and the ethical may also be explored, such as in Political Phenomenology and Normative Phenomenology (such as found in the works of Don Ihde). However, this study focuses on the question of the phenomenon of digital technology from the basis of embodiment.

[98] In contrast to the argument promulgated in this study, Franssen and Koller argue that "[g]reater systematicity is needed to counteract the fragmentation and lack of substantive unity in philosophy of technology" (Franssen & Koller, 2016: 31). It has been argued that, through the recourse to empirical micro-studies, the opposite happens and that philosophical inquiries into technology become even more fragmented. In fact, the field becomes even more insular through this methodological choice, and Franssen and Koller's suggestion in *Philosophy of Technology as a Serious Branch of Philosophy: The Empirical Turn as a Starting Point* (2016) that the field should check "the content and validity of new contributions against both extant results in philosophy of technology and (conceptually or inferentially) related positions in foundational analytic philosophy" (Franssen & Koller, 2016: 31) which may result in the field becoming even more insular and closed off to multi-disciplinary approaches.

[99] It should be noted that while pragmatism does link to experience (pragmatically), and thus gives some consideration to experience, the individual's lived experience in non-pragmatic horizons are open to being underplayed or disregarded.

of the investigative character of Philosophy of Technology.[100] Such an overestimation of social constructivism and pragmatism also leads increasingly to a fragmentation within the field, due to their focus on micro-studies. The inherent focus, on a reduced social epistemology, is described by the historian of technology David Noble as follows: [101]

> Technological development, in short, is not an independent force impinging upon society from the outside, according to its own internal logic; rather, it is a social activity in itself, which cannot but reflect the particulars of its setting: the time, the place, the dreams and purposes, the relations between people (Noble, 1978: 248).

What is often found in such empirical descriptions of the relation between technology and society are words like 'technosociety' or 'technoculture' (Achterhuis, 2001: 6).[102] In such descriptions, the embodied individual disappears, swept up into societal forces and objectives regarding technology.

These approaches typify what Merleau-Ponty criticizes as objectivist approaches (rationalist). Although these approaches have provided the field of Philosophy of Technology with a cohesive meta-theoretical structure, the ideological implementation of such approaches has resulted in a limitation of philosophical vision regarding the phenomenon of technology, a limitation on the integrative investigative potential into technology and a central conception of 'disembodiment' (of the individuals) when it comes to answering questions about technology.

Such shortcomings are amplified in analyses of the phenomenon of digital technology, for such approaches fail to address the phenomenon of digital technology with

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[100] Compare *The true grand challenge for engineering: Self-knowledge* (Mitcham, 2014), wherein Mitcham challenges philosophers who embrace the empirical turn in Philosophy of Technology to provide sufficient normative structure regarding the application of engineering power in the contemporary world, to which engineering should turn to the humanities and social sciences.

[101] Compare "Technological development, in short, is not an independent force impinging upon society from the outside, according to its own internal logic; rather, it is a social activity in itself, which cannot but reflect the particulars of its setting: the time, the place, the dreams and purposes, the relations between people" (Noble, 1978: 248).

[102] Compare Ellul's perspective that 'technoculture' is an oxymoron and should not be included in human culture as a technological culture (Ellul, 1990: 175).

circumspection. There is thus a general failure to address the relationship between digital technology artefacts and the embodied individual adequately. Therefore, these approaches also – beyond their implied theoretical rigidity and incommunicability – present a telling disregard of reflection on technology via the body. The need for a more comprehensive philosophical approach to technology (and specifically digital technology) is therefore sought.

In Philosophy of Technology such rigid interpretative structures and resultant limitations of the investigative focus are detrimental to the field, because technology is developing so rapidly (which makes the phenomenon highly dynamic) and because technology has such a massive impact on society. Rather, what is needed in the field is an expanded, integrative approach that can successfully bridge a variety of analytic approaches. The initial or classic phase of the Philosophy of Technology showed that technology is often concealed in the individual's lived experience to such an extent that a variety of investigative approaches are required to trace it. Furthermore, technology is characterised by a continual development (especially in digital technology) and reshaping that sociological and pragmatic studies often cannot trace due to an inability or unwillingness to investigate technology qua technology in the broadest sense. Instead, a new way of thinking about the phenomenon of technology is needed.

1.4. Posthumanism as methodology

Another important methodological approach to technology, residing tangentially in Philosophy of Technology and influencing contemporary development in this field, is posthumanism. At a basic level, posthumanism challenges the traditional conceptualization of the human as descriptive of the individual by drawing on thinkers like Nietzsche, Foucault and Lyotard. In the 1980s and 1990s there was extensive cultural inquiry into the relation between the body and early digital technology, theorizing everything from cyborgs – the building of robots in the shape of humans - to hive-minds – describing the interconnection of human minds through technology (Jones, 2006: 1). Thus, one should note here that the embodied account of digital technology suggested in this study contrasts with posthumanist philosophies that emphasize one's going beyond one's

body as "an imagined bodiless existence once celebrated as 'virtual reality'" (Jones, 2006: 2).[103] The phenomenological approach of this study differs from especially transhumanism and a focus on potential of future technologies (which requires a speculative ontology that underlines posthumanism).

Foucault, in *The Order of Things: An Archaeology of the Human Sciences*, describes the concept of man (the human) as "the effect of a change in the fundamental arrangements of knowledge. As the archaeology of our thought easily shows, man is an invention of recent date. And one perhaps nearing its end" (1966: 387). Already here, in the 1960s, one finds the concept of the human called into question, laying the groundwork for future developments in posthumanism. Posthumanism finds its roots similarly in the Macy cybernetics conferences from 1946 to 1953, and the development of systems theory.[104] A prominent exemplar of posthumanism is Donna Haraway,[105] who "engages science-fictional thematics of hybridity, perversity, and irony (her terms) that are, you might say, radically ambivalent in their rejection of both utopian and dystopian visions of a cyborg future" (Wolfe, 2010: xiii). The concept of cyborg directly contributes to the postulation of transhumanism, which deals with the enhancement of human capabilities on the way to becoming posthumanist.[106]

Another prominent thinker in this regard is Karen Barad.[107] Whilst these feminist thinkers are in dialogue with Merleau-Ponty, Barad does not directly draw from transcendental or existential phenomenology and Haraway emphasizes the posthuman (which this study questions, through presenting several problematic aspects of posthumanism in the next sections).

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[103] Compare also Baudrillard's *Simulacra and Simulation* (1981), which discusses and describes the dichotomy between reality and virtual reality from a postmodernist standpoint. Such a dichotomous view of the relationship between reality and virtual reality is fundamentally challenged in this study.

[104] Initially involving Gregory Bateson, Warren McCulloch, Norbert Wiener, and John von Neumann.

[105] Haraway: *A Cyborg Manifesto: Science, Technology, and Socialist-Feminism in the Late Twentieth Century* (1991).

[106] Nick Bostrom describes posthumanism as deriving "directly from ideals of human perfectibility, rationality, and agency inherited from Renaissance humanism and the Enlightenment" (Bostrom, 2005: 2). On the other hand, transhumanism combines Renaissance humanism "with the influence of Isaac Newton, Thomas Hobbes, John Locke, Immanuel Kant, the Marquis de Condorcet, and others to form the basis for rational humanism, which emphasizes empirical science and critical reason—rather than revelation and religious authority—as ways of learning about the natural world and our place within it, and of providing a grounding for morality. Transhumanism has its roots in rational humanism" (Bostrom, 2005: 2). Wolfe (2010: xiii-xv) sees transhumanism as an intensification of humanism.

[107] Barad: *Meeting the Universe Halfway: Quantum Physics and the Entanglement of Matter and Meaning* (2007).

1.4.1. Posthumanism as problematic approach towards digital technology

Posthumanism is problematic for a description of technology. It presents irreconcilable challenges for describing digital technology through its focus on empiricism, speculative thought and the tacit disembodiment that is implied by its methodology.

1.4.1.1. Empiricism

In many ways, posthumanism functions as a continuation of the empirical turn in Philosophy of Technology and leads to the same problems that pragmatism and social constructivism run up against. It should be noted that a radical turn to empiricism is a starting point of which Merleau-Ponty's phenomenology of embodiment is critical. In fact, posthumanism presents a continuation of the social epistemology that defines the problematic disembodied approach in contemporary Philosophy of Technology through its emphasis on empiricism.[108]

Prominent thinkers in posthumanism and transhumanism, such as J.B.S. Haldane and Marvin Minsky are trying to "[get] away from the body" in their ontology, not just their philosophizing on technology (Midgley, 1992: 162). These ways of thinking are characteristic of distinctly Modern trends, such as atomized individualism, body commodification, consumer culture and mechanical values that emphasize mechanistic problem-solving (Giesen, 2004; Holmes, 2014).[109] However, in this study, the centrality of the body is foundational in the selection of an approach with which to reflect on the phenomenon of digital technology and as a way forward for Philosophy of Technology in terms of the phenomenon of digital technology. It is asserted in this study that an account of the relation between the body and the phenomenon of digital technology should "retain a particular form of humanism, a humanism that stakes human subjectivity as the locus of

[108] Compare Section 1.3.1.

[109] This emphasis on mechanistic perspectives on the phenomenon of technology was also prominent in Heidegger's *The Question concerning Technology* (1977).

rationality and objectivity" (Calvert-Minor, 2014: 124).[110] The internet was presumed to be an avenue for how bodies would soon become irrelevant and how one would evolve beyond one's body, escaping into the digital nether where all shackles of bodily intentionality would be cast off and people would live as immortal mental systems that, free from time and space, would spend eternity composing poetry and operas. Alas, the failure of numerous Artificial Intelligence projects that were based on Cartesian dualistic models highlighted the inadequacy of such models (which philosophers had already identified much earlier in their critique against Cartesianism). Such failures show the important role that the body plays with regard to the phenomenon of technology, and particularly with regard to the phenomenon of digital technology. Moving beyond anthropological universals thus entails speculative thought.

1.4.1.2. Speculative thought

The speculative may be argued to be an inherent task of philosophy as such – the speculative advancement of hypotheses that transcend ordinary experience (James, Montague, Schlick, Dewey & Russell, 1961: 1).[111] However, in posthuman thinking this speculative thought takes on a wholly different character. Posthumanism is evaluated critically in this study because "it ignores the ineradicable necessity of human communicative understanding as a condition for rationality and objective knowledge" (Lynch, 2014: 144).[112] Whilst there is thus a large space for discussion of the phenomenon of

[110] This statement should not be understood as suggesting a dualism between the human body and the digital technology artefact (for such a dualism is centrally what this study's phenomenological approach attempts to overcome). The claim for humanism should not be misunderstood here. While Merleau-Ponty may be read to lead towards the posthuman or the 'more than human', the humanism described in this section entails primarily – when discussing the phenomenon of digital technology – that one should take great care to not move beyond the body into speculative disembodiment (such as many posthuman thinkers do). Taking the body as basis for an account of the phenomenon of digital technology allows a conceptual foundation for describing said phenomenon, and further developments and research may be done along these lines once such a door for thinking about digital technology has been (re)opened (in contrast to pragmatist and social constructivist approaches).

[111] However, at least as working definition of philosophy, one could include the normative, the analytic and the descriptive (James et al., 1961: 1–2). The descriptive plays a central role in phenomenology, especially that part of lived experience that in everyday experience remains uninterpreted in everyday thinking.

[112] This contrasts with what Étienne Balibar critically calls "anthropological universals," or a form of "superstition" (Balibar, 1991: 56) and what Wolfe calls "fundamental anthropological dogma associated with humanism" (2010: xiv). It is argued that "the human" is achieved "by escaping or repressing not just its animal origins in nature, the biological, and the evolutionary, but more generally by transcending the bonds of materiality and embodiment" (Wolfe, 2010: xv). The central postulate of this study, in contrast, argues that human embodiment is a crucial starting point for philosophizing on technology.

digital technology in posthuman thought, one should be aware of the speculative and disembodied character that this form of philosophizing on technology embraces.[113] This study postulates – instead of the speculative theorizing of posthumanism – that the phenomenon of digital technology should be traced through the embodied individual's lived experience. Often, in posthumanism, the conceptualization of human subjectivity is questioned.

Posthumanism proffers contempt for the body or views the body as being of mere instrumental value (in 1980s cyberculture, the body is a mere 'meat machine'). Mary Midgley describes how these thinkers (especially Haldane) employ "quasi-scientific dreams and prophesies" and "self-indulgent, uncontrolled power-fantasies", pseudoscience and irrational argumentation based on a fear-of-death, to justify conceptions of transcending the body (Midgley, 1992: 147,159).[114] This study, in contrast, asserts a unitary human subjectivity that confronts the phenomenon of digital technology.

1.4.1.3. Implicit disembodiment

The body is that determinate, though dynamic, basis for the individual's lived experience – the body is a 'facticity' (a finite determinacy of existence, a 'being-in-the-world' in Heideggerian parlance). The body has concrete and limiting dimensions from which choices of action are exercised.[115] The body is involved in a complex and determinate world. Choices of action must begin from this facticity of the body, from the factual materials that

[113] Roden (2014) is inherently critical of anthropocentrism, an inherent element in the thought of Merleau-Ponty. The posthuman should suggest a 'weirdness' that is unbounded by the constraints of anthropocentrism, argues Roden. In this study, a different route is taken. I argue that it is exactly the centrality of the human body that allows a description of the phenomenon of digital technology to be found. From this perspective, the experience of the phenomenon of digital technology may be traced circumspectively and without recourse to speculation, without dismissing the embodied individual's mode of subjectivity as sense-making in the phenomenon of digital technology.
[114] Compare also Birke & Hubbard, 1995: 218.
[115] Both Heidegger and Sartre contrast 'facticity' with 'transcendence' in their philosophy (Schrader Jr, 1967: 23), which suggests at least some phenomenological basis for such a distinction whilst not arguing for a dualism.

are to be utilized in action.[116] The body, and these aspects of the body, will be discussed in more detail in the next chapter.[117]

In posthumanism, this embodied facticity is surpassed through the move beyond the human. However, this choice is often speculative and cuts off the embodied individual from her world and from her own 'now' body in favour of some 'future' body. The idea that one moves beyond one's embodied facticity (or that the embodied facticity is altered in a manner that is beyond the embodied facticity in which the individual is currently engaged) may lead to the same type of 'disembodiment' that will be discussed in Section 1.5, whilst remaining steeped in speculative thought that is distinctive of posthuman thinking.

N. Katherine Hayles contrasts this view of posthumanism with the idea that posthumanism is steeped in a form of triumphant disembodiment. She argues that posthumanism need not be viewed as anti-human at all (Hayles, 1999: 287). Hayles opposes embodiment, but also posthumanism, in the view of Wolfe (2010: xv). Wolfe argues that posthumanism "isn't posthuman at all – in the sense of being 'after' our embodiment has been transcended – but is only posthuman*ist*, in the sense that it opposes the fantasies of disembodiment and autonomy, inherited from humanism itself, that Hayles rightly criticizes" (Wolfe, 2010: xv). An example of posthumanist thought that contrasts this assertion is found in Roden's *Posthumanist Life* (2014), particularly with regards to how phenomenology as methodology engages with the field. Roden describes a 'dark phenomenology' which is radically empirical as a means to escape from anthropological bounds. In fact, Roden specifically refers to his form of phenomenology as Speculative Phenomenology, which is reflected in his description of posthuman embodiment: "[W]hatever kinds of bodies or minds posthumans may have, they will have to be discursively situated agents practically engaged within a common life-world" (Roden, 2014: 75). He singles out phenomenology as exactly the kind of anthropocentric philosophy that curtails the possible perspectives that

[116] Importantly, focusing only on the determinate nature and the facticity of the individual without emphasizing the transcendent aspects thereof entails a recourse to empiricism and logical positivism. This approach was deemed inadequate for philosophizing on technology (Compare Section 1.3.1). In existential thought, there should be an acknowledgement of transcendence as an important pole of human existence – the individual dreams, imagines, plans, believes. She transcends the limitations of embodied facticity daily. While embodiment provides a secure mooring from which philosophical reflection takes place, focusing on embodiment without the individual's existential dimensions leads to an inappropriate reductionist perspective on existence.

[117] Compare Chapter Two.

posthumanism may allow when he says that "significantly powerful or self-optimizing forms of life would need psychologies or phenomenologies that conform to ours", and that posthumanism should strive to escape such anthropocentric philosophies (Roden, 2014: 50).[118] This study, in starting with the embodied facticity of the individual, sharply contradicts such posthumanist perspectives.

In this section, and in Chapter Two, a metaphorical excavation of Merleau-Pontian concepts will show how the phenomenon of digital technology, as 'object' to be experienced, may be described from embodied facticity through the experience of the phenomenon of digital technology through the potentialities of human, embodied action. The body and its striving to reach maximal grip on the world is constituted through one's perceptual experience of the phenomenon of digital technology. According to Roden's view, this study would thus be restricted methodologically to first person experience of the embodied individual. This presents an inherently contemporaneous human conception of the phenomenon of digital technology, a perspective that does not include (nor preclude) other possible agents or intelligences.

The methodology utilized in this study also does not allow the sense-making of the phenomenon of digital technology through an agent that does not experience a world afforded by its body, for the conception of the phenomenon of digital technology suggested in this study is based on the interaction and intertwinedness between the embodied individual and the digital technological artefact. This occurs, in Roden's words, through describing the phenomenon of digital technology from a "situated embodied self along with a dynamically evolving present" (Roden, 2014: 99).[119] Posthumanism suggests, primarily, a challenge to the transcendental claims of phenomenology by changing the individual's embodied facticity, thus claiming objectivism and de-emphasizing subjectivism.

[118] Roden, reflecting a broader posthuman position, describes phenomenology as a post-Kantian "critical anthropomorphism" or transcendental humanism, wherein phenomenological inquiries are limited to disclosing how "humans cook up a shared phenomenal world" (Roden, 2014: 60) and those conditions that are necessary for the appearance of this world (Roden, 2014: 70).

[119] Compare Roden (2014: 74): "The practical-temporal structure outlined [by classic phenomenology] unpacks the transcendental claim that subject and world are correlative rather than distinct. It also unpacks the active externalist view that the mental cannot be conceived other than as a unified pattern of activity on the part of situated, embodied agents". The practical-temporal structure is correlative with the life-world.

1.5. Disembodied instrumental rationalism

SCOT, pragmatism and posthumanism each present methodological difficulty in circumspectively describing digital technology.[120] Ad Verbrugge describes how older forms of technology, such as the steam engine, "enable us to do work and to move ourselves around without significant physical effort and without being directly dependent on the natural forces around us" (Verbrugge, 2013: 79 – my translation).[121] This freeing from the environment suggests a similar removal from the environment would occur in digital technology, but Verbrugge criticizes this concept of disembodiment ("*ontlijving*"). In this study, his recourse to the virtual is questioned, however (refer to Section 4.2.1). Still, he frames the central problem of disembodiment in digital technologies well when he describes how the events one perceives on a screen (news events, social media contact) lead to individuals missing what is in front of their eyes – technology disappears. Think, for example, of a family watching TV. The TV as artefact becomes subservient to what is displayed on the screen, to the point where the artefact itself and its influence on funneling one's perception is forgotten.

In contrast to such a perspective of disembodiment regarding the phenomenon of digital technology, Caroline A Jones argues that "now more than ever we need to think the body" (Jones, 2006: 1).[122] Technology, and particularly digital technology, engages one's senses and embodies one's thoughts (Jones, 2006: xiii, 1). Natural thought, and implicitly pragmatic and social constructivist approaches to technology, suggest a removal of the lived experience of the individual from her body.[123] However, the presumed disembodiment of digital technology is based on concepts and categories founded in the specific deployment of reason to analyse and interpret said technology. The limitations of the selective application of instrumental rationality to the question of digital technology lead

[120] Although not mentioned in detail, actor-network theory presents similar difficulties.

[121] "*… ons in staat stelt werk te verrichten en onszelf voort te bewegen zonder noemenswaardige fysieke inspanning en zonder direct afhankelijk te zijn van de natuurkrachten om ons heen*" (Verbrugge, 2013: 79).

[122] In an accompaniment to the exhibition *Sensorium: Embodied Experience, Technology, and Contemporary Art* (Bill Arning, Jane Farver, Yuko Hasegawa and Marjory Jacobson as curators).

[123] Older technology, such as cars and steam engines, could remove the body of the individual from the natural environment. Digital technologies *suggest* a similar removal of oneself from one's environment (one connects with a friend via cellular phone across vast distances) and a projection of one's perception, although both the idea of removal and projection in this context will be challenged by the postulation of the Embodied Screen.

to a limited philosophical perspective on this theme, particularly when the shortcomings of such theorizing are ignored. In contrast, this study makes the inherent presumption that to describe digital technology in a way that overcomes its inherent challenges[124] requires starting from the body – which implies a disavowal of theorizing[125] that founds digital technology in disembodiment.[126]

The body is the basis of engagement of all human experience, but still discussions of digital technology are entangled within a rhetoric of disembodiment, one that this study attempts to address using Merleau-Ponty's embodied phenomenological approach. Perhaps the naïve sense that digital technologies project our consciousness outside our bodies, across vast distances, has led to a re-evaluation of Merleau-Ponty's phenomenology of presence, rather than absence, when discussing technology. However, as a first step in phenomenology the first-hand descriptive account of feeling 'projected' outside one's body allows a preliminary way marker for analyzing digital technology.

Whilst Merleau-Ponty's account of embodiment allows a clear perspective on pre-digital technology, it is argued that digital technologies could be more clearly understood by re-evaluating the interaction of the body with the imaginative (along the lines of this naïve sense of being 'projected' outside one's body). The embodied nature of the individual does not change; rather the embodied nature of the imaginative allows a more thorough exploration of digital technology. Although Merleau-Ponty's embodiment thesis forms the bulk of his philosophical discourse, there is contained within his conceptualization of the body's role in perception also a theory of imagination that provides a means to describe the experience one has when engaging with digital technology. Embodied and lived experience

[124] Compare Section 1.2.2.

[125] Or intellectual intuition, as critiqued by Heidegger and other existentialists (Schrader Jr, 1967: 33). Knowledge in this sense may stand as medium between the inquirer and the object under investigation, which becomes even more problematic when the object (of digital technology, for example) is difficult to place. Starting from the body and tracing experience allows a primordial engagement with the topic under investigation to obtain ontological categories.

[126] Compare Heidegger's argument that any ontological inquiry must begin with one's being in its intrinsic situation in *Being and Time*, and Merleau-Ponty's argument in *Phenomenology of Perception* for starting from the facticity of the body in such inquiries. Such approaches take as starting point one's being-ness in inquiring after a specific object in relation to one's being, and acknowledges one's understanding of one's being as preliminary to reflection upon an object or upon one's own being. Ontological truth is thus implicit in one's every day and ordinary activities, rather than in intellectual theorizing upon these activities. Inherent in this presumption is the rejection of a dichotomy between the world of physical nature and the world of the individual's subjective consciousness (Schrader Jr, 1967: 34–35).

considerations extend beyond rationalism, as will be discussed in Chapter Three, whilst the disembodied and rationalist approaches described in this chapter have difficulty in accounting for embodiment in specifically digital technology.[127]

1.5.1. What is required? A foundational, encompassing and multimodal account

Instead of describing technology from the artefactual level, which may merely represent shadows of the phenomenon of technology itself, a more primordially connected and integrated measure is needed (as argued in Chapter Three). Before suggesting such a measure of digital technology, this study proposes three criteria that are needed to present a foundational, encompassing and multimodal account of digital technology (which may then open digital technology to further investigation and insight). These criteria also served to motivate this study's selection of phenomenology as a critical framework for engaging with the phenomenon of digital technology.

Firstly, the methodological approach should give a foundational account of digital technology. This implies that digital technology, which is difficult to pin down into strict categories (beyond the artefactual) should be anchored in a concept that allows a dynamic yet stable description. This is especially needed for digital technology because it is easily hidden and constantly changing.

Secondly, the methodological approach should allow multi-disciplinary insights to be brought to bear on the question of digital technology, due to the multi-faceted nature of digital technology. Such an approach implies moving beyond the artefactual. A multi-disciplinary approach suggests an openness to multimodality. Digital technology involves, for example, one's senses, body, and psychology.

[127] Andrew Feenberg (2012: vii) describes how technology is an autonomous force separate from society, "a kind of second nature impinging on social life from the alien realm of reason in which science too finds its source". He is critical of views that technology's central descriptors include mainly "rational control" and "efficiency-ruled", and wishes to challenge the illusion of technology as an "alien force" from a "coldly rational beyond" (Feenberg, 2012: vii, viii).

Thirdly, the methodological approach should also present an integrative account of digital technology because digital technology remains an integrated phenomenon. Although it functions in terms of aspects such as communication, transport and information transfer, through a variety of devices, it still presents a single phenomenon.

1.6. Conclusion

The Modern Era saw a technological revolution as technology became an integral part of human life. However, critics of technological development and technological crises highlighted the need for a much more thorough philosophical reflection on technology. The genesis of Philosophy of Technology in the Modern Era saw a broad investigation into the phenomenon of technology. An increasing focus on sociological and pragmatic approaches in Philosophy of Technology led to a limitation of the avenues for philosophical inquiry into technology. Early Philosophy of Technology was not a strictly consolidated field of inquiry. Technology was seen as involving the interaction of a variety of different fields of knowledge, such as philosophy of science, ethics, political philosophy, aesthetics, philosophy of religion and anthropology (Dusek, 2006: 2). Each of these fields related to and integrated with technological issues in some fundamental ways. The multi-disciplinary character of the field was clearly reflected in the heyday of classic Philosophy of Technology in the 1960s. Different branches of philosophy, such as Political Philosophy and Philosophy of Science, allowed a combination and synthesis of these fields' views on technology during this period. These fields were seen as not only related, but rather interdependent with regard to their views on technology.

After the 1960s, Philosophy of Technology became a newly developed academic field which served a unifying function in its investigation of technology. An important reason for this is that technology, as subject matter for a philosophical discipline, is exceptionally difficult to pin down and in some cases the phenomenon of technology does not reveal itself to analysis immediately. Even though we may exist alongside and within technology daily, we may not recognise the influence of technology clearly. Technology has moved beyond the water wheel and ox cart, so to speak, to become enmeshed with humanity and the ways in

which humanity lives. When one settles for either a 'technical' (*Technik*) or 'technological sciences' (*Technologie*) approach towards technology, the broader description of the subject matter in Philosophy of Technology becomes muddled, and even more so the intertwined and dialectical relationship between the human and the technological.

The same occurs when only the pragmatist and sociological approaches are allowed to dominate the theoretical approaches utilized in the field. Both these approaches suffer from a profound confusion of the concepts of theory and praxis regarding technology, often formulated (especially in pragmatism) as opposites. In technology, such a distinction between theory and practice is problematic, as the theory *and* the praxis of technology are intertwined in an idiosyncratic way that differentiates the field from the natural sciences and from socio-pragmatic approaches. This lack of clear distinction regarding the approach towards the academic study of technology suggests that the phenomenon of technology may differ from the subject matter of the natural sciences, or even those investigated traditionally by sociology and pragmatism.

Thus, Philosophy of Technology historically attempts to shed light on the particular way that human beings encounter technological artefacts, themselves and the other through technology. However, prominent methodologies in Philosophy of Technology, such as pragmatism and social constructivism that have typified the field since the empirical turn, cannot adequately and encompassingly describe technology. Particularly problematic in these accounts is their inability to trace embodiment in particularly digital technologies. Thus, the phenomenon of technology and the individual's experience of technology often become obscured or hidden. The reduction of philosophy of technology to a form of social epistemology in such approaches leads to a 'numbing' or 'disembodiment' of human experience in and of technology. Humans are sometimes even considered melancholically detached from technology, themselves and others. A full understanding of the richly intertwined and mutable dialectical relation between the human and the technological is absent. Phenomenology is suggested as alternative methodology which can offer such an understanding.

Chapter Two – Towards the phenomenon of digital technology

2.1. Introduction

Prominent methodologies utilized to investigate digital technology to date, as described in the previous chapter, are problematic because they implicitly suggest disembodied instrumental rationalistic approaches towards this technological phenomenon, a disembodied account that is supported by the appearance of disembodiment in naïve experience. The reasons for this methodological direction are the inherent focus on a form of social epistemology as the foundation of knowledge, and the rejection of a broader phenomenal investigation into technology (instead focusing on micro-studies and disembodiment). Instead, one should recognize how digital technology engages the senses and embodies one's thoughts (Jones, 2006). The problematic aspects of these methodologies are intensified due to the paradox (dynamic nature and 'continual beginning') of technological development, particularly by its continuous rebirth as new technologies (such as digital technology) are developed.

It was suggested, regarding digital technology, that philosophical vision on this theme requires a broadening. It is against this background of methodological inadequacy that Ströker (1983: 334) asks whether "philosophy of technology sets too much store by greater systematization". If this systematization is to be understood as a definite structure given to the phenomenon of technology through pragmatic, social constructivist and posthuman approaches in modern Philosophy of Technology, "too much store" (too high a value or expectation) has indeed been set on systematization, because such systematization ironically leads to an investigative impoverishment of the field. Thus, whilst digital technology artefacts are investigated in both the pragmatist and the sociological accounts, the scale of impact of the phenomenon of digital technology on the embodied individual remains largely extent beyond the scope of such methodologies. On the other hand, posthumanist methodologies reject the body as basis of investigation into technology.

Ströker (1983: 323), for example, says that Philosophy of Technology "may have peculiarities of its own that go beyond the specific subjects and methods which by tradition constitute

a philosophical discipline". It is argued that digital technology prominently reflects these peculiarities and highlights inadequate methodologies in contemporary Philosophy of Technology.[128] Furthermore, the dynamic nature of technology demands a multi-disciplinary (or multimodal), though integrative and foundational, approach to the phenomenon of digital technology.[129] The broadening of the field of Philosophy of Technology to demarcate the dynamic nature of technology suggests that one's conceptualization of the 'problem' of digital technology should also be expanded. It has already been argued that instrumental rationalist and social epistemological perspectives on technology delimit the possible insights that may be derived when investigating digital technology.[130] Digital technology, conceptualized as a broader phenomenon, is revealed as an event[131] as much as a set of devices or a knowledge system. It encompasses the individual, and she is immersed therein, in her body and her senses.

The digital frontier presents that point in technological development where a much closer shaping of daily human perception, cognition, and behaviour occurs through digital technology artefacts. If digital technology is merely understood instrumentally, artefactually, then addiction to electronic games, for example, presents merely the incorrect use of gaming devices. In this example there is, firstly, a normative presupposition concerning the 'correct' use of gaming devices. Secondly, an instrumental assumption regarding the nature of digital technology may lead one to incorrectly presume that a probable objective of playing electronic games may be for the user to become addicted, at least if one only conducts a sociological investigation. Both these conclusions are inadequate (or at least, incomplete), and fail to give further insight into electronic games as an example of digital technology. Thus, instrumentalism may theoretically make sense

[128] Such characteristics (or peculiarities) do not have correlates in other philosophical disciplines' subject matters due to the 'paradox' of the field's 'continual beginning' and the continuing development and changing nature of these technological artefacts (Ströker, 1983: 323).

[129] An important difference between philosophy of science and philosophy of technology is not just found in how these two fields originated, but also with regard to the 'problems sets' or subject matter with which they deal. Ihde (2004: 124), for example, states that "philosophies of science, philosophies of technology and science studies are all in degree necessarily interdisciplinary in practice and location". In other words, the specific character of technology requires that the boundaries of the field of Philosophy of Technology should be less rigid and vigorously defended than the borders of Philosophy of Science and those of the Natural Sciences.

[130] Compare Chapter One. These inadequate methodologies included posthumanism, all of which postulate disembodied perspectives on technology,

[131] Per Heidegger's description of technology as the "event of man" (Schirmacher, 1983: 276). In terms of digital technology, this event refers to the digital frontier described in Chapter One.

of digital technology, but does not necessarily correspond to the lived experience of the individual in her encountering of the phenomenon of digital technology. While the claims made by instrumentalism are not necessarily false, it may not engage with digital technology in a broad enough manner.

Turning to the phenomenon of digital technology, in contrast to the digital technology artefact or the social implication of such artefacts, suggests a broader conceptualization of digital technology that starts from the lived experience of the individual. In this vein, it is suggested that an approach towards the digital technology should be phenomenological in nature to allow a circumspect description of the phenomenon of digital technology. A merely instrumentalist definition of technology,[132] which may reflect technology only with regards to its social aspect, may utterly fail to reveal the 'what it is' or 'phenomenon' of technology (Heidegger, 1978: 4–6). Rather, digital technology should be seen anew not as a 'fact' but as a horizon to be explored, as a phenomenon to be demarcated along its broadest margins. Digital technology must be disentangled from its mere 'use' or 'artefact' to describe its manifold and divergent emergent characteristics, a process of disentanglement that is only possible if the phenomenon of digital technology in its broad sense is approached. In the description of digital technology, one must allow the inclusion and synthesis of various elements multimodally instead of a rejection of perceived contradictions, an openness to plurality and multi-disciplinarity, a foundational and encompassing account. For these reasons, the phenomenon of digital technology must be broadly construed as phenomenon.[133]

The phenomenon of digital technology is found in neither the digital technology artefact alone, nor in the individual as social being alone. Rather, the phenomenon of digital technology is that 'between' in the relationship between the digital technology artefact and the embodied individual. The attempt to develop a structure in Philosophy of Technology that is analogous to Philosophy of Science and the technological sciences is fundamentally

[132] Or pragmatist, social constructivist, or posthuman definition. Compare Chapter One.

[133] Compare *Techno-phenomenology: Martin Heidegger and Bruno Latour on How Phenomena Come to Presence* (Conty, 2013). Both Heidegger and Latour seek to explain how the phenomenal world of technology (nature, objects and tools) comes into being as events through the interrelation between each other and individuals as a means to overcome the subject/object divide (Conty, 2013: 312). Interesting here is the correspondence and conflict between Heidegger as phenomenologist, and Latour – critical of phenomenology – as striving for the democratic inclusion of Being in all technology through an escape of the subjective (Latour, 1991: 58, 65).

flawed due to the unique characteristics and peculiarities of the field's subject matter, found in the 'between'; and much more so when dealing with the intricacies and complexities of the phenomenon of digital technology specifically. A mode of philosophical reflection that could achieve this is Phenomenology.

2.2. A methodological direction: Phenomenology

The methodological proposal of this study is that utilizing phenomenology, and particularly embodiment, as starting point allows a description that could circumspectly describe the phenomenon of digital technology (that 'between' in the relationship of the embodied individual and the digital technology artefact). Such an approach opens up the possibility to better conceptualize digital technology in a coherent and comprehensive way, to trace the sense-making of the self, the world and the other in digital technology relations by investigating the phenomenon itself.

Digital technology as phenomenon is neither just matter (devices) nor thought (ideas transferred from one individual to the other). Instead, the phenomenon lies 'between' these two poles. Phenomenology attempts to overcome the traditional conflict between materialism and idealism, while also rejecting the doctrine of substance in an anti-Cartesian[134] manner – through the critical reflection on consciousness against the naturalization of consciousness in the empirical sciences (which are prominent methodological starting points in Philosophy of Technology) (Pivčević, 1970: 151; Winkler & Botha, 2013: 291).[135] Phenomenology is a reaction against both empiricism and rationalism (Winkler & Botha, 2013: 291) that will serve in this study as recourse against the empirically based methodologies after the empirical turn in Philosophy of Technology.[136]

[134] Compare Taylor's description of rejection of Cartesian thought due to its dualism, rationalism, and outmoded psychology, in spite of its continuing philosophical influence (Taylor, 2004: 27).

[135] This is as a result of the phenomenological criticism of metaphysical dogma, a criticism that is reflected in the attitude of logical positivists and forms a bridge between the natural sciences and phenomenology.

[136] One further advantage of following a phenomenological approach with regard to digital technology is that approaches that are described as 'fact-based' (as viewed through the technological instrumentalist view) and 'value-based' (in technological determinism) with regard to technology may be incorporated to provide a more philosophically grounded perspective on the phenomenon of digital technology. Technology can be understood to function on both sides of the fact/value divide which illustrates that the landscape of Philosophy of Technology may function in a more nuanced way than these dichotomous perspectives seem to suggest (Swer, 2014: 204). In terms of the broader positions of philosophy of technology, the technological instrumentalist closely links to an embodied

Phenomenology, it will be argued, is an approach that allows multi-disciplinary insight into the relationship between the embodied individual and digital technology artefacts whilst retaining a coherent holistic investigation regarding the phenomenon of digital technology itself. Phenomenology allows the individual to embrace phenomena as they are presented to individual experience, and puts aside "without prejudice or antagonism" other methodologies (Cook, 2017: 9) The rhetoric of both instrumental rationality and disembodiment in accounts of technology[137] is addressed through the use of Merleau-Ponty's embodied phenomenological approach in this study, but initially some contributions from early phenomenologists with regard to technology will be sketched to investigate their possible contributions to the inquiry into the phenomenon of digital technology and to trace some directions that have influenced future thought on technology.[138]

2.3. Historical overview of phenomenology

Phenomenology was a prominent movement in the philosophy of the 20th century. Its history perhaps has earlier roots with Descartes's method of doubt and the *cogito* which are early influences in the phenomenological 'stepping back' to trace phenomena and the questioning of essence and appearance.[139]

Georg Wilhelm Friedrich Hegel (1770–1831) initially used the word phenomenology in his 1807 work, *The Phenomenology of Spirit* (also translated as *The Phenomenology of Mind*)[140],

type of human-machine relationship, whilst the technological determinist is more closely linked to a hermeneutic type of human-machine relation (Swer, 2014: 206). An embodied view on the relationship between humanity and technology therefore inherently implies a certain criticism of views of technological determinism, which state that technology develops without societal implication.

[137] Compare Section 1.5.

[138] Jones (2006: 2) argues that one's body does not allow an escape from technological mediation, rather that the bodies "are themselves mediating apparatuses, without which there can be no knowledge of the world".

[139] Also influential in the development of phenomenology in the early stages were Immanuel Kant (1724-1804) and Ernst Mach (1838-1916). They both deepened the philosophical development of 'reflection' and its relation to empiricist and rationalistic approaches towards knowledge. The Kantian investigation into mind (or the genius that consists in the capacity to create the universal and the ideal - *Gemüt*), the transcendental and the sense of phenomenon, forms a direct connection to the later development of phenomenology (Ricoeur, 2007: 3, 4). Leibniz espoused these same themes of early phenomenology as *Erscheinung* in his work.

[140] The translation *The Phenomenology of Spirit* is preferred, due to the specificity and inter-personal use of the term Spirit by Hegel.

to designate a descriptive rather than hypothetical-theoretical or analytic method to address a philosophical problem. Hegel understood phenomenology as one's experience of the "positive immediate existence" of something and that constituted for him the first part of science (Hegel, 1807: 14).[141] Phenomenology, as understood by Hegel, was presumed to encompass a thorough understanding of all aspects of human experience as part of Spirit to describe the evolution of knowledge from the simplest to the most sophisticated forms of consciousness – the Hegelian perspective of phenomenology was lodged in a priori metaphysical commitments (Pivčević, 1970: 11, 12; Ricoeur, 2007: 3). Franz Bentano's (1838–1917) understanding of phenomenology entails a similar descriptive approach as Hegel's. For him, phenomenology entailed the psychic phenomena and the elucidation of the structures of consciousness, as broadly construed. Wilhelm Dilthey (1833–1911) argued in contrast for more descriptive accounts in the human sciences with scientific backing in contrast to naturalistic explanations, which further narrowed down the understanding and method of phenomenology.

The philosophical tradition called phenomenology only came into being fully with the work of Edmund Husserl, who viewed it as a method free from metaphysical or theoretical commitments, a method free from presuppositions, a means to elucidate the internal structure of the "experiences of meaning" (Pivčević, 1970: 12). Historically, four distinct periods of development in the tradition of phenomenology may be elucidated.

2.3.1. Realistic Phenomenology

The first era was a period of Realistic Phenomenology,[142] a movement that was briefly prominent before World War I and that strongly influenced the direction that phenomenology would later take. These early 'realistic phenomenologists' reacted against psychologism and preceded two specific aspects of Husserl's work (which followed some years later), namely (1) the return to the phenomenon itself (or object-orientated

[141] Hegel's work had a profound influence on many facets of Western culture, including theology, art, and philosophy of history. His metaphysical philosophy of human experience formed a basis of inquiry for both Marxism and existentialism (Schrader Jr, 1967: 33).

[142] The term 'realistic' is descriptive of the influence of Brentano on this group's focus on a realistic theory of values and of one's knowledge of values. It is typified in the works of Theodor Conrad, Hedwig Conrad-Martius, Moritz Geiger, Nicolai Hartmann, Dietrich von Hildebrand, Heinrich Hofmann, Paul Linke, Arnold Metzger, Alexander Pfänder, Adolf Reinach, Max Scheler, Wilhelm Schapp and Edith Stein (Spiegelberg, 1982).

phenomenology) and (2) descriptive act-phenomenology (similar to early Husserl, but in contrast to later Husserl's 'transcendental idealism'). This 'realistic phenomenology' set the stage for a more in-depth and structured reflection on phenomena by thinkers such as Husserl and Heidegger in the years to follow to the point that, by 1930, phenomenology had become almost exclusively both a Husserlian and Heideggerian enterprise (Moran, 2000: 3).

2.3.2. Constitutive Phenomenology (Husserlian Phenomenology)

The second era of the development of phenomenology can be described as the Husserlian era of Constitutive Phenomenology. Edmund Husserl (1859–1938) lay the foundation for phenomenology as philosophical tradition, and he spent decades reworking his ideas on what phenomenology should be.[143] Paul Ricoeur describes Husserl as more or less the core of phenomenology, noting that phenomenology is "both the sum of Husserl's work and the heresies issuing from it" (Ricoeur, 2007: 3, 4). Rafael Winkler and Catherine F. Botha similarly describe the actual birth of phenomenology with the publication of Husserl's *Logical Investigations* in 1900–1901 (Winkler & Botha, 2013: 291).

The critique of psychologism and the conception of logic developed in Husserl's transcendental phenomenology in *Ideas I* (*Ideen I* – 1913) is typical of this era in phenomenology.[144] The notion of *consciousness* is a central aspect of phenomenology for Husserl. He identified phenomenology's central task as a description of the structures of consciousness as they present themselves to us – consciousness as *experienced*, but not merely as experienced by the subjective person (however, note the personable nature of consciousness following Hegel's analysis of first person conscious experience). Husserl is concerned with both the particular and the general, or rather the existential and the conceptual, in order to "note with precision the meaning or intention of the *concepts* there

[143] It is not the intention here to present an overview of the intricacies of Husserl's oeuvre on phenomenology (through descriptive phenomenology to transcendental phenomenology, from transcendental idealism to genetic phenomenology). See for example Paul Ricoeur's *Husserl – An analysis of his phenomenology* (1967) for an encompassing account of Husserl's sprawling development.

[144] Husserl's anti-psychologism and logicism were influenced by the studies of pure logic of Trendelenburg and Erdman and the arguments for the establishment of mathematics as an "extension of general logic" during this time (Ricoeur, 2007: 5). This period in the history of phenomenology was also shaped by Dorion Cairns, Eugen Fink, Aron Gurwitsch, Fritz Kaufmann, Ludwig Landgrebe, Emmanuel Levinas, Jan Patocka and Alfred Schutz.

involved" (Hocking & Hocking, 1959: 304).[145] Phenomenology is, in other words, concerned with the structure of consciousness in and of itself, regardless of the type of consciousness or of the underlying causes of consciousness.

The key phrase for Husserl's thought is thus an investigation into the structures of consciousness found in our 'being-here' rather than in theoretical constructs. In the 1913 second edition of *Logical Investigations*, Husserl describes, for example, phenomenology as concerning "experiences seizable and analysable in the pure generality of their essence … essences which directly make themselves known in intuition" (Husserl, 1900: 249).[146]

Essences should not here be understood as something akin to Platonic Forms, but rather as tools that allow understanding of our own existence in the world (PP xvi). Essences allow one to understand one's own life in the world, for these essences are found in what is presented to the experiencing body-subject. For example, to understand the essence of perception (an understanding that Merleau-Ponty traces in *The Phenomenology of Perception*) one must grasp the 'essence' of how perception comports our understanding of the world and others. The essence of perception is inextricably intertwined with the understanding of the world to which the concept of perception relates, which is founded in the body-subject. Phenomenology both studies essences and finds definitions for those essences ('the essence of perception' or 'the essence of consciousness') as they are presented to the experiencing subject, but also puts essences back into one's existence in the world through an understanding of the 'facticity' of human beings and the world (PP vii).[147]

Phenomenology in the Husserlian sense thus entails "a transcendental science of pure consciousness as such" without appeals to theoretical frameworks and assumptions that had formed a distinctive part of philosophy in the past (Moran, 2000: 2; Wrathall & Dreyfus,

[145] Husserl refers to the act of essence-viewing as *Wesensschau*, a 'looking at being', to "rehabilitate the *a priori* character of fundamental thought-elements of experience, as against the prevalent psychologizing of the thinking process" (Hocking & Hocking, 1959: 304).

[146] Edmund Husserl had already defined Phenomenology in the First Edition of *Logische Untersuchungen* (*Logical Investigations*, 1900–1901) as "the phenomenology of the experiences of thinking and knowing" (Moran, 2000: 1; Wrathall & Dreyfus, 2006: 2). Husserl had begun using the term earlier, in the 1890s in his lectures on Franz Bentano entitled *Phänomenologie: ein Abschnitt in Brentanos Metaphysik (Klärung von Grundbegriffen)* (Wrathall & Dreyfus, 2006: 2).

[147] Compare Cerbone's discussion of essences in *Understanding Phenomenology* (2006).

2006: 2). Therefore, Husserl is interested in the objective essential structure of consciousness and thus argues that a 'bracketing' of one's theoretical assumptions should take place as the initial step of phenomenology.

In other words, before phenomenology as pure consciousness can be ascertained, one must (in Husserl's view) be aware of and be critical of one's natural attitude ('common-sense thinking' or 'the attitude of everyday life'). Husserl contrasts the natural attitude with the phenomenological approach in *Ideen 1* (1913)[148]. His discussion of a metal cube placed on his desk is of importance in this distinction he makes.[149] Although all sides of the cube cannot be seen, it is possible to describe through phenomenological reflection how we experience the cube as a unified structure even though some of its sides are hidden from view.[150] Going beyond the natural attitude (which only accepts one side as given) allows a description relating to the essence of how the cube is presented to consciousness, rather than its appearance through our natural perception. The cube is constituted by the intentional interpretation of immanent content; whilst the cube has immanent content it is only perceived by one, two, or three sides. However, the observer perceives through transcendence the cube as a cube. In the natural sciences, the 'natural attitude' as based in empiricism will be privileged through the assumption (theoretical framework) that only empirical perception (of the one, two, or three sides of the cube) gives access to true knowledge and eventually to the essence of the thing as its most invariable appearance. Phenomenology, on the other hand, focuses on the essence of the experience, on the things themselves, on the *eidos* (that which is seen: form, image, shape) which in Husserl's view is perceived through transcendence. *Eidos* (what is seen) is derived from the verb *eido* (to see, to apprehend). It is from these Greek words that the description of phenomenology as an eidetic science was formed. One must also be hesitant to describe phenomenology as essentialist in a reductionist manner. The phenomenologist always engages with more than the essentialist (in a holistic or relational fashion), but thereby at the same time comes

[148] English title: *Ideas Pertaining to a Pure Phenomenology and to a Phenomenological Philosophy – First Book: General Introduction to a Pure Phenomenology* (1913).

[149] Sartre later discusses the appearance of a cube in his discussion of 'transcendence' in *The Imaginary* (1940: 8). Whereas Sartre illustrates the difference between the temporal nature of the structure of *pour-soi* and *en-soi*, Husserl discusses the cube in relation to the intentional object. Compare also Spiegelberg's *The Phenomenological Movement* (1982: 511–513).

[150] In terms of the phenomenon of digital technology, individuals have reached a "comfort zone" (Jones, 2006: 5) that contrasts with earlier fears of individual domination and apocalyptic potential through technology.

closer to the essence of the phenomenon by 'bracketing' certain theoretical frameworks and assumptions in one's consciousness.

Husserl presented his phenomenological bracketing as a "return to the things themselves" in one's experience of phenomena. The goal of the bracketing is to separate out the general conditions of deduction through logic (eidetic reduction) (Magill, 1963: 887; Ricoeur, 2007: 5). Phenomenological reduction entails the process whereby the philosopher suspends, 'brackets' or 'puts out of play' all beliefs, distractions and commitments regarding consciousness to gain a pure or unadulterated view on his or her conscious experience of a phenomenon (thus, to develop a capacity to investigate the very phenomenon of something). For this reason, Husserl refers to his phenomenological method as *pure* phenomenology (a description of the 'things themselves') and this descriptive approach forms the basis of the later phenomenological approaches (Thomson, 2009: 195).

Phenomenological bracketing forms the start of the Husserlian phenomenological approach, for what Husserl strives to investigate are the concepts of experience that often remain uninterrogated (often to the point where we do not realize the inappropriateness of certain theoretical and conceptual biases that distort or completely fail to engage with the phenomena at hand). From a Kantian perspective, one may argue that Husserl blends intuition and understanding, because for Husserl the contours of one's experience of the world are not simply found in fixed conceptual structures that one's mind has overlaid onto the world. Rather, one's experience of the world gives categories to one's mind (through eidetic reduction) that the fixed structure of one's mind did not first give to the world (Thomson, 2009: 196).[151] Hegel was similarly critical of Kant's fixed categories in the human mind through his first-person analysis and historical grounding in *Phenomenology of Spirit* of the discursivity thesis. Husserl's methodology permits the grounding of knowledge in one's lived experience, but without reducing the content of this knowledge to merely

[151] Kantians object to this Husserlian argument as *the myth of the given*. The dichotomous basis (between sensory 'intuition' and conceptual 'understanding') that underlies the Kantian critique has, in turn, been questioned by phenomenologists (compare Merleau-Ponty's concept of *the flesh*), the neo-Hegelianism of Brandom, the neo-Kantianism of McDowell, and the neo-pragmatism of Davidson and Putnam (Thomson, 2009: 200).

subjective or contingent features of experience. Husserl tries to avoid such a reduction by focusing on the 'intentionality' of phenomena.[152]

For Husserl, the principal structures of consciousness concern *intentionality* – the idea that consciousness is always *about* something, and it is through an investigation into these intentional experiences that a philosophical understanding of the world may be reached (Pivčević, 1970: 149).[153] Husserl argues that intentionality (intentional acts or object-directedness) give the meaningful structure through which the mind may be directed towards objects (Ricoeur, 2007: 6; Wrathall & Dreyfus, 2006: 2). Intentionality emphasizes that there is a 'givenness' or 'manifestation' of objects in experience (because it is about something), and pure phenomenology seeks to trace how this is possible. Through intentionality one finds that conscious categories need to be structured according to the structures of experience, and thus be concerned with the presentations and representations of objects. In phenomenology, for Husserl, there is thus in our return to the things themselves a 'bracketing of the consciousness' that takes place on the one hand, but also an 'intentionality of this consciousness' (where there is an awareness of the consciousness about something, or vice versa the representations of phenomena) that should be considered at the same time. The notion of an *intentional consciousness* is thus a central aspect of phenomenology for Husserl in this constitutive phenomenological era. Husserl's student, Heidegger, identified intentionality in phenomenology within a more general background grasp of the world from our being, from *Dasein* (Heidegger, 2001: 84).

2.3.3. Existential Phenomenology

[152] Through his epistemological critique of Kant and Descartes, Husserl embedded himself within concepts of 'subject/object', 'internal/external', 'body/mind', 'ego', and 'consciousness'. This terminological baggage informed many interpretations of Husserlian phenomenology as a 'subjective' style of philosophy (Ihde, 2009: 9-10). However, it is the intention of Husserl to invert these terminological usages through the use of various reductions and, though taking its starting point from this terminology, he arguably does succeed in developing a philosophical path that retains its critical edge with regard to the foundational character of these concepts. Following on from Husserl, Merleau-Ponty would expand his criticism of these concepts (especially with regard to the unjustifiable use of the correlatives).

[153] Intentionality contrasts with the view that an accumulation and analysis of 'external' data that a philosophical understanding of the world may be reached, found particularly in the natural sciences and rationalist philosophies. Bodily intentionality is for Husserl predicated on "the privilege of the localization of touch sensations" that grounds one's bodily self-awareness due to the double aspect (touching-touched) of tactile sensation (Ideas II, page 150). Merleau-Ponty expands this double aspect of touch to all sensibility in his account of the flesh.

The third era of the development of phenomenology is Existential Phenomenology. After Husserl, Heidegger (1889–1976) and later Merleau-Ponty (1908–1961) were the two phenomenologists who developed and sometimes radically altered the trajectory that Husserl had created for the phenomenological movement.[154] Heidegger's phenomenology differed from Husserl's own conception, particularly in terms of Heidegger's questioning of being. The publication of *Being and Time* (1927) by Heidegger established him, along with Husserl, as one of the most influential philosophers in the phenomenological movement prior to Merleau-Ponty (Moran, 2000: 3).[155] Merleau-Ponty later sought to question again the basis of phenomenology in his preface to *The Phenomenology of Perception* (1945)[156] by asking, "What is Phenomenology?" (PP vii). But it is important to understand Heidegger's influence on phenomenology before one returns to this question of Merleau-Ponty.

Heidegger developed phenomenology into 'phenomenological ontology' or 'existential phenomenology' through his description of *Dasein. Dasein* is for Heidegger the experience of being that is particular to human beings (Heidegger, 2001: 34–35), a being that is here and now. In *Being and Time,* he argues that *Dasein* comports itself towards death – we are living-onto-death. Heidegger 'interrogates, explicates and analyses' the concept of *Dasein* as a being-in-the-world based upon a care structure that is always embedded in time, and argues that it is from *Dasein* that any ontological inquiries must be undertaken. The world of objects is thus a system of reference and meaning structured in reference to *Dasein* (Schrader Jr, 1967: 35). The ontological content for Heidegger is being and the methodology used to clarify and explicate the meaning of being is phenomenology. Heidegger describes *Dasein* as the being whose being is an issue for itself, or in other words the being who thinks about Being (Heidegger, 2001: 31–33). An existential analysis of *Dasein* points towards average everydayness in a specific environment. The 'first philosophy' or starting point for

[154] In a similar vein, Scheler and Ortega y Gasset's philosophies focused on the Lifeworld and challenged the possibility of transcendental phenomenology pre-Heidegger.

[155] Published as *Sein und Zin* (1927). Translated to English in 1962. The Macquarrie and Robinson translation in the 2001 edition published by Blackwell is used in this study.

[156] First published in French as *Phénoménologie de la perception* by Gallimard in 1945. English edition first published in 1962 by Routledge & Kegan Paul. Throughout this study the 2002 edition published by Routledge is used.

Heidegger is ontology[157] and it remains the most important question of phenomenology in his view.[158]

Heidegger sought to engage with the objects of immediate experience and to describe these objects as they reveal themselves in a primordial sense (Heidegger, 2001: 28–35; Magill, 1963: 887). The things we encounter in our average everydayness are structured by way of our 'concern'. The intentionality described by Husserl thus becomes an equipmental (*das Zeug*) ready-to-hand (*Zuhanden*, through use) and present-at-hand (*Vorhanden*, through availability for use) in Heidegger's phenomenological ontology.[159] Heidegger rejects the value of intentional directedness interpreted centrally through mental meanings and inherently criticises Husserl's phenomenological method (Wrathall & Dreyfus, 2006: 3). Heidegger's approach implied a major shift in the phenomenological method, for he sought to understand the structure of one's everyday being-in-the-world, one's thrownness (*geworfen*) into the world (Heidegger, 2001: 219–225) rather than the structure of consciousness – the existential and lived concerns of the individual are central in his phenomenological approach in comparison to Husserl's.[160]

The Existential Phenomenology that Heidegger initiated had a great influence on and was furthered by Merleau-Ponty. Merleau-Ponty's work may therefore be characterised under this third era of the development of phenomenology, but he had a unique contribution to phenomenology through his strong emphasis on human embodiment and perception. In Chapter Three, Merleau-Ponty's development of Heidegger's being-in-the-world into a phenomenology of embodiment will be elucidated. It is specifically Merleau-Ponty's phenomenology of embodiment, against a background of disembodied theories of technology and particularly digital technologies, that is of importance for this study's investigation into contemporary forms of technology.

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[157] Ontology is for Heidegger an inquiry into the foundational sense of being that an existential analysis of *Dasein* yields.

[158] Heidegger later disavows the description of his thought as phenomenological. He distanced himself from Husserlian phenomenology, because the starting point for Heidegger's phenomenology is found in being and its worldly relations rather than in mental contents or consciousness (as done by Husserl).

[159] There is not just equipment for Heidegger, but rather a totality of equipments. Every item of equipment slots into the broader total equipmental context in *Dasein*'s way of viewing these entities (Heidegger, 2001: 134–138).

[160] Heidegger's method, however, remains phenomenological in nature and therefore his works can be described as Existential Phenomenology because they engage with the historically and culturally relative individual, thrown into a world.

2.3.4. Hermeneutic Phenomenology

After the works of Heidegger[161] and Merleau-Ponty there was a turn towards Hermeneutical Phenomenology, the fourth historical period of phenomenology, as typified in the works of Hans Georg Gadamer, Paul Ricoeur and other contemporaneous authors.[162] Hermeneutical Phenomenology did not however end Heidegger and Merleau-Ponty's influence on phenomenology. Rather, it represents a shift in focus towards the linguistic turn in phenomenology, and Heidegger and Merleau-Ponty remain central figures within this tradition due to their focus on being and embodiment while making specific contributions to the later hermeneutic turn (for example, Merleau-Ponty's conceptualization of language). These thematic shifts are also visible in Contemporary Phenomenology, which focuses centrally on the 'life-world', or in Heideggerian terms, 'being-in-the world'.[163]

2.4. The phenomenological method

Phenomenology (*phenomenon* + *logos*) has the Greek etymological root *phainomenon* ('that which reveals' or 'shows' itself), derived from the verb *phainesthai* ('to become visible'). Interestingly, *phaino* means 'shine' and *phanos* means 'lantern', which emphasises a seeing, a coming to light, being visible, or that which appears. The second constitutive etymological element of phenomenology, *logos,* has the original Greek meaning of discourse, an account or reason. *Phainomenon* suggests an 'opening to sight' or 'letting something be seen'. Thus, phenomenology is the logos ('logical account' or 'reasonable discourse') of the phenomenon. It is 'the disciplined attempt to open to sight that which shows itself', and to let something be seen as it is (Magill, 1961: 887). Because of this

[161] Although Heidegger does describe his own phenomenological method as hermeneutical in the preface to *Being and Time*, which suggests at least some degree of conceptual overlap.

[162] Including Richard Kearney, whose diacritical hermeneutics has contributed greatly to the current state of contemporary phenomenology. His diacritical hermeneutics serves a critical function, a criteriological function of discerning between competing meaning-claims, and a grammatological function that gives attention to grammatological marks (Kearney, 2011: 2).

[163] The misnomer 'Cultural Phenomenology' was initially given as means of distinguishing this period in phenomenology, but the focus during this period is wider than the cultural. It is rather the life-world (the socio-historical world of culture) which is the starting point for reflection and thinking in contemporary phenomenology (Embree, 2013: 397). Embree, however, highlights the priority of the cultural sciences over the naturalistic sciences in developing phenomenological descriptions (Embree, 2013: 397). To understand the life-world, one must look not simply at the naturalistic sciences, but rather at the role that the cultural plays in the phenomenal field.

'disciplined attempt to bring to light', phenomenology is often described methodologically as reflective analysis (Thomson, 2009: 195). In short, phenomenology entails a resistance against the forcing of conceptual categories onto human experience and achieves insight through reflective observation of the things themselves (i.e. phenomena). It corrects observations and descriptions which are incomplete, and it extends these observations and descriptions. Therefore, in using the phenomenological method, "one must discard all preconceived logical and epistemological constructions and seek to examine and describe the phenomena as they show themselves" (Magill, 1961: 887). In this sense, phenomenology contrasts methodological approaches that are prevalent in the natural sciences.

Phenomenology, in other words, traces phenomena as presented to one's experience or consciousness rather than as derived from theory and theorization. This 'tracing of the thing itself' is done to find a more accurate, uncovered and comprehensive account of phenomena presented to the consciousness. Phenomenology is therefore fundamentally descriptive. Its central project is a form of pure description, without theoretical models outside the realm of experience. These descriptions come before theoretical explanations and interpretations, functioning as a means to reach the individual and universal essences of what things are as they are presented to consciousness through experience (Embree, 2013: 397).[164] As method, phenomenology proceeds not by way of proof or argument as such, but rather through innate intuition to uncover the essence of individual experience or what may be termed the 'mental life' of an individual (Embree, 2013: 397; Schrader, 1967: 387-388). Phenomenology is however not simply an agreed-upon method and does not readily cohere into a single theoretical approach (Moran, 2000: 3). Diversity, rather than unification of opinion, is a central theme in phenomenological investigations (Schrader, 1967: 387–388).

2.4.1. Some limitations of the phenomenological method

The phenomenological method has been chosen for its central focus on embodiment, its facility of allowing one to see things that may be hidden (though such things seem at first sight obvious), and for its presumed capacity to provide a sure methodological foundation

[164] While Husserl had no problem theorising about experience, Sartre inherent argues that Husserl does not do so.

for investigating a phenomenon that is forever changing and has a 'continual beginning'. It is presumed to overcome the central challenges of technology that are intensified in digital technology. Furthermore, although the use of the phenomenological method has been recommended as corrective to the methodological shortcoming of disembodiment in terms of the phenomenon of digital technology, it should be highlighted that the phenomenological method also has specific limitations. In philosophy, one may find oneself confronted with methodological limitations in any investigation and an acknowledgement of such limitations is crucial at the outset of an investigation to ensure intellectual honesty and rigour.

An initial shortcoming is the focus on human subjectivity, i.e. the conscious mode of being, as distinguished from Sartre's identification of 'nothingness' and 'negation' as inherent parts of being (for Sartre, consciousness is nothingness, as described in *Being and Nothingness*). From a point of subjectivity, Sartre argues, only subjectivity may be seen and, on the other hand, from the point of existential subjectivity, only existential subjectivity – thus, the phenomenological method cannot proceed beyond these inherent points of departure (Pivčević, 1970: 145). For Sartre, this led to a broadening of his own methodological approach beyond the supposed 'presuppositionless-ness' that phenomenology wanted to offer (and to the inclusion of a range of assumptions that moved beyond the phenomenological).[165] Sartre's existential dialectic, as response to the perceived limitations of 'presupposition-less' philosophizing, thus stands in contrast to Husserl's transcendentalism. Later, with Merleau-Ponty, there is a turn to a more existential mode of phenomenology that places a greater emphasis on action and an argument against Husserl's intellectualism. The confines of human subjectivity remain a major limitation for the phenomenological method, but also present the theoretical basis for phenomenology – human subjectivity forms the ground for knowledge, experience and perception.[166] The individual human situation, her everyday activities and concerns, her particularity and her universality, presents a horizon that is inescapable. Such an admission is necessary to

[165] An example of such an assumption is that the mode of production of material life generally supersedes the social, intellectual and political (Pivčević, 1970: 146). Such assumptions closely link Sartre's existentialism and Marxist dialectic materialism, both of which reject an Aristotelean philosophy to which Husserl still subscribes – for Husserl, philosophy was still a contemplative theoretical activity, or *theoria*, as opposed to Sartrean and Marxist views of philosophy as based in materialistic action, existential commitment and anti-rationalist bias.

[166] See a similar discussion in Section 1.4.1.3. on the disembodiment suggested by posthumanism.

counter logical positivism's untenable assumption of an a-temporal and a-historical being, through a presumed objective 'view from nowhere' (Schrader Jr, 1967: 3).

Edo Pivčević identifies two further major problems that phenomenologists must confront. Firstly, there is the problem of clarifying the status of science and scientific knowledge in relation to philosophy (Pivčević, 1970: 147). Although phenomenology is not anti-science, there is in the movement a questioning of the method of deductive reasoning based on explicit presuppositions, scientific hypotheses, and a degree of purported irrationalism. After Husserl, phenomenologists increasingly abandoned a 'science of the sciences' and argued for an 'existential dialectic' above perceived inferior scientific methodologies and 'analytical reason'. In this study, a similar questioning of empiricism, rationalism and social epistemology motivates the search for a renewed investigation into the phenomenon of digital technology. Though Merleau-Ponty similarly questions the absolutizing nature of natural scientific rationality, his central aim is a reflection on the limitations of the scientific methodology.[167] Merleau-Ponty, as example of an existential phenomenological perspective, does not dismiss the contributions that science can make within the realm of theoretical thinking. Lived experience is, however, contrasted with pure theoretical rationality. Similarly, in this study, the perspectives of pragmatism, social constructivism and posthumanism are not summarily dismissed as avenues for knowledge of the phenomenon of digital technology – rather, the limitations of such 'scientific' approaches are acknowledged, the absolutizing or ideologizing potential of such approaches recognized, and a more circumspective methodology advocated (that of phenomenology).

Secondly, the problem of 'other people' in relation to individual subjectivity is highlighted as a shortcoming of the phenomenological methodology (Pivčević, 1970: 147–148). Husserl suggested the 'transcendental Ego', through which empirically one is aware of the existence of other people by performing a phenomenological reduction from the view of others – an empiricism which should be phenomenologically suspended as part of one's own phenomenological reduction.[168] Merleau-Ponty, through his praxical embodiment,

[167] Compare Section 3.2.1.

[168] Heidegger postulated 'being-with-others' as crucial for understanding *Dasein*, as part of 'being-in-the-world'. However, others contribute to inauthenticity and the 'they' keep one from the 'call of conscience', the 'return to ourselves' and one's own 'interiority'. The question of living as an individual in a society remains, as does the question of the 'other' beyond its constitutiveness in one's own existence.

presents a possible solution to this dilemma – one's awareness of one's own embodiment necessitates an 'other' that is also aware of her own embodiment. Furthermore, Merleau-Ponty argues that neither empiricism nor intellectualism can account for the existence of other people in a more convincing manner.[169]

However, with these limitations acknowledged, it is argued that the phenomenal investigative character of phenomenology may allow insight into the phenomenon of digital technology that overcomes the challenges related to this specific phenomenon (and as seen in pragmatism, social constructivism and posthumanism).[170] Phenomenology cannot merely function as presupposition-less philosophy, but through a careful selection of those minimum number of presuppositions that may broaden the method's investigative potential, may provide valuable insights into a phenomenon (such as the phenomenon of digital technology) that presents challenges to other methodological approaches' disembodied theorizing. These presuppositions include the embodied individual as measure of the phenomenon of digital technology.

2.5. Early phenomenological approaches towards technology

Heidegger distinctly applied his phenomenology to the question of technology.[171] A major difference between Husserlian and Heideggerian phenomenology is highlighted in their different approaches to the phenomenon of technology, as Husserl and Heidegger provide different answers with regard to the essence of technology as presented to consciousness (and as to the possibility of even tracing the essence of technology at all) (Thomson, 2009: 195, 197). While later Husserl and early Heidegger both agreed that the empirical sciences (including technology studies) cannot effectively trace the philosophically necessary question of the essence of the phenomenon of technology, Heidegger's later view had more in common with Hegel's view of historicity than Husserl's teleological view on historical development. What is found in Heidegger is an onto-historical trend towards increasing

[169] Refer to Section 3.2.2.
[170] Compare Section 1.2.2.
[171] See *The question concerning technology* (Heidegger, 1977).

technologization, through which human beings are meaningless resources to be optimized.[172]

The reasons for discussing Husserl and Heidegger in this section may require some clarification at this point. These thinkers are discussed in reference to their phenomenological approach towards technology, particularly to show some of their central limitations. These sections do not serve to fully define their thought or their approaches to technology in its entirety, but rather illustrate their initial directions laid down regarding technology in phenomenology. These directions will serve to underline Merleau-Ponty's own thought and show how unexcavated concepts from Merleau-Ponty's phenomenology of embodiment may drive the debate further.

2.5.1. Husserl and technology

Husserl treats artefacts as 'instrument-things' and says very little directly concerning the phenomenon of technology. Husserl does not question technology through his eidetic reduction, instead linking it to 'anti-essentialist'[173] approaches of technology found in the sociology of science and in social constructivism (for example, in the works of Pinch and Bijker) (Thomson, 2009: 198). Husserl makes scarce reference to technological artefacts (except for the telescope and microscope in his *Nachlass* texts).

What one may extrapolate from Husserl's phenomenology, regarding technology, links to the fundamental orientation of social constructivism. Husserl was critical of the mindlessness of scientific and technological acceptance in modern Western civilization, particularly as described in his *Crisis of the European Sciences and Transcendental Phenomenology* (Husserl, 1936; Zahavi, 2003: 125).[174] He precedes later Heideggerian critiques of calculative thinking in the sciences and technology infiltrating the broader cultural mindset, whilst not considering all forms of such calculative thinking destructive. Husserl does not dismiss science and technology, whilst also recognizing that technology

[172] Compare Section 2.5.2.

[173] The term essentialist is here employed in its non-phenomenological usage.

[174] Compare Husserl: "… merely fact-minded sciences make fact-minded people" (Husserl, 1936: 6) and "… with sufficient progress in physics and chemistry mankind will come so far that … [he] will cure not only physical but also moral syphilis" (Husserl, 1980).

is not neutral owing to its modification of one's experience. He does see some degree of value in natural scientific reasoning, linking superficially with Deweyan pragmatism, in that natural scientific reasoning leads to an active inquiry into the difference between the natural scientific modes (to create an increased objectivity) and everyday modes of encountering the world (Husserl, 1929: 124).[175]

However, for Husserl, the natural scientific mode does not provide a clear route to the philosophical reflective (the phenomenological), for scientific and technological thinking assumes impunity of criticism through presumed scientific objectivity. On the other hand, the phenomenological reduction reveals this potential in scientific (and technological) thinking and thus functions outside the limitations of such thinking in Husserl's view (Visvanathan, 2003: 168). Husserl argues that one must look at science and technology 'honestly' through a call to self-responsibility to prevent a dogmatic acceptance of the calculative authority that arises in these fields (Kelly, 2005: 229).[176] Inherently in this discussion, Husserl reveals a dealing with science (and technology) as epistemology, reduced to a form of thinking and a form of knowledge. In this sense, Husserlian perspectives on technology reflect a similar criticism that was levelled against social epistemological methodologies in Chapter One.

Don Ihde, in *Husserl's Missing Technologies* (2016), develops a description of what he calls the 'missing' conceptualizations in classic phenomenology through an analysis of Husserl's perspective on technology from a postphenomenological perspective.[177] For Ihde, Husserl's description of science as project should be interpreted through the praxis and technological

[175] The natural attitude refers, for Husserl, to both ordinary science and one's thinking in one's everyday life. In this context, however, the everyday mode of thinking is contrasted with the natural scientific mode for descriptive purposes.

[176] Ullrich Melle develops a Husserlian ethics for the modern technological age through his expansion of Husserl's *Crisis of the European Sciences and Transcendental Phenomenology*, focusing on radical, absolute self-responsibility. In the technological era, the shadow of falsification of technological ideals looms large. Technological ideals become problematic when actions are built upon the perceived 'benefits' of technology without the necessary reflection to prevent abuses of power based on class and political interests (Melle, 1998: 338–339). Melle directly links such abuses to technology, which he describes as the 'fate' of our age, whilst Husserl directs this criticism towards science.

[177] Ihde wishes to follow themes of classic phenomenology as well as to re-contextualize these themes through the study of technoscience in culturally and socially contextualized embodiment relations. Ihde focuses on revealing technologically shaped society as revealed beyond the individual's bodily limits. This links to posthuman thought, and echoes the social constructivist project of moving beyond the individual.

materiality of scientific inquiry to gain insight into technology (Ihde, 2016). In this, Husserl is still focused on technology through the lens of natural scientific thinking.

Husserl's reflections on science and technology make two central points regarding the phenomenon of technology; firstly, that scientific and technological achievements are shaped by subjectivity and, secondly, that to alleviate the crisis of science and technology requires the recognition that subjectivity is based on a self-responsible agent seeking evidence for beliefs about, and actions with regard to, science and technology. Technology remains within human control, but positive engagement with it requires a specific type of reflection. Whilst Husserl refrains from an inquiry into the phenomenon of technology beyond such broad descriptions, Heidegger develops a more foundational investigation into the essence of technology as it is encountered by the individual.[178]

2.5.2. Heidegger and technology

One of the most prominent phenomenological analyses of technology is found in Heidegger's *The Question Concerning Technology*, in which Heidegger developed phenomenology into the domain of technology. Heidegger's goal with his 1954 essay was to develop a 'free relationship' with technology by tracing the essence of technology. A primary characteristic of technology for Heidegger is the concept of *enframing* (*Ge-stell*), a view on the world and people that demands that they should be viewed as resources (or 'standing reserve') to be maximally used by *Dasein*.

For Heidegger, the essence of technology is found not in technological artefacts, but rather in how technology comports *Dasein* towards the world, i.e. as framed against the concept of 'standing reserve' (or *Bestandt*) with regard to the world.[179] Andrew Feenberg (2012: vii)

[178] Both Heidegger and Husserl investigated the way in which things represent themselves to consciousness when matters are not distorted by theoretical frameworks that do not fundamentally reflect these phenomena themselves. To this end Heidegger formulated the concept of *Dasein* or 'being here' (making understandable the place wherein one finds oneself) to remove the residual Cartesianism that remained in Husserl's description of consciousness as a sphere of intentionality (Thomson, 2009: 195, 199). According to Heidegger, phenomenology requires "letting what shows itself from itself be seen in the very way in which it shows itself from itself" (Heidegger, 1962: 58), and in his later work he brought this phenomenological perspective to bear on technology.

[179] For Heidegger, a primary aspect of Being is to *disclose* itself as being (in fact, this is the primary concern of *Being and Time*). Disclosure is how *Dasein* can assess the being of being, to show itself and to be seen (revealing its fundamental ontology). The turn in Heidegger's thought sees Being as not something in itself, but rather with the

describes how "… the Heideggers deplored the dehumanizing advance of the machine", which accurately reflects Heidegger's thought on technology as societally shaping. The phenomenon of technology is not found in artefacts or tools, but rather represents a way of being in the world. The world is placed in 'standing reserve', to be treated and manipulated as meaningless resource under the auspices of rationalistic thinking. Once this way of being, this historical transformation of individuals, becomes pervasive, one's noticing of *Bestand*-type being moves increasingly beyond the scope of one's philosophical critical evaluation (Thomson, 2009: 198). Not only the world, but person themselves are treated as a meaningless resource (objects) to be optimized, enhanced and ordered.[180]

Both classic phenomenology and broader Western philosophy play a role in the perpetuation of this totalizing system, this technological covering up of Being, for Heidegger (Margolis, 1983: 294–295). Following the Cartesian epistemological drive towards absolute certainty in the perceiving subject, we find in modern philosophy a 'technologizing' of experience through rationalist calculative thinking. The need for prediction and explanation with absolute certainty leads to a representing (*Vorstellen*) of objects within a prescribed framework (*Gestell*) that stockpiles (*Bestand*) the world as represented to the subject, not as something to be revealed or uncovered through a recognition of the object's otherness, but as something to be catalogued, stored and used (Heidegger, 1977). For Heidegger, even 'pure' phenomenology cannot escape this 'technologizing' function, because even in Husserlian phenomenology the thinking subject is seen as taking a detached 'view from nowhere' regarding experience.

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things in the world that affects *Dasein*'s relationship to being (such as technology). This later period in Heidegger's thought may be described as the history of Being, or *Seingeschichte*. Thus, by the time that Heidegger considers technology through his initial critical appraisal of the instrumental and anthropological definitions of technology in *The Question concerning Technology*, we find that the question of technology is not at all technological (Heidegger, 1977: 4,5). Rather, the definitions of rationalism and empiricism obscure the relationship between being and technology. Instead, Heidegger looks to technology as *poiesis*, and further as *aletheia*, as the revealing of technology as giving control over possibility of enframing entities within the world along rational scientific lines based on the concept of the standing reserve. The essence of technology is thus found in the structuring of physical components to promulgate this frame of mind, a 'challenging revealing' that organizes the world into a 'standing reserve'. Heidegger's concept of technology differs, however, from Merleau-Ponty's embodied description while providing a context for broader engagement with technology.

[180] This technical rationalist thinking occurs on many levels, such as cosmetically, psychopharmacologically, genetically and even cybernetically (Thomson, 2009: 198).

Heidegger is critical of this manner of enframing. It presents a danger for Being, as such an orientation (motivated by the rationalistic scientific way of thinking that underlies technological development) fails to disclose the identity of the other and the essence of the world, and through one's own role as human standing reserve, obscures *Dasein*. Enframing via technology hides, rather than opens up, Being's relation to the world and to other humans. It represents an incomplete and partial understanding of Being. All is reduced to a resource to be utilized effectively and efficiently, thereby obscuring other ways of seeing.[181] [182]

One reason for this study's suggestion to move beyond Heideggerian phenomenology is that Heidegger's thought bears a degree of relation to Dewey's pragmatism.[183] The same problems of pragmatism in investigating technology, such as a focus on a social epistemology in philosophizing on technology, arise in Heidegger's approach towards technology. Heidegger intimately relates understanding to practice in much the same way as Dewey, for having an understanding of being and relating oneself effectively to being are inseparable – understanding of being is intrinsic to the practice of being; and how one behaves is vital for understanding the world (Schrader Jr, 1967: 36).[184] This correlation fundamentally influences Heidegger's view on technology in a pragmatic manner, and Heidegger's later account of technology is still lodged in social constructivism. A distinction between the pragmatism of Heidegger and Dewey is the naturalistic character

[181] One example is the way that *poiesis* is eclipsed by *techne*, whilst *poiesis* is a broader way of revealing and may describe the (or an) essence of technology in the phenomenological manner. The danger of instrumentalist *techne* also has the potential to be transformed into something positive in the form of *poiesis* (as a mode of being that is not governed by the priorities of efficiency, through a broader and inclusive conceptualisation of reality). In the Merleau-Pontian vein, the current study also appeals for an artful *poiesis* rather than a reductionist and instrumentalist *techne*.

[182] It is notable that, in this later period of Heidegger's work, he postulates a different relation between *Dasein* and being than that which is found in *Being and Time*. Importantly, what Heidegger sees as the essence of technology is not found in the technological (for Heidegger, the essence of the technological is not at all technology), but rather in the understanding of Being that makes technology possible. Such an approach is also suggested in this study, that focusing on technology itself is not sufficient for elucidating the phenomenon of technology. Rather, in this study it is proposed that embodied personhood is a necessary starting point for developing a description of the phenomenon of (digital) technology in a foundational, encompassing and multimodal manner. For Heidegger, technology is a danger because it keeps us from having a proper understanding of being, whilst in the Merleau-Pontian vein an understanding of technology is necessary for understanding our being in the phenomenon of digital technology (these considerations will be explored in Chapter Four). On the other hand, this study is a Merleau-Pontian continuation of Heidegger's concern with technology.

[183] Compare Section 1.3.1.2 and Section 1.3.2.

[184] Both Heidegger and Dewey would agree that such understanding would, in turn, make a practical difference (Schrader Jr, 1967: 36).

of Dewey's thought, which contrasts to Heidegger's phenomenological approach (Schrader Jr, 1967: 36). Heidegger presents, through *Dasein*, an account of ontological themes such as anxiety and authenticity that Dewey's naturalistic approach cannot give an account of. The reflective and theoretical is for Heidegger merely a part of understanding the world, in contrast to Dewey's naturalistic emphasis. Furthermore, Heidegger then moves on to language in his analysis of technology to present both the danger of technology, and a possible means of salvation (Achterhuis, 2001: 4). Finally, it should be highlighted that Heidegger's concept of *Dasein* lacks an analysis of its relation to the body (Kearney, 2011) even though the body will be presumed in this study as the primary avenue for access to the phenomenon of digital technology.[185] In the next section, postphenomenology as explication of Merleau-Pontian phenomenology of embodiment in the realm of technology will be presented.

2.5.3. Postphenomenology (The recurrence of pragmatism and empiricism)

Postphenomenology is codified most prominently by Don Ihde in "A Phenomenology of Technics", excerpted from *Technology and the Life-world: From Garden to Earth* (1990), wherein he suggests a framework for addressing patterns of human experience in technology. Postphenomenology presents a modification and development of phenomenology (and partly Merleau-Ponty's phenomenology). According to Ihde, postphenomenology fundamentally incorporates empiricism and pragmatism into its account of technology to overcome the perceived problems and shortcomings of phenomenology (2009: 23). Phenomenology is perceived in this tenor as antiscientific, locked into idealism or solipsism, and entrenched in a subjectivity that should be overcome.[186]

However, postphenomenology still recognizes some value in phenomenology, particularly in its understanding of the lifeworld, the concepts of embodiment and bodily perception, and its development of an analytical style of variational theory (which postphenomenology

[185] Compare Section 2.6.
[186] Refer to Section 2.4.1 for a discussion of this criticism of phenomenology.

'translates' as 'multivariances').[187] But these aspects of phenomenology are taken to enrich pragmatism, rather than as used in classic phenomenology. In terms of its subject of investigation, the field of Philosophy of Technology provides a ground for postphenomenology to "probe and analyze the role of technologies in social, personal, and cultural life that [postphenomenology] undertakes by concrete – empirical – studies of technologies in the plural" (Ihde, 2009: 23). In doing this, postphenomenology functions within particularity and historical embeddedness that differs strongly from a 'pure' or classic phenomenological approach (despite terminological connections).

For Ihde, artefacts (including those of technoscience) "maintain the connection of the sciences to the lifeworld" (2016: 82). He argues that in classic phenomenology, artefacts are merely objects that are entered into practical contexts (to become equipment). Artefacts thus remain objects present-at-hand. Ihde's postphenomenology substitutes embodied instrumentation for consciousness, which describes a form of instrumental transparency through skilled use. Both local environments experienced through embodied perceptions and the larger cultural contexts wherein techno-scientific practices function become a central focus.

There is in postphenomenology, apart from a philosophical system based in pragmatism and empiricism, also a mandate about how technology should be investigated: through the integration of pragmatism, phenomenology, and empiricism with regard to questions of technology (thus, an inherently natural scientific perspective coloured by phenomenology). With each form of technology there are "interrelated embodiment skill[s] that implicate us embodied humans and for which there is a possible postphenomenological analysis" (Ihde, 2016: 76). However, the critical evaluation of pragmatism and empiricism already shows that the argumentative line Ihde follows differs from the approach suggested in this study, and it is argued that postphenomenology presents just one possible direction of Merleau-Pontian thinking on technology.

[187] Ihde criticizes Husserl, for example, for working within the confines of Cartesian theory of science that offer no sensible discussion of technology. Husserl still "retains the flavor of the transcendental traditions of modern philosophy" in the view of Ihde. The postphenomenological tradition, in general, finds little contribution from classic phenomenology per se with regard to technology (except where these thinkers specifically mention technology and empirically ground their findings) (Ihde, 1999: 43, 52–53).

An intrinsic part of postphenomenology is utilizing the same techniques of interpretation and analysis found in science and technology studies as they relate to philosophy, and allowing those methodological starting points to influence perspectives in phenomenology. Again, whilst such an approach may be empirically useful for specific technological artefacts, this study argues that such methodologies are insufficient for studying the broader phenomenon of technology (see Merleau-Ponty's critique on rationalism in Chapter Three).[188] It is argued that a description of the phenomenon of digital technology cannot be developed without understanding the role that embodiment plays therein from a phenomenological perspective and without recourse to micro-investigations (empirical and pragmatic case studies). Furthermore, this embodiment should be sketched with regard to the phenomenon of digital technology to describe it in its entirety.[189]

Ihde presents a phenomenological approach with regard to technological analysis and identifies three forms of human-technology relations (Swer, 2014: 204).[190] These three views describe the relationship as embodied (extension of the human body), hermeneutic (experiencing the machine itself) and background (as an enveloping presence) (Swer, 2014: 205). Underlying these three theories of human-technology relations is a 'praxis-perception model' that emphasizes Heidegger's 'materialist' analysis of tools for philosophy of technology (Ihde, 1991: 48).

Taking Heidegger's example of the hammer, we encounter the hammer not first as an object but rather as equipmental in an equipmental context, as "embodiment which extends some human activity into its pragmatic context within an immediate environment"

[188] Compare Section 3.2.1.

[189] *Bodies in Technology* (2002) is a phenomenological study by Don Ihde that deals with the relation between technology and the embodied subject. The book contains numerous essays dealing with themes ranging from virtual reality to growing up male in America. However, Ihde's overall project is to "show what is invariable in the way humans experience their technologies" and he thus attempts to describe certain patterns of experiential recurrence in human-technology interactions (1993: 111). This also suggests that Ihde, by referring to invariant aspects, is abandoning the later Heidegger's project of historicising structures of experience. However, the analysis does not approach technology as an encompassing phenomenon.

[190] Don Ihde also perceives embodiment as an important element in discussions of technology, particularly in *Technics and Practice* (1979) and *Bodies in Technology* (2002). He suggests a phenomenological approach to technology and identifies three forms of human-technology relations (Swer, 2014:204). These three views describe the relationship between technology and the individual as embodied (an extension of the human body), hermeneutic (experiencing the machine itself) and background (as an enveloping presence). Ihde does not focus specifically on the phenomenon of digital technology (as does this study), nor does he choose to trace concepts inherent in Merleau-Ponty's phenomenology into digital technology. Instead, he proposes postphenomenology (which will be critically discussed in Chapter Three).

(Ihde, 1991: 48). Idhe draws on ideas from Merleau-Ponty when he says that the lived body and the physical body are not the same thing, that "such a body experience is one that is not simply coextensive with a body outline or one's skin. The intentionality of bodily action goes beyond one's bodily limits" (Ihde, 2002: 6). Ihde traces how the I-as-body interacts with the environment via technology (Ihde, 2002: 6). He distinguishes between two bodies: Body One is the sensory body and Body Two is the body informed and shaped by culture. Already here there is a contrast with Merleau-Ponty's immediate grasping of the world through our bodies, naïve experiencing.

Equipmental artefacts present an embodiment relation when such artefacts are the means through which one's environment is encountered. These embodiment relations are those symbiotic relationships between the human body and certain artefacts (those mentioned by Brey in the introduction to this chapter) which arise in human-technology interactions. These specific artefacts appear to become a part of embodiment, of the body schema, in their role as a medium *through* which the individual perceives his or her world. Ihde (1990: 72) describes an embodiment relation as taking "technologies *into* my experiencing in a particular way by way of perceiving *through* such technologies and through the reflexive transformation of my perceptual body sense". The artefact is no longer an object of perception, but rather 'withdraws' to become a transparent means through which the world is perceived. The object becomes a part of the body schema for as long as it is used, whether it is a hearing aid or a hammer (Ihde, 1990: 80).

Ihde's examples of perceptually mediated objects such as spectacles or hearing aids fit his concept of embodiment relations well. However, things like hammers and feathered hats do not function in the same way as a blind man's stick to extend perception. Rather, these artefacts have a different relation to the environment. While Ihde's concept of embodiment relations is related to perception, such artefacts fall into a different type of embodiment (these artefacts are still embodied, but in a different way). This leads Ihde to construe embodiment relations as only perceptual, rather than as behavioural.[191] There is a tension in Ihde's work between different types of embodiment relations, forms of embodiment that

[191] Ihde also compounds the experiences of the world through artefacts and the "proprioceptive 'experiences' or representations of the location and orientation of embodied artefacts" (Brey, 2000: 2).

do not lean towards perceptual functioning but still have a form of embodiment. It is argued in the next chapter that within Merleau-Ponty's original conception of embodiment there is a space for a different postulation of embodiment relations in technology that does not go the route of pragmatism and empiricism. Pragmatism and empiricism are taken to lodge technology in the realm of natural scientific investigation; however, pragmatism and empiricism rather describe the phenomenon of technology as a form of social epistemology.

Furthermore, whilst Ihde's theory has the potential to provide important insights into specific technologies, it also has the potential to fall prey to the micro-study critique presented in Chapter One. Brey (2000: 2) similarly suggests that Ihde's account of embodiment relations is too limited to function as encompassing, due to this focus on individual empirical case studies. The main problem is that Ihde does not explain how embodiment relations are constituted, but rather focuses on recurrent patterns of experience in embodiment relations. As argued in the first part of this study, and as presented as part of Merleau-Ponty's argument against empiricism,[192] empiricism alone can only provide specifically local and rationalism-based perspectives on technology. Whilst studies on cell phone use in a moving vehicle and epistemic enquiries into the Mars rover are interesting philosophical reflections on specific technologies, such reflections do not contribute much to the philosophical discussion of the broader phenomenon of technology. The focus in postphenomenology on smaller-scale analyses of technology only reflect different experiences of how technology subtly engages with humans. However, these studies focus, firstly, only on the empirical and secondly, only on the mediation role that technology plays with regard to human experience itself.

Viewing the relationship between the individual and technology artefacts as always mediated presents some further theoretical problems. The most prominent critique is that mediation does not encompass the entire phenomenon of technology insofar as it does not explicate the change in personhood that technology brings about. The personhood of the individual confronted with (digital) technology (or, rather, intertwined with it) is of a wholly different nature to the personhood of the individual who has no such engagement.

[192] Compare Section 3.2.2.

Older forms of technology also influenced personhood in this way, but it is with the frontier/advent of digital technologies and the escalating speed of digital technology developments that the influence on the individual's personhood, through changing the nature of his or her embodiment, becomes apparent through the phenomenon of digital technology's introduction of new opportunities and new problems into society. This influence on society, *of the entirety of the phenomenon of digital technology*, is not just related to an empiricist mediation function. Instead, the primordial way in which we engage with technology has changed, for what it means to be an individual in the phenomenon of digital technology has changed (this point will be discussed in the final section, when the existential implications of the Embodied Screen are discussed).

In summary, the deliberate adaptation and modification of Merleau-Ponty's phenomenology of embodiment and the incorporation of empiricism and pragmatism into this view suggests that postphenomenology presents only one possible direction for the development of a phenomenological account of the phenomenon of technology. However, it will be argued that from the basis of Merleau-Ponty's concepts of the flesh and perceptual faith, a more foundational, encompassing and multimodal account of the phenomenon of digital technology may be crafted which requires little recourse to pragmatism or to empiricism as theoretical framework.

2.6. Conclusion

A central theme in phenomenology, and especially in the work of Merleau-Ponty, is the embodied nature of the individual. However, in the contemporary philosophical debate and in interdisciplinary social sciences, research has seen a resurgence in philosophical reflection and appreciation of the body and embodiment. While debates of embodiment can historically be traced back to Plato, the question of embodiment and the role of the body in cognition reaches a climax in the phenomenology of Merleau-Ponty.[193] Merleau-Ponty is a phenomenologist whose central arguments pertaining to the role of the body in cognition have become prominent again in social studies, and his philosophical focus on

[193] Compare Farr, Price, and Jewitt (2012) for a broader discussion of interdisciplinary themes and perspectives on the relation between embodiment and digital technology research.

the body as foundation for sense-making and understanding the phenomenon of digital technology highlights the relevance of the works of Merleau-Ponty to this study. His views are not just important in terms of broader phenomenological ideas, but also enhance natural scientific approaches. Merleau-Ponty's philosophy is centrally concerned with developing a more thorough perspective on the nature of consciousness, the world and their relation through the body. However, he wants to show that views which construe consciousness as radically different from the world are inadequate because they fail to describe the self's bodily engagement with the world.[194] Embodiment is particularly important with regard to the problem of disembodiment in the phenomenon of digital technology, as it appears to naïve thought that digital technology artefacts themselves direct us further and further away from the body. However, disregarding the role of the body in digital technology does little to reveal the phenomenon of digital technology.

It is methodologically necessary to trace the phenomenon of digital technology through embodiment (in light of the possibility of encountering empirically only digital technology artefactual shadows, or social systems that say little of the phenomenon itself). Whilst thinkers such as Brey (2000: 1) see certain artefacts as having a special symbiotic relation to the human body ("telescopes, probes, hearing aids"), this study argues that a more foundational account of embodiment is necessary not only to make sense of a symbiotic relationship between the human and digital technology artefacts, but to describe the phenomenon of digital technology sufficiently. However, the distinguishing of only *some* instances of technology being in this symbiotic relationship with the human body may be limiting. Especially digital technology engages in this symbiotic manner with the human body to provide a mediated way of experiencing and interacting with the self, the world and the other.

The use of a car, for instance, does not fall within Brey's description of such a symbiotic relationship. However, whilst a car is not as intimately connected in proximity to the human body as a hearing aid, it still forms an altered surface of engagement for the embodied individual with her world. It allows the body to move faster and across greater

[194] Such views, that construe consciousness as radically separated from the world, include the Cartesian Soul and the Kantian Transcendental Ego, and views that identify consciousness with physical matter and argue that the doings of consciousness can be fully explained by causal laws (such as scientific thinking on subjectivity).

distances. The car is not experienced as an object in the environment, but as extended embodiment (as Merleau-Ponty describes early forms of technological engagement). The Embodied Screen presented in Chapter Four describes this specific form of embodied engagement in relation to specifically the phenomenon of digital technology, which has distinctively different characteristics from older forms of technology.

Even tables and vases act in a symbiotic manner with the human body, for such artefacts grant certain spatial possibilities to the capabilities of the body that were not possible before and that alter one's engagement with the world (a table allows food to be kept a certain height from the ground, which would otherwise have been achieved mechanically through the use of the human body, and a vase allows flowers to be kept in a specific space, over an extended period of time, in a way that would otherwise have required continuous cupping the flowers with one's hands). Even architectural technology has this same engagement with the human body. Thus, even though digital technology seems to allow disembodiment or the creation of a 'virtual body', there is at the basis of these technologies merely the *body* as described by Merleau-Ponty. It is from the basis of the body that descriptions of the phenomenon of technology must be made, and from the body a sufficient description of the phenomenon of digital technology may be given.

There are prominent epistemological questions regarding one's perception of the world through such artefacts: when one is driving a car, one no longer thinks along the lines of the capabilities of one's body, but rather with regard to the capabilities of the car. One thinks as if one is the car (through engagement with the flesh of one's body and the flesh of the car). On the one hand, this manner of thinking highlights how epistemologically altered the use of a car is versus unaided perception. Firstly, one, receives data from the world in a different manner (as measured with fuel gauges and speedometers) as is described in Ihde's account of embodiment relations. Secondly, one's conceptualization of one's body schema is altered, which links to Heideggerian accounts of standing reserve and enframing,[195] but which also have foundational implications for embodiment.

[195] Enframing is defined as a way of revealing that is central in the essence of technology, but which itself is not technological. More detail will be given in Section 3.3.2.

Our cognition of embodied artefacts fades into the background once a habituation period has allowed the integration of the artefact into our body schema. This means that it is profoundly difficult to truly trace the embodied implications of a specific technology, beyond saying that it has been integrated into the body schema – that the body has been extended, in the parlance of Merleau-Ponty. Beyond the integration of the artefact into the body schema, there are a wide variety of embodied aspects that are not describable because they have exited the realm of the easily confineable through their becoming part of the body schema. These embodied aspects are thus difficult to trace, because integration into the body schema is postulated as an answer to the multitude of questions that the symbiotic relationship between the human body and technology artefacts raises.

While these artefacts thus do become part of the body schema, to describe the phenomenon of technology fully requires one to take one more step back to identify and describe the razor-thin line that continually separates the human body and the artefact in such intertwined relationships (even when it seems as though the artefact has become 'part' of the body).[196] The nature of the embodiment that serves as basis for the description of the phenomenon of digital technology will be described, with reference to Merleau-Ponty's phenomenology of embodiment, in the next chapter.

[196] Here there are clear links to the extended cognition debate found in contemporary cognitive science.

Chapter Three – Merleau-Ponty's phenomenology of embodiment and the phenomenon of digital technology

3.1. Introduction

In this chapter, Merleau-Ponty's conceptualization of the body as the zero degree through which one approaches the world will serve as framework for the development of a new conceptualization of the phenomenon of digital technology. The focus of this chapter is the embodied basis of Merleau-Ponty's phenomenology, which as methodological starting point allows a more appropriate description of the individual's interaction with digital technology artefacts.

In Chapter One, digital technology was characterised as being a dynamic phenomenon that has a 'continual beginning' and moves beyond human estimation through continued human use; this changing, evolving and transparent character of digital technology highlighted the need for a re-conceptualization of embodiment in digital technology (to combat perspectives of disembodiment). It was argued that digital technology is a phenomenon that requires a method of investigation that goes beyond the two prominent approaches in Philosophy of Technology, and that arose after the empirical turn in the field, namely pragmatism and social constructivism. Phenomenology also serves to counter disembodiment in posthuman perspectives. Such theories of disembodiment do not take account of the primal corporeal engagement of the embodied individual with the phenomenon of digital technology, focusing instead on analysis from the perspective of a form of disembodied instrumental rationality. One consideration that underlies this disembodied rationality is the idea that the body may take on the form of some sort of appendix, or become irrelevant as technology develops (a view especially prominent in digital technology).[197]

[197] Compare Fortunanti, Katz & Riccini's introduction to *Mediating the Human Body: Technology, Communication and Fashion* (2003: 2).

In contrast, it is argued that especially digital technology must be uncovered and seen again for what it is. Husserl's statement, 'Back to the things themselves' – the rallying cry for philosophers in the phenomenological tradition – is crucially relevant for describing the phenomenon of digital technology due to its hidden nature and its constant evolution. The phenomenon of digital technology tends to 'disappear' and thus the 'thing' (phenomenon of digital technology) is absent from one's experience except through a sustained act of noticing it. The natural attitude proves of little guidance here (the natural attitude being exactly that which phenomenologists like Husserl and Merleau-Ponty are critical of in the analysis of phenomena).[198] When reflective description is also absent (when there is no phenomenological description), the phenomenon is doubly absent from investigation.[199]

In this study it is argued that the foundational nature of the body remains constant in the phenomenon of digital technology, and instead of investigating technology qua technology from the side of artefacts (in a postulated body-artefact dichotomy), one should begin with the body as dynamic though constant framework. Through such reflection on the phenomenon of digital technology via the body, a more appropriate account of the phenomenon of digital technology may be found. Merleau-Ponty's unique development of phenomenology into a 'phenomenology of embodiment' may be the starting point for such a deeper and more deliberate inquiry into the phenomenon of digital technology.

One problem with disembodied, reductionist and objectivist rationalist approaches towards digital technology, which has not been emphasized thus far, is that such approaches integrally presume that individual experience of this contemporary form of technology is irrelevant, that the lived experience of the individual may be disregarded. It is assumed that, through such systematized thinking on digital technology, the individual is detached from herself and others via digital technology. Such perspectives cannot account for instances where individuals choose instant communication over their present company in a restaurant (the individual disengages from the people around her to communicate via digital technology artefacts with people elsewhere). Phenomenology of

[198] The natural attitude refers to a form of objective theorizing that is associated with everyday thinking.
[199] These 'vanishing' aspects of technology suggest that deeper and more deliberate inquiry, through a conscious reflective analysis thereof, is needed to sufficiently and comprehensively study the phenomenon of digital technology.

embodiment, in contrast, allows one to describe such cases in order to gain insight into the individual's behaviour.[200] Merleau-Ponty's central phenomenological project allows a starting point for such descriptions when he argues that one should not overlook the phenomenon of the world and one's being present in it through our bodies (PP xviii), as will be described in this chapter.[201] However, an expanded neologism is suggested in Chapter Four which builds upon Merleau-Ponty's central thought.

3.2. Merleau-Ponty's phenomenology of embodiment

Merleau-Ponty[202] philosophizes on the individual's relation to the world from the basis of embodiment, rejecting notions of spiritual substance inherent in Cartesian thought.[203] His main work, *Phenomenology of Perception* (1945), serves as a principal entry point to understand his phenomenological approach. His two other major works include *The Structure of Behaviour* (1942)[204] and *The Visible and the Invisible* (1945, posthumous).[205]

Merleau-Ponty critically evaluates particularly the behaviourist theories in physiological psychology in *The Structure of Behaviour*, specifically those of Watson and Pavlov, and

[200] Socio-pragmatic approaches thus lead to a description of the phenomenon of digital technology that is 'emptied' of the human experience thereof, detaching the individual from the phenomenon of digital technology. One may argue, however, that such a sense of 'detachment' in the phenomenon of digital technology merely 'arises' because socio-pragmatic approaches cannot philosophically account for the embodied, lived experience of the individual in the phenomenon of digital technology. In contrast to this methodological and conceptual disembodiment, an acknowledgement of the body is needed (as this study argues). Through his phenomenology of embodiment, one may thus recognize one's embodiment and may describe the phenomena that one encounters through one's embodiment – such as the phenomenon of digital technology.

[201] As corollary, one should recognize that individuals as embodied beings do not, and cannot, move beyond their body in the phenomenon of technology. Rather, the emergent characteristics inherent in the phenomenon of digital technology entail an alteration of the individual's embodiment (which will be described via the Embodied Screen in this chapter). By tracing the lived experience of the embodied individual, the phenomenon of digital technology may be revealed as much richer, as enchanted. As per Merleau-Ponty's phenomenological project of re-enchanting the world through his phenomenology of embodiment. He uses the phrase *chanter le monde* – 'to sing the world'.

[202] He was born at Rochefort-sur-Mer in 1908, and died in 1961 in Paris. Merleau-Ponty was a professor of philosophy at Lyon, then at the Sorbonne and finally at the Collège de France.

[203] The individual is a project; a happening and a 'being-event' in Merleau-Ponty's view (Sartre, 1961: 308). The individual is the 'incarnate spirit', and it is this conception of incarnation (or embodiment) that highlights Merleau-Ponty's main difference from his contemporaries (such as Heidegger and Jaspers, both having contributed to Merleau-Ponty's thought the concept of being-in-the-world).

[204] First published in French as *La Structure du Comportement* by Presses Universitaires de France in 1942. English paperback edition published in 1967 by Beacon Press books. Throughout this study the 1967 edition is used.

[205] First published in French as *Le Visible et L'invisible, suivi de Notes de Travail* (edited by Claude Lefort) by Gallimard in 1964. Published in English in 1968 by Northwestern University Press. Throughout this study the 1968 edition is used.

Bergson's vitalist account of human action.[206] In a sense, *Phenomenology of Perception* and *The Structure of Behaviour* serve as companion pieces that describe the dialectic tension between two epistemological perspectives of perceiving and perception, namely empiricism and intellectualism.[207] Phenomenology, in the view of Merleau-Ponty, mediates this dialectic tension through its prominent focus on lived experience (Carr, 1967: 371).

Both *Phenomenology of Perception* and *The Visible and the Invisible* will also be investigated broadly in this chapter, as these works present an encompassing account of embodiment and Merleau-Ponty's phenomenological method while reflecting his intellectual development from early (*Phenomenology of Perception*) to later (*The Visible and the Invisible*) Merleau-Pontian thought. Although earlier and later thought may be descriptively used to denote chronology, Merleau-Ponty's earlier and later works inherently continue the same project and do not reflect a radical shift.[208] The shift that does occur is that Merleau-Ponty expanded his central vocabulary to include his developing ontological insights into the world (Moran, 2013: 355, 356).

Merleau-Ponty's phenomenology, with its basis in the individual's embodied lived experience, is existential in character.[209] Existential Phenomenology focuses on at least

[206] Merleau-Ponty's oeuvre is characterised by his diverse engagement with multiple disciplines, in much the same manner as was argued in Chapter One that Philosophy of Technology should do. He engaged, for example, with fields such as politics, literature, painting, theology, history of mathematics, and biology (Semonovitch & DeRoo, 2010: 1, 2). Compare his description of philosophy: "To take up the celebrated phrase again, philosophy's center is everywhere and its circumference nowhere" (S 128). Rather than taking philosophy as a separate subject, Merleau-Ponty chooses to engage with diverse topics and fields as equal partners or subjects for insight through the philosophical method – through his work he allows both, for example, a painting or Nature to 'speak for itself' (Semonovitch & DeRoo, 2010: 3).

[207] Compare Section 3.2.2.

[208] Compare Moran, 2013: 355. Already in *Phenomenology of Perception* Merleau-Ponty deals with the transcending of the world and one's particular being in this world (PP xiii, viii), a theme that he continues in *The Visible and the Invisible* (VI xxxv, 10-11). Contrast, however, Barbaras: "I am inclined more and more to think of Merleau-Ponty's final philosophy as not having fully cast off the presuppositions of the philosophy of consciousness and as faltering because of a lack, rather than an excess, of radicality" (Barbaras, 2004: xxiv). Although some differences in Merleau-Ponty's earlier and later work are noted, there is a continuation throughout his work that is reflective of a single project framed around different areas of investigation through sometimes different themes and terminological nuances.

[209] His philosophical contributions may be categorized in the third period of phenomenological development, the existential period. This phase arguably began in Germany with the publication of Heidegger's *Being and Time*. The most prominent philosophers involved with this period of phenomenological development were Hannah Arendt, Simone de Beauvoir, Emmanuel Levinas, and Jean-Paul Sartre. Hannah Arendt described the banality of evil in *Eichmann in Jerusalem* (1963) and introduced the concept of *homo faber*, the idea that through working with tools human beings control their environment and fate, as distinguished from *Animal Laborans* and *Zoon Politikon*. Simone de Beauvoir's works include the themes of feminism, gender and gender performativity (especially in *The Second Sex* (1949)). Emmanuel Levinas introduced the concepts of 'the face' and the ethics of 'the other' into philosophical

three major themes, as described by Ricoeur: (1) the concept of an 'owned body' as developed prominently in the works of Gabriel Marcel and Merleau-Ponty, who are critical of the anonymous epistemological subject and argue instead for the recovery of the concrete that "extends between the two poles of the carnal and the mysterious"; (2) the theme of freedom and the ontological status of the individual as prominently traced through the works of Heidegger, Sartre and Kierkegaard; and (3) the concept of the other, particularly as traced through the work of Levinas (Ricoeur, 2007: 208–211). Throughout Merleau-Ponty's works, one finds also articulated these existential themes through the lens of corporeality, through embodiment. Merleau-Ponty's style of existential phenomenology represents both a formulation and development of the works of both Husserl and Heidegger, while also engaging with Sartre's existential thought.[210]

Merleau-Ponty centrally suggests a phenomenological view of the human being that follows on from Heidegger's conception of being-in-the-world – the concrete thrownness of one's being into a world wherein one lives (corporally and embodied) unto death. Husserl, however, is cited by Merleau-Ponty as central influence on his own work.[211] Especially Husserl's notion of the genesis of meaning (*Sinngenesis*) is crucial for Merleau-

parlance. The moral responsibility felt in the face of the other implies an infinite responsibility for the other (as discussed in *Entre Nous: Thinking-of-the-other* (1998)). Jean-Paul Sartre traced the existential individual through his analysis of authenticity through the making of responsible choice, 'bad faith', 'nothingness' and 'existence precedes essence' in *Being and Nothingness* (1943). Merleau-Ponty played a prominent part in the existential phenomenology movement, particularly through his engagement with the major existential themes found in works of this period. Compare Section 2.3.3. for a broader description of the development of the phenomenological tradition.

[210] One may discern, beyond Merleau-Ponty's initial existential period, also a focus on child psychology and pedagogy (particularly in terms of language, during his time at the Sorbonne) and his final articulation of a new ontology and philosophy of nature (during his time at the College de France) (Lawlor & Toadvine, 2007). The existential character of Merleau-Ponty's phenomenology follows the influence of Heidegger, even though the primary influence of Husserl's phenomenological *methodology* is directly claimed by Merleau-Ponty in the preface to *Phenomenology of Perception* and in *The Philosopher and his Shadow* in *Signs* (1964). Commentators such as Herbert Dreyfus suggest that the influence of Heidegger's style of doing phenomenology (particularly Heideggerian being-in-the-world) is even more pronounced in especially later sections of *The Phenomenology of Perception* than is Husserl's influence. Between the publication of *Being and Time* and *Phenomenology of Perception*, Sartre's *Being and Nothingness* was published. *Being and Nothingness* "underscored in a highly original way the nihilistic propensities of existentialism" (Langan, 1966: 10). Merleau-Ponty combats this nihilism by arriving at a response to the voluntarist and nihilistic elements in Sartre's transcendental idealism – a dualism of idealism and empiricism. Merleau-Ponty criticises elements of Sartre's position through his criticising and bridging of empiricism and idealism (intellectualism) in his postulation of embodiment and the flesh. Sartre's problematic ontology thus also played a role in Merleau-Ponty's ontological suggestion in *Phenomenology of Perception*, which strove to overcome conclusively the dualism presented by idealism-empiricism (Langan, 1966: 11). Merleau-Ponty's critique is most prominently presented in the introduction to *The Phenomenology of Perception*, where he argues that the body gives the zero point (or zero degree) from which perception is possible (through which the world presents itself) and in this process idealism (as subjectivism) and empiricism (as objectivism) are linked.

[211] Compare S 202.

Ponty's phenomenology of embodiment. While Husserl himself rejected the question of where experience and knowledge comes from in favour of a study of the pure essence of experience,[212] Merleau-Ponty set out to emplace the origin of both the individual, perception and the natural theoretical attitude in embodiment following Husserl's inquiry into the life-world (*Lebenswelt*) as the predicative sphere of 'praxis' (Carr, 1967: 373, 374). Merleau-Ponty took up the life-world, or in his nomenclature, the lived world (*monde vécu*), as the intentional object of experience, while perception was the activity through which this object is constituted by the embodied individual (De Waelhens, 1951: 92). Perception occurs not as an isolated psychological activity 'in' the world; perception is for Merleau-Ponty the Husserlian 'origin' of the world, that towards which one is turned in experience.

On a more basic level, Merleau-Ponty also follows Husserl's phenomenological reduction. However, Merleau-Ponty qualifies this reduction, stating that "the reduction teaches us … the impossibility of a complete reduction" (PP xv).[213] This remark illustrates Merleau-Ponty's major difference with Husserl's transcendental phenomenology and his affinity with existential phenomenology (of which Heidegger's phenomenology is an archetypal example). There thus resides a Husserlian conception of reduction in Merleau-Ponty's thought, but it is less a certain state of mind or 'attitude', and more a tangible 'stepping back' (which stands in contrast to scientific rationalism's further disengaged rationality, its view from nowhere).[214] Instead of focusing only on human rational capabilities, as done in much of the history of Western philosophy, Merleau-Ponty promulgates an embodied methodology. He takes up into his phenomenological method the entirety of the individual's body (its warmth, senses, emotions, and fragility). By focusing on the embodied nature of being-in-the-world, Merleau-Ponty extends Heidegger's existential account of being-in-the-world to an embodied-being-in-the-world (Wrathall & Dreyfus,

[212] Compare "The world is as a fact-world always there" (Husserl, 1913: 106).
[213] See also Priest, 2003: 22.
[214] Compare, however, Joel Smith's argument that Merleau-Ponty's 'stepping back' (which favours an existentialist account of *être au monde*, and is seen as a rejection of Husserl's transcendental idealism) does retain the heart of the reduction (by name, the idea of *epoché*) as methodological basis in his phenomenology of embodiment (Smith, 2005: 553). Contrast with Priest (2003: 22) who argues that, for Merleau-Ponty, the reduction is no longer completeable in the Husserlian sense. Rather, this stepping back is more concrete and pragmatic.

2006: 3). Merleau-Ponty thus presents both a focusing and a development of Husserlian and Heideggerian ideas.[215]

To understand Merleau-Ponty's phenomenology of embodiment, it is crucial to highlight four principal themes wherewith he engages in his work: (1) Perception is the individual's entire bodily inhabiting of its environment; (2) perception is perspectival and finite from the body (PP 81); (3) through perception the individual is absorbed within and directed towards objects within the world, and 'forgets' the essence of consciousness in perception (PP 67, VI 213); and (4) this sensual perceptual experience of the world extends to a perspectival structure of all human experience and understanding (in *The Visible and the Invisible*) (Carman, 2008: 1–3). These themes are reflected throughout Merleau-Ponty's phenomenological thought on embodiment and perception to see the world anew.

Merleau-Ponty's phenomenological project entails an attempt to "relearn to look at the world" in a way that renders it "strange and ambiguous" (Matthews, 2010: 17; PP xiii) – not to overlook *things*, but to uncover them. For Merleau-Ponty, the world is already there as an inalienable presence before reflection begins; and phenomenology serves to give philosophical status to the direct description of one's experience through the "direct and primitive contact" of the individual with the world (through her embodiment) (PP vii). Merleau-Ponty argues for a return to the lived world, a 'return to the themselves', a return to the world that precedes scientific schematization and reflective theorizing, through the acknowledgement of the pervasive and primordial structures of perception that are lodged in the individual's body.[216] The phenomenology of perception is for Merleau-Ponty the central task of phenomenology (Carr, 1967: 375). This "direct and primitive contact" methodologically guided this study in its description of the phenomenon of digital technology, for perception through embodiment is the basis of engagement with digital technology artefacts.

[215] Some other prominent influences on Merleau-Ponty's phenomenology are ideas of Bergson (his intuitionist metaphysics), Fink, Kierkegaard, Koffka, Köhler, Lévi-Strauss, Marx, Nietzsche, and Saussure. Merleau-Ponty's approach of phenomenology of embodiment would, on the other hand, influence philosophers such as Deleuze, Dreyfus, Foucault, Ihde, Lacan, and Virilio.

[216] Compare "[Perception] teaches us the passage from one moment to another and procures the unity of time" (PrP 120). Perception encompasses and pervades all scientific and reflective experience, experience of time and consciousness itself, from the basis of embodiment.

For Merleau-Ponty the body, and thus the world, is "always 'already there' before reflection begins" and reflection on the world always implies "thinking-through-the-body" (PP vii). It is of central importance for Merleau-Ponty that the relation is understood between consciousness and nature (whether organic or social), to elucidate the relationship between the human being and the world. The body gives the zero point from which perception is possible (for it is the point through which the world presents itself) in Merleau-Ponty's embodiment.[217] Embodiment links, in a fundamental manner, one's existence in the world to one's corporeality (which encompasses all of one's practical and emotional involvements in the world). One's embodied existence and experience of the world is inescapable for the individual, it forms an inherent part of her lived experience, existing prior to conscious rational theorization.

3.2.1. Merleau-Ponty's critique of rationality

A primary argument of Merleau-Ponty's embodied phenomenological method is his critique of reason, primarily as articulated as what he describes as objectivism (or objective rationality).[218] This form of rationality correlates to the disembodied instrumental rationality described in Chapter One (prominently found in a pragmatic and social epistemological perspective on technology). Merleau-Ponty is critical of the style of presumed pure, disembodied reasoning in the description of things that is prevalent in the Western philosophical tradition and that started with the Greeks (especially Plato). Such an approach is found in Thomas Nagel's and Gottfried Wilhelm Leibniz's rationalist philosophy as 'the view from nowhere' (Carmen, 2008: 9; Nagel, 1986). This 'view from nowhere', or 'God's eye view', is conceptually important for the practice of natural science

[217] In this way Merleau-Ponty's phenomenology, broadly and with some qualification, links 'subjectivism' and 'objectivism' – his phenomenology has subjective aspects because the appearance of things is always the appearance of things from some subject's experience, but it also contains objective elements in the sense that the subjective being is always a being-in-the-world that has an involvement with the world beyond that which is purely 'inner' or 'ideal'.

[218] The centrality of embodiment and lived experience for Merleau-Ponty should not be taken to mean that there is no place for rationality in his phenomenology, but rather that one should understand the important role of perception that takes place through the body first. The specific role and shortcomings of objective rationality, empiricism and intellectualism, in contrast to embodied lived experience, are discussed in the next sections as initial elucidation of Merleau-Ponty's phenomenology of embodiment before a more detailed explication thereof is given. These sections also serve as motivation for the choice and use of Merleau-Ponty's phenomenology of embodiment.

and its claims towards impartiality or objectivity, but in the view of Merleau-Ponty such rationalist or objectivist thinking cannot trace the individual's lived experience.

In 'objectivism',[219] the individual and local perspective finds its place in subservience to a 'detached' and 'objective' (and therefore presumed objectively 'true') view of things.[220] Emotions, for example, merely serve to poison a 'pure' way of observing, describing and thinking, and are contrary to objectivity and rationality. Factors such as the emotions should therefore be eliminated from philosophical accounts in the objectivist view, for objectivism is the attempt to see objects "free of all human traces, just as God would see it" (PP 45). Merleau-Ponty describes this 'objective conceptual approach' as an attempt to gain pure access to an object, a pure access that he deems impossible.

In contrast to objective rationality, Merleau-Ponty sees a different style of thinking (a counter-culture of sorts)[221] arising from within the larger Western tradition of objectivism in the sciences.[222] Apart from being codified by Husserl as phenomenology, there were elements of this diverse way of thinking in Hegel, Kierkegaard, Marx, and Nietzsche. There arose within these thinkers a suspicion of the rational, objective, detached approach that had long been promulgated in Western philosophy. This suspicion of objective thought (as originally described by Kierkegaard) developed to such an extent that the 'critical view of the objectivist' began to typify newer lines of thought in Western philosophical traditions.

While the 'objectivist approach' was influential in natural sciences and in mathematics, and later played a prominent role in the theories of Philosophy of Technology, it limited (and

[219] Objective rationalism, as distinguished from Ayn Rand's Objectivism as ethical perspective

[220] Within the corpus of Enlightenment thinkers, Descartes (1595–1650) already showed elements of this 'view from nowhere' for gaining reliable knowledge of the world, as did the main revolutionary thinkers of the sixteenth and seventeenth century. They thereby formed the basis for the establishment of the modern scientific worldview. Descartes held that to gain accurate knowledge of the world one needed to disentangle oneself from the possible confusion of the senses to find a surer grounding in basic beliefs about one's own existence ("I think, therefore I am") and later, in fields such as mathematics. Descartes argued this led to truer knowledge instead of just opinions. This was in effect a proto-formulation of the later view of objectivism. His method of doubt, while reflective to some degree of Merleau-Ponty's own phenomenology, finds its foundation in a form of rationalism and, later, dualism of which Merleau-Ponty would be critical. Merleau-Ponty's primary critique is that Cartesian dualism cannot account for the interaction of the self with the world.

[221] From there, Merleau-Ponty's description of phenomenology as "a manner or style of thinking [that] existed as a movement before arriving at a complete awareness of itself as a philosophy" (PP viii).

[222] This different style of thinking is found par excellence in phenomenological thought.

still limits) the insights of these philosophers to 'eliminative materialism'.[223] In other words, through their rejection of 'non-objective descriptions of things', objectivists omit any possible 'non-scientific insights'. In effect, 'eliminative materialism' becomes such a reductive process that the subjective meaning and the idea of subjectivity as such are completely denied in this form of analysis (including the lived experience of the individual). It is reductionist materialism which sees objects as possessing only those properties that are quantitative and measurable – which may lead to an overlooking of a phenomenon with emergent characteristics such as the phenomenon of digital technology in lieu of social or pragmatic factors, which are again quantifiable and measurable.[224]

For Merleau-Ponty such 'objective' perspectives lead to confusion of the relation between the individual and the world (objects) – objective thought and natural science cannot delimit the "saturation of my phenomenal body onto the primordial world" (PP 350). An objectivist view entails a disregard of the necessary way of understanding oneself as a human living in and understanding one's being in the world. However, science always begins as a human endeavour with human motivations and human goals and cannot 'take flight' into a truly objective perspective.

Whilst Merleau-Ponty utilizes 'objective' scientific examples in his work (especially the phenomenological analysis of Schneider's brain injury and other neurological cases (cf. *Phenomenology of Perception*), he sees such insights as only sketching a part of the individual's broader lived experience. He argues that such scientific perspectives are crucial for communication from a 'universal' point of view, but that such perspectives only tangentially relate to one's actual lived being in the world.[225] When Merleau-Ponty sketches the limits of such an objectivist scientific perspective, it is therefore not a complete disavowal thereof. Rather, he is critical of "the dogmatism of a science that thinks itself capable of absolute and complete knowledge" and the potential for ideological thinking (PP 43). Thus Merleau-Ponty claims that the proper contextualization of science is needed

[223] Compare Section 1.5.

[224] This perspective of 'value-free' things in the world, motivated by the objectivist scientific view, also played a major role in some approaches in Philosophy of Technology. Value relativism is seen, in its moral formulation, in both social constructivism and prominently in pragmatism (compare Chapter Two). One of the central problems with this classic scientism (the objectivist view) is thus its understanding of things in the world as value-free.

[225] And moreover, fail to explain certain behaviours. Compare the example of Schneider in *Phenomenology of Perception* (there is no reason why the 'zeigen' fails while 'greifen' works for him).

for conceptualization of the world as experienced, rather than as seen from some assumed disentangled perspective.[226] It is in the context of lived experience, of being in the world, whereby the importance of one's bodily existence and experiences becomes clear and from where phenomena (such as the phenomenon of digital technology) may be described.

Merleau-Ponty emphasises that any science should have its basis in direct experience of the world by the individual as a body, as embodied. Natural scientific rationality does not supersede this direct bodily experience, because science's point of departure is also found in one's embodied engagement with the world: through *living in the world*, and not through *theorizing about it*. Science separated from this personal lived experience leads to the emplacement of the human as an object in the world (a particular object that can be explained scientifically through abstraction 'from the outside', through a 'view from nowhere'). In other words, the observer's own body (the subject) becomes just another object to be observed in the world. This view of the individual leads to an incomplete description of how the embodied individual engages with the world and with phenomena through perception.[227]

Why is an acknowledgement of direct experience, lived experience, so important – even when describing the phenomenon of digital technology? Merleau-Ponty argues that an acknowledgement of direct experience's place in science is necessary for the appropriate use and application of science itself.[228] He argues that doubt, even Cartesian doubt, relies on not being in doubt about certain other things. A phantasm is only doubtable as such due to its dissimilarity with that which is not in doubt, such as the encompassing 'real world' or my own existence (in Cartesianism). To doubt one thing is to not doubt other things (PP 445). Thus, complete doubt of the world in its entirety is not possible, for one can only have the capacity for doubt if one is already emplaced *within a world* (which then opens up the world for the possibility of doubt). Within this world there are always some things which cannot be doubted, and we cannot extract ourselves from this world to take a perspective 'from nowhere' as is required for scientific theorizing, or for describing

[226] Compare Section 3.2.2 for Merleau-Ponty's view on empiricism.

[227] In contrast to this view, Merleau-Ponty asserts that "the "absolute source of scientific abstraction is found in direct experience first" (PP ix), an avenue which phenomenology is poised to pursue.

[228] Science should be thought to include so-called 'scientific' views on technology, such as socio-pragmatic approaches in Philosophy of Technology.

technology.[229] A female scientist does not reflect on her gender while theorizing; she assumes a 'view from nowhere' and places all considerations of embodiment and socio-cultural identity out of play. However, it is exactly her embodiment and socio-cultural identity that influences her scientific theorizing – embodiment considerations play an important though unacknowledged role in her experimentation.[230] Experience and observation, even in science and technology studies, is always *someone's* – it is based in direct, lived experience. Thus science's 'objectivism' (empiricism) is always from one's embodiment so that all perception is someone's – it is not from 'nowhere' or 'everywhere' (PP 79).

Merleau-Ponty argues that to understand perception of the 'things themselves' as always being that of an embodied individual within the world requires that to understand, one must first take 'a step back'. This is a 'step back' in the phenomenological sense and not in the 'objectivist' one (of the female scientist endeavouring to assume a 'view from nowhere', or even literally stepping back from her workbench). Merleau-Ponty explains the need for such a stepping back as follows:

> It is because we are through and through compounded of relationships with the world that for us the only way to become aware of the fact is to suspend the resultant activity, to refuse it our complicity (to look at it *ohne mitzumachen* [without participation], as Husserl often says), or yet again, to put it 'out of play' … The best formulation of the reduction is probably that given by Eugen Fink, Husserl's assistant, when he spoke of 'wonder' in the face of the world (PP xiv–xv).

By arguing that to describe the world (whereby one must disentangle oneself from its grasp, put out of play assumptions and re-awaken one's wonder of the world), Merleau-Ponty does not suggest a rejection of common sense and the natural attitude, nor does he suggest a rejection of the scientific enterprise. He does, however, propose to challenge uncritical

[229] Scientific theories such as quantum theory have also called into question the possibility of absolute disembodied observation in physics from within the ranks of scientist themselves.

[230] Similarly, a male engineer does not think of his male-ness when designing a motorized vehicle and does not recognize that he does not in fact assume a 'view from nowhere' as he presupposes. Rather, he may imprint in his design a male-directedness that excludes considerations of women.

complicity in such ways of thinking, and challenges the ways in which such ways of thinking are taken for granted. The 'stepping back' that Merleau-Ponty here suggests entails a bringing to light one's way of thinking and reflection.[231] On the other hand, this 'bringing to light' does not allow one to retreat into subjectivity, as one is *in* a world, and there are also, in the world, other individuals. To say that 'I' has meaning is possible "only if it can be contrasted with 'you' and other personal pronouns" (Matthews, 2010: 16, 17). 'Stepping back' is therefore no appeal to idealism, but rather a recognition of one's corporeality within the world and beside others.[232] One's perceptions of objects is exactly not 'free of all human traces', Merleau-Ponty argues. Similarly, the phenomenon of digital technology cannot be described 'free of all human traces', for the human forms an intrinsic part of the circuit that makes digital technology artefacts function.[233]

Merleau-Ponty thus posits an embodied starting point as a means for understanding one's experience of the world (and of phenomena, such as the phenomenon of digital technology). His phenomenology of embodiment is a way of describing one's encounter with the world as preliminary to the conceptual categories charted out by reason, a means to describe things that present particular challenges to rationalistic theorizing. In this study, it was argued that the phenomenon of digital technology is such a phenomenon.[234] Phenomenology of embodiment is therefore a critical and crucial response to the particular

[231] 'Stepping back' in our experience of things, in order to understand the things themselves, presupposes an elementary form of Husserl's phenomenological reduction, or *epoché*, that Merleau-Ponty develops further through his phenomenology of embodiment. For Merleau-Ponty such a process does not entail a complete withdrawal from all worldly engagements, but rather a recognition of our individually embedded (embodied) character within these worldly relations. 'Stepping back' entails a recognition that one cannot appeal to science to account for one's own individual experience, whilst not negating the particular role that science has to play in theorizing on the natural world. However, individuals are subjective human beings, always embodied, always within the world, always multi-relational. Therefore, to truly see 'things themselves' does not require a denial of one's subjectivity, but a stepping back 'into' it; while also recognizing that one is never able to step back simply into one's own subjectivity in isolation, free from the relationships of the world. This 'stepping back' requires a phenomenological approach, wherein things are bracketed to 'my experience, my wonder of it' as an incarnated and embodied reduction or *epoché* (along almost Husserlian lines) while also recognizing that one is in the world (along similarly Heideggerian lines).

[232] Acceptance of one's own subjectivity (this phenomenological 'stepping back') therefore does not imply an isolation, but rather leads to an acceptance of others' subjectivity and to an openness towards the world (the Merleau-Pontian conception of intersubjectivity is important here). It is through the recognition of one's own subjectivity that one finds oneself as 'incarnate' or 'embodied' in the world – or in the Heideggerian sense, a being being-in-the-world.

[233] Merleau-Ponty's critique of rationality, a critique of an 'objective conceptual approach', is thus founded upon the idea that it is impossible to gain a form of 'pure' access to an object, free from one's embodiment, an embodiment that is challenged in posthumanism, and disregarded in socio-pragmatic approaches in Philosophy of Technology.

[234] Compare Section 2.2, and particularly Section 2.2.2.

forms of ideological-applied instrumental rationality found in accounts of digital technology, in favour of a more primordial engagement with the phenomenon.

3.2.2. The problems of perception (empiricism and intellectualism)

In *The Structure of Behaviour* (1942), and prominently in *Phenomenology of Perception* (1945), Merleau-Ponty positions himself in opposition to two philosophical schools of thought in order to elucidate his own views on the connection between consciousness and the world in his description of the phenomenon of perception.[235] These two schools of thought are the empirical school (materialists – as identified with scientific realism) and the rationalist school (what Merleau-Ponty terms the intellectualists –arguably espoused by Kant and early Husserl), with both schools representing theoretical and methodological building blocks of the natural scientific approach.[236] Merleau-Ponty's conception of perception is sketched in contrast to the ways perceived objects are accounted for by realist empiricists on the one hand, and idealist and rationalist intellectualists on the other (PP 3–76).[237] He argues that objective theorizing on perception, as the causal interaction between objects and the body, or as the judgement of thought alone, should be phenomenologically challenged because neither empiricism nor rationalism can sufficiently account for these suggested theories of perception. He argues that rational theorizing on perception should be replaced with reflection on the primordial experience that the individual has of her body, a primordial experience that is explicated by the phenomenological method (PP 77–83; Baldwin, 2003: 79).[238]

[235] He describes this relation of consciousness and nature (the world) as that "multiplicity of events external to each other and bound together by relations of causality" (SB 3). In *The Structure of Behaviour*, Merleau-Ponty presents a critique of natural experience as exemplified in reflexology and Gestalt psychology, and in *The Phenomenology of Perception* he does the same with natural scientific theories, through his phenomenological description of perception.

[236] These two schools of thought also provide a foundation (and suggest evidence from biology and psychology) for theorizing of broader Cartesian mind-body dualist ontological assumptions of the individual. Both attempt to explain the relationship between mind, body and the world, but Merleau-Ponty argues that such views are inadequate for understanding human perception.

[237] He begins to develop his concept of perception in *Phenomenology of Perception,* in an early section entitled *Experience and objective thought: The problem of the body.*

[238] An understanding of the body, as the starting place of all perception, shows that any purely objective conception (such as the empiricist or intellectualist views) of the relation between the body and the world is inadequate.

According to Merleau-Ponty, both the empiricist and intellectualist have a mistaken conception of perception, which leads to an inadequate view that the body is irrelevant in theorizing. For the empiricist and the intellectualist, perception (through empirical theorizing or intellectual judgement, respectively) reveals 'objective reality' and the body of the individual is transparent, and remains unconsidered, with regard to perception. This 'objective reality' revealed to the empiricist is an objective external world that can be observed without influence from any intermediary; 'objective reality' is for the intellectualist or rationalist a universal, abstract truth. Both stand ignorant, or at least agnostic, with regard to the role of the body – what is assumed is a disembodied view on perception.[239]

Both empiricism and intellectualism describe perception (of the world) by means of the concept of sensation – which is presumed to include the vast range of visual perception and broadly all other 'sensations' gathered by the senses.[240] Pure sensation, the postulation of distinguishable components in perception, serves as the starting point for empiricist and intellectualist accounts of perception.[241] The empiricist presumes that a single sensation is not differentiable, and thus completely uniform and homogenous. But pure sensations, as Merleau-Ponty points out, are untenable starting points for describing the perception of objects:

> Pure sensation will be the experience of an undifferentiated, instantaneous, dotlike impact. It is unnecessary to show, since authors are agreed on it, that this notion corresponds to nothing in our experience, and that the most

[239] Merleau-Ponty argues that such a disembodied view of perception cannot, for example, adequately describe interpersonal interaction. This interpersonal interaction involves both the encounter of the self with another individual and observation of the self by the other. For the empiricist, the other is always an unknown, a mechanism with a hidden internal aspect that can only be analysed scientifically. For the rationalist, the other is always merely phenomena that arise in the thoughts of the perceiving subject. This same disembodiment in theorizing on technology was highlighted in Chapter One. Compare Section 1.5.

[240] Merleau-Ponty illustrates the traditional conceptualization of sensation by referring to redness, blueness, hot, and cold as types of sensations (PP 3) and he then highlights the difference between the visible and the sensible when he says that "[t]he visible is what is seized upon *with* the eyes, the sensible is what is seized on *by* the senses" (PP 7). There is, for Merleau-Ponty, thus a distinction and a relation between visual perception and broader sensation. This 'distinction and relation' is important as a response to Jacques Derrida's identification of 'confusion' in Merleau-Ponty's understanding of the "relation between touching one's own body and seeing another person, and the relation between the senses, primarily touch and sight" (Derrida, 2000).

[241] The idea of 'sensation' is, however, inherently philosophically problematic in Merleau-Ponty's view, for the naïve assumption of 'sensation' in perception (by the empiricist and intellectualist) leads to an overlooking of the very phenomenon of perception itself (PP 3).

> rudimentary factual perceptions that we are acquainted with … have a bearing on relationships and not on actual terms (PP 3).

Thus, while empiricism presumes to reflect the objective world, we find nothing in our lived experience that corresponds to the basic concept of sensation in the empiricist account of perception. Merleau-Ponty argues, however, that problematically "a really homogenous area [which offers nothing] cannot be given to any perception" (PP 4). Rather, perception is conveyed by relationships, by one's bodily existence, and not by 'actual terms', laws or some specific form of consistent concepts such as sensation, which is conceptually an untenable starting point for describing perception because nothing like 'pure sensation' can exist as separated (or separable) from the relational.[242] [243]

Feelings of hunger, pain, reaction to cold or heat, and sexual drives are perceptible 'sensations' only in their affecting the human individual in her broadest relational sense.[244] These sensations are not just instantaneous and isolated pangs of 'sensation', undifferentiated and isolated, but are perceived by the range of proprioceptors and hormonal systems as part of the broader relational character of the body. Touching one's hand to a hot plate is not mere sensation … it is encompassing pain that drives the body to action (pulling away from the plate, for example). What underlies the empiricist and intellectualist postulation of 'sensation' is the constancy hypothesis.

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[242] Merleau-Ponty states that "[t]he form itself, the internal and dynamic unity which gives to the whole the character of an indecomposable individual, is presupposed by the law only as a condition of existence; the objects which science constructs, those which figure in developed physical knowledge, are always clusters of relations" (SB 142). This statement is made regarding the structure of physics in natural science, subsuming the postulation of pure sensation.

[243] Though 'pure sensation' seems to be a common sense starting point for understanding objects in perception in empiricism, perception of completely homogenous 'sensation' is impossible, and thus 'sensation' cannot be the smallest or most reducible (atomic) instant of perception. The problem is that sensation is postulated as the final puzzle piece in empiricist accounts of perception (after the entirety of the perceptible has been theoretically construed), but that interrogation of one's lived experience reveals this final puzzle piece as untenable, for it is not found in experience.

[244] Regarding a Merleau-Pontian understanding of the fully embodied dimension of pain, Abraham Olivier argues that pain is "disturbed bodily perception bound to hurt, affliction, or agony … [I]f I speak of the 'body in pain', I refer to the way pain disturbs the way I *qua* body perceive, that is sense, feel, and cognize" (2007: 51). Compare 'Being in Pain' (2007) and 'The Problem of Defining Pain' (2008). Regarding chronic pain as broader relational phenomenon, Jennifer Bullington argues from a similar Merleau-Pontian perspective, that "[t]he experience of chronic pain places the painful body in focus, resulting in a diminished articulation of both self and world" (2009: 100).

3.2.2.1. The constancy hypothesis

Merleau-Ponty critically evaluates the constancy hypothesis, which presumes a one-to-one correlation of things in the world and one's perception of those things. Merleau-Ponty describes, through use of examples from one's lived experience, how the constancy hypothesis may prove insufficient:

> [T]his 'constancy hypothesis' conflicts with the data of consciousness, and the very psychologists who accept it recognize its purely theoretical character. For example, the intensity of a sound under certain circumstances lowers its pitch; the addition of auxiliary lines makes two figures unequal which are objectively equal; a coloured area appears to be the same colour over the whole of its surface, whereas the chromatic thresholds of the different parts of the retina ought to make it red in one place, orange somewhere else, and in certain cases colourless. Should these cases in which the phenomenon does not correspond to the stimulus be retained within the framework of the law of constancy, and explained by additional factors – attention and judgement – or must the law itself be jettisoned? When red and green, presented together, give the result grey, it is conceded that the central combination of stimuli can immediately give rise to a different sensation from what the objective stimuli would lead us to expect. When the apparent size of an object varies with its apparent distance, or its apparent colour with our recollections of the object, it is recognized that 'the sensory processes are not immune to central influences'. In this case, therefore, the 'sensible' cannot be defined as the immediate effect of an external stimulus (PP 8, 9).

In other words, one's lived experience and one's perception do not reflect a one-to-one exact reproduction of what is perceived, for there are examples from lived experience of how the broader Gestalt influences what would be viewed as isolatable sensations in

empiricism.[245] Merleau-Ponty posits that perception is always coloured by a broader Gestalt and he incorporates Gestalt psychologists' work, as well as an analysis of figures and the optical illusion created by straight Müller-Lyer lines to develop an embodied conception of perception based on a new *cogito* (Gordon & Tamari, 2004: 14; Matthews, 2002: 40, 53, 80; PP 6, 7).[246] Merleau-Ponty also utilized the Gestaltist concept of *Prägnanz* (which is a perceptual tendency to complete shapes through the imaginary) to illustrate the unification of perception. The following figure (Figure 3.1) serves as an example to illustrate the concept of *Prägnanz*:

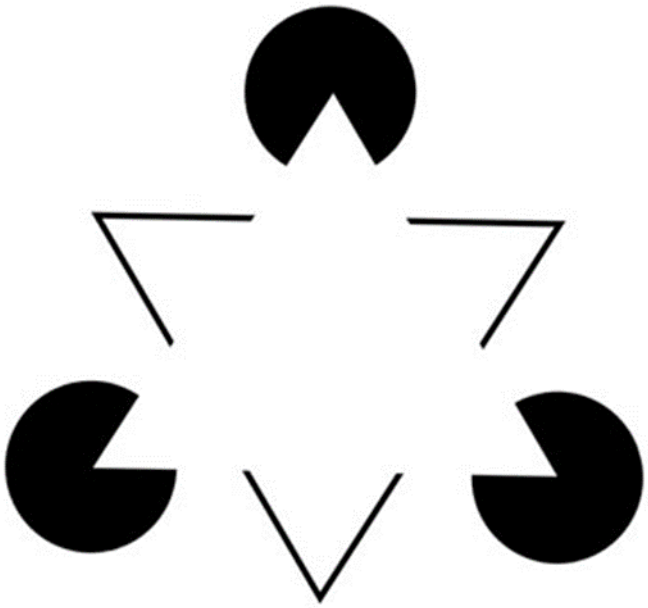

Figure 3.1: *Prägnanz illustrated through the perceptual completing of a shape*

[245] The constancy hypothesis represents a naïve objectivist (empiricist) view of sensation that is foundational in such an analysis, instead of what Merleau-Ponty would later call perceptual faith (which is embedded in a Gestalt) through his phenomenological analysis of perception. Merleau-Ponty describes the constancy hypothesis as a "point-by-point correspondence and a constant connection between the stimulus and the elementary perceptions" (PP 8).

[246] Gestalt describes an organized whole that is not reducible to the sum of its parts, though Merleau-Ponty is critical of such a description because it provides a negative, exterior designation (VI 204). Instead, he describes the Gestalt as a sensible being, a "transcendence that explains" (VI 237) the manner of a 'field being' and its dimensional fact. This description lies outside a subject-object epistemology. The Gestalt is the spontaneous organization of the sensory field wherein the 'field being' is emplaced. Prominent Gestalt psychologists include Wolfgang Köhler and Kurt Koffka. Merleau-Ponty brought the findings of experimental psychology (especially Gestalt psychology) to bear on his own perspective on perception in 1933. Important for Merleau-Ponty is the figure-ground structure of perception, the phenomena of movement and depth, and the syncretic perception of children derived from the findings of Gestalt psychology. However, Merleau-Ponty was critical of the Kantian epistemological grounds of Gestalt psychology and sought to re-work and synthesize the insights of Gestalt psychology and phenomenology.

Figure 3.1 suggests that it is a perceptual characteristic that an individual will complete the shape of the white triangle, rather than seeing the picture as an assortment of strange shapes. Perceptual atomism is thereby challenged. Merleau-Ponty, however, moves beyond Gestalt psychology's analysis of perception (through a concept like *Prägnanz*) towards an insight into the structure of the world by means of individual perception. Individual perception prominently emplaces perceptual coherence, implying an understanding of the structure of phenomena as presented to human perception, rather than based merely in matter or form atomistically. Merleau-Ponty argues that there is no quantifiable correspondence between sensory data (as described by the empiricist) and the first-hand perceptual account of the individual (he utilizes perceptual illusions to underline his arguments). The perceptual field, which is based on meaningful organization, is of another order than the physical environment for it is found within one's lived experience.

3.2.2.2. Merleau-Ponty's critique of empiricism

What is implied by the empirical school of thought is that only the empirically observable world matters, i.e. that which is known using the methods of the natural sciences, and that perception amounts to sensation through the direct experience of 'pure sensations' or qualia (PP 3, 61).[247] For the empiricist, sensations are *either* produced and ordered in mental representation by objects themselves (the one-to-one reproduction of what is perceived) *or* sensations are not combined by the intrinsic properties of an object (they are only atomistic components in perception). In the former case, there is a problem with spatiality and how objects (even though they have intrinsic properties) can be located in the perceptual field without reference to the broader world.[248] In the latter case, the

[247] Compare Dewey's use of 'quality': "The experience has a unity that gives it its name, that meal, that storm, that rupture of friendship. The existence of this unity is constituted by a single *quality* that pervades the entire experience in spite of the variation of its constituent parts." In his description of quality, Dewey emphasizes the role of intellectual reflection *after* experience.

[248] Merleau-Ponty illustrates this difficulty with the following example: "If I walk along a shore towards a ship which has run aground, and the funnel or masts merge into the forest bordering on the sand dune, there will be a moment when these details suddenly become part of the ship, and indissolubly fused with it. As I approached, I did not perceive resemblances or proximities which finally came together to form a continuous picture of the upper part of the ship. I merely felt that the look of the object was on the point of altering, that something was imminent in this tension, as a storm is imminent in storm clouds. Suddenly the sight before me was recast in a manner satisfying to my vague expectation. Only afterwards did I recognize, as justifications for the change, the resemblance and contiguity of what I call 'stimuli'— namely the most determinate phenomena, seen at close quarters and with which I compose the 'true' world." (PP 20).

organization of something external to the object grants properties to the object; thus the concept of intrinsic properties in the object itself renders the claims of empiricism irrelevant for there is no reflection of the actual world in experience.[249] There is no middle ground between these two ways of thinking about sensations in empiricism, because a middle ground suggests sensations are organized or combined by something external – it is then the perceiver who acts upon and orders the objects that are being perceived (as Merleau-Ponty argues, with qualification). The empiricist view states that the operation of the senses merely gives rise (passively) to sensations, and thus this middle ground is counterintuitive for the empiricist. The dilemma presented at the start of this paragraph remains.[250]

Empiricists, starting from the basis of the constancy hypothesis, postulate that the sense organs are passive receivers of externalized sensations from the world. Furthermore, the conviction is that the same stimulus, acting upon the same particularly structured sense organs, will always produce the same perception. Objects have, in this empiricist view, determinate properties that stimulate specific sense organs in a cause-and-effect manner. Merleau-Ponty argues that the constancy hypothesis represents a mistaken conception of the body (as faithfully copying the world, via sensation, through the sense organs) and that the constancy hypothesis inadequately frames perceptual experience as atomistic (and thus as nothing more than the sum of its sensation-based parts). These two problematic implications of the constancy hypothesis are the death-knell for the empiricist conceptualization of sensation, in the view of Merleau-Ponty. He therefore concludes that the naïve view of sensation is based not on "any testimony of consciousness", but rather on the prejudices put in place in the first place by the presumptions of empiricism and intellectualism (PP 5).[251]

[249] The idea of motion as linking perception into a unity in empiricism is also problematic for Merleau-Ponty, as things such as houses and days can be perceived as a unity without ever observing them in motion.

[250] Merleau-Ponty argues, in contrast, that perception starts with our bodies – arguing that there is no other way of tracing perception and consciousness than through our bodies. Perception always implies consciousness because of intentionality (its directedness towards the perceived object) – otherwise perception does not refer to anything or to any object.

[251] These presumptions may be summarized as follows: The naïve view and the acceptance of 'pure sensation' by empiricism and intellectualism is based on the misconception of the relationship between perceiving subject and the object (world). In a philosophical sense, this misconception is founded in empiricist accounts of perception and echoed in intellectualist accounts, so that both ultimately conceptualize the world as reducibly analysable. For Merleau-Ponty, this mistaken assumption begins with the view that specific determinate and constitutive elements, sensations, that are produced in an atomistic fashion by objects (or as pangs of impressions which the individual has

The detachment of the embodied subject from the reducible elements of the world ('sensation') is part of the assumption of the empiricist school of thought that the *mind* is predicated upon the body (the mental upon the physical) and that in perception the individual is bound to the influences that govern objects. For the empiricists, the empirical world forms the foundation of the thinking subject, which in turn implies "empirical selves [that] are objects" (PP 65). Consciousness is thus just another thing in the world, as are the mind and the body, and is therefore just an object governed by causal laws.[252] 'Sensations' are bound by the same causal laws, and consciousness is a part of a causal chain (leading from perceived object to the mind, and thus 'consciousness' becomes a part of these objects).[253]

What the empiricist fails to acknowledge is the centrality of human experience and existence, particularly intentionality, the Gestalt and embodied experience (Gordon & Tamari, 2004: 14; Matthews, 2002: 40, 53, 80). The empiricist dismissal leads to an impoverishment and distortion of the world in the perceptual relationship between the individual and the world – the empirical is not dismissed outright in Merleau-Ponty's phenomenology of embodiment, rather the restricted forms of evidence that form its theoretical foundation as identified as unjustifiable biases. It is important to take note of Merleau-Ponty's dismissal of the empiricists' description of perception here, because the pragmatist approach to technology[254] and postphenomenology[255] are closely intertwined with empiricism, and Merleau-Ponty's critique of empiricism will be applicable to these approaches toward technology on the same grounds.[256] With no recourse left for

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of the world) play in mechanistically on the individual, who is detached from these reducible elements of the world. The reductively analysable view of the world posited by empiricism postulates sensations as bare 'atomistic units of perception' and not as *perception* (which is relational and integrative in a broader sense, according to Merleau-Ponty). Merleau-Ponty therefore argues that such 'pure sensation' would "amount to no sensation, and thus to not feeling at all" (PP 5), which jeopardizes the whole conceptualization of perception in these schools of thought from their theoretical starting point.

[252] The same empirical explanations are also given for the cultural world, which is in the empirical view structured as it is by accident of memory transfer and projection. Such empiricism is also evident in socio-pragmatic approaches towards the phenomenon of technology. Compare Section 1.3.2.

[253] Merleau-Ponty states that in the empiricist school of thought the living body is an exterior without an interior, with consciousness having been reduced to just another object (PP 64).

[254] Compare Section 1.3.1.2.

[255] Compare Section 2.5.3.

[256] Empiricist approaches towards technology were critically evaluated with regard to the phenomenon of digital technology in Chapter One. Compare Section 1.3.2.

empiricism, Merleau-Ponty questions whether intellectualism could provide a sufficient description of perception.

3.2.2.3. Merleau-Ponty's critique of intellectualism

However, just as the concept of sensation is problematic in empiricism, so judgement as a basis for perception is problematic within the intellectualist stance. Merleau-Ponty is similarly critical of the intellectualist school of thought, which prioritizes mental over physical phenomena and which holds that an 'objective world' is constituted through thought and judgement by a "universal thinker" (PP 241).[257]

The central problem is that intellectualism does not explain perception in terms of a combination of associative forces and attention as does phenomenology, but rather through reflection and judgement (that is intended to unify the atomistic pangs of empiricism-derived sensation). Merleau-Ponty examines how intellectualism works with the notion of judgement to explain his critique of the 'indirect gaze' that intellectualism postulates with regard to perception, for in intellectualism there is no direct engagement with perception. He says:

> Judgement is often introduced as what sensation lacks to make perception possible. Sensation is no longer presupposed as a real element of consciousness. But when it is desired to delineate the structure of perception, it is done by joining up the points of sensation. Analysis is then dominated by this empiricist notion which, however, is accepted only as the boundary of consciousness and serves merely to throw into relief a power of co-ordination of which it is itself the antithesis (PP 37).

In intellectualism, judgement thus builds upon the concept of sensation developed by the empiricists. Sensations are combined in mental representation by the structures present in consciousness itself through the activity of judgement. The suggestion of intellectualist

[257] Merleau-Ponty argues that "[i]ntellectualism set out … to discover by reflection the structure of perception …" (PP 37).

accounts of perception is that "a ready-made world" or an "inner world of mental facts" exists that is universally true (PP 54, 241). Perception amounts to reflection upon thoughts and ideas in this 'inner world of mental facts' – this is how judgement occurs. There is in the intellectualist view no dividing line between the processes of perception and judgement. The world may only be understood as experienced through judgement, and no perception can occur without judgement. If there is no judgement, then perception can only take place through the categorization done by mental representations given by the object (i.e. empiricism – a one-to-one reproduction of what is perceived, or the constancy hypothesis), or perception is understood as no reflection of the world (i.e. solipsism – the self is all that can be known to exist).

Both these intellectualist avenues are challenged by Merleau-Ponty. The problem he identifies with the intellectualist conceptualization of judgement is that judgement only functions to 'join the points of sensation'. Hereby, one is returned to the problem of the subject's detachment from the reducible elements of the world (which is postulated in the empiricist school of thought). The subject-object, mind-body dualism remains intact. The only difference is that the *mind* is prioritized in the intellectualist view. The intellectualist view again presents a reductionist view of sensations and of perception, and both empiricism and intellectualism are fundamentally flawed, in the view of Merleau-Ponty:

> In the first case consciousness is too poor, in the second too rich for any phenomenon to appeal compellingly to it. Empiricism cannot see that we need to know what we are looking for, otherwise we would not be looking for it, and intellectualism fails to see that we need to be ignorant of what we are looking for, or equally again we should not be searching (PP 33).

Merleau-Ponty posits the body as corrective starting point for an understanding of perception. Perception is lodged in our bodily existence and lived experience, our lived

experience of encountering the world and others.[258] [259] A bodily concept of perception is thus posited in opposition to an atomistic conception of perception that is derived from a Cartesian mind-body dualism which prioritizes either the body as object (in empiricism) or the mind (in intellectualism).[260]

Merleau-Ponty thus criticizes the misrepresentation of perception as either 'sensation' (in empiricist accounts) or 'judgement' (in intellectualist accounts), because it assumes transparency of the subject with regard to herself and leads to the omission of the subject from an account of perception. Subject-object dualism is a complaisant problem in these views. Empiricism and intellectualism assume that the subject of perception is transparent with regard to itself, and that perception in both accounts reveals objective reality. The subject is assumed to be "concordant with itself" (PP 408) and in opposition to (and detached from) the object. The assumption is that the subject can access either an objective external world (in the case of empiricism) or the objective internal world (universal abstract truth in the case of intellectualism), but the perceiver herself remains invisible and detached (from there the two poles of the mind-body dualism). Subject-object dualism is problematic because it implies a disembodied perceiving subject.[261]

3.2.3. The perceiving body-subject

[258] Empiricism and intellectualism are similarly unable to account for inter-subjective encounters, whether one's encountering of other people, or one's being perceived by the other. For the empiricist, for example, other beings are merely "pieces of mechanism worked by springs" (PP 407) that cannot be perceived in the mental sense or understood as perceiving subjects themselves. Other people are merely objects, no inter-subjective awareness of consciousness is possible, and one is presented with an inaccessible world of locked-off experience that cannot be known. For the intellectualist, other people are not truly other – the other is not conceived of as phenomenon, but as part of one's own mental reflection (PP xiii; 407). Thus, both empiricist and intellectualist accounts of the perception of other individuals misrepresent the concept of perception, argues Merleau-Ponty.

[259] Also 'incorporated' or 'incarnated'.

[260] Both empiricism and intellectualism are thus mistaken to assume that there is something like 'objective thought', as termed by Kierkegaard, that is "unaware of the subject of perception" (PP 240; Priest, 1998: 6, Schrader Jr, 1967: 6). Instead, Merleau-Ponty argues that the empiricist should remain aware of an individual's subjectivity in experiencing sensations (tracing broader sensations than just visual perception in their relationality), and the intellectualist should remain aware of the material (bodily) aspect of the individual which provides the context for mental reflection. In both cases, unification between the physical (body) and mental (mind) is needed through recognition of the embodied existence that underlies both empiricism and intellectualism. Neither empiricism nor intellectualism would convincingly conceive of a non-dualistic relationship between mind, body and world, due to their underlying reductionist philosophical assumptions. Similarly, objective thought and the naïve view of perception approach the question of perception in a reductionist manner.

[261] As discussed in Chapter One, such disembodied theories of perception are also insufficient for describing the phenomenon of digital technology. Compare Section 1.5.

Merleau-Ponty argues in an introductory section of *Phenomenology of Perception*[262] that the 'objective thought' of our perception – particularly visual perception – as the causal interaction between objects and the body should be challenged (PP 67-72). Rather, this natural tendency (the 'objective thought' of perception) should be replaced with the 'ante-predicative knowledge' the individual has of his or her body (Baldwin, 2003: 79), a re-engagement with one's "bodily commerce with the world" (Taylor, 2004: 46). Rather than either the mental (thought or judgement) or the physical (empirical observation) forming the basis of perception, Merleau-Ponty asserts that the *body as a whole (in relation to the world)* perceives and is foundational for perception. The body as basis of perception does not present a prioritization of the body over the mind – as is suggested by the Cartesian dualism. In this description, Merleau-Ponty's embodiment moves away completely from the mind-body, subject-object dualism to a description of the 'embodied subject'. A disembodied subject is not reconcilable with Merleau-Ponty's view that perception is relational – between the body and the world – nor with the intentionality of consciousness. Categories of 'mind', 'body' and 'external world' are found in theorization *on* experience, rather than *in* experience. In Merleau-Ponty's view, an acknowledgement of the body in the world, through phenomenology, provides a way out.

To recognize this embodied relation of oneself to the world requires a conscious act of 'stepping back' to bring the perceptual relation between body and world to awareness. This "[r]eflection does not withdraw from the world … it steps back to watch the forms of transcendence fly up like sparks from a fire; it slackens the intentional threads which attach us to the world and thus brings it to our notice" (PP xiii).[263] Merleau-Ponty argues that one should no longer live in the evidence of the sensory or scientific object, and instead "apperceive the radical subjectivity of all our experiences as inseparable from its truth value" (SNS 93). Such a recognition acknowledges the situatedness of the embodied subject within the world – a recognition that while one's eyes allow one to see, we see *in* the world (Ströker, 1987: 144). Embodiment in the Merleau-Pontian sense is a development of Husserl's description of the 'lived body' (*Leib*), or 'liveliness' (*Leiblichkeit*). Compare *Ideas II*, and *Crisis of the European sciences*. Sartre's description of caress in *Being and*

[262] The section is entitled *Experience and objective thought: The problem of the body*.

[263] Merleau-Ponty suggests a different way of looking at the world, a philosophical wonder at the world, a philosophical wonder against which the abstraction of science is but a "derivative sign language" (PP x).

Nothingness also influences Merleau-Ponty's description of the body, although to a lesser degree (Moran, 2013: 356; PP 186, 216). The world makes visual perception possible and fulfils it, rendering the act of seeing a reciprocal embodied relation.

Merleau-Ponty emphasises that the individual engages with the world through her bodily existence as an "always 'already there' before reflection begins" in the world. It is through phenomenological description that one "[re-achieves] a direct and primitive contact with the world" (PP vii). The direct and primitive contact of the individual with the world (and with the phenomenon of digital technology, as will be discussed in Chapter Four) is described by Merleau-Ponty as bodily mediation whereby:

> I organize with my body an understanding of the world, and the relation with my body is not that of a pure I, which shall successively have two objects, my body and the thing, but rather I live in my body, and by means of it I live in the things. The thing appears to me in this way as a moment of the carnal unity of my body, as enclosed in its functioning. The body appears not only as the exterior accompaniment of things, but also as the field where my sensations are localized (N: 74).[264]

Bodily mediation entails the direct, lived experience of the world rather than through the application of strictures of theoretical constructs superimposed over one's experience of the world. Centrally part of perception, for Merleau-Ponty, is the concept of the intentional or reflex arc, which describes the relation between the individual and the world: "Before any systematic interpretation, the description of the *known facts* shows that the fate of an excitation is determined by its relation to the total organic state and to previous or simultaneous excitations, and that the relations between the organism and its *milieu* are not of linear but of circular causality" (SB 13). The intentional arc is that close connection between the world and the body through which perception takes place. The body, through its interactions with the world, acquires skills. Compare Section 3.3 for a more in-depth discussion of habits and skills in terms of Merleau-Ponty's proto-theory of technology. These skills are not stored as mental representations, however, but rather as dispositions

[264] See also PP 188.

that allow response to the solicitations of the world. Maximal grip describes how these dispositions, and the resulting responses, are finely tuned to respond in a manner that brings the current situation closer to the optimal Gestalt. Learning and action, in the Merleau-Pontian view, do not rest on propositional mental representations, nor do they rest on semantically interpretable brain representations. Instead, the world 'calls' and the body 'responds' through skills. All phenomena are encountered in this manner, in perception that is founded in the individual's embodiment. The body, as basis of this mediation, reveals that the world and perception are not dissociated from one another (PP 190). Naïve thinking inherently suggests this immediate grasping of the world through our bodies, but further theorizing often occludes the primacy of the body – turning to the body, however, reveals the mediated nature of perception.

The body, as described through the phenomenology of Merleau-Ponty, thus serves as framework for perception (and interpersonal interaction). Merleau-Ponty argues that "the theory of the body is already a theory of perception"; perception is found in one's primordial engagement with the world (PP 235). The 'body-subject' remains true to lived, bodily experience – it is grounded in contingent and temporal corporeal experience. An individual's existence is characterized as "being-in-the-world" (PP xiv) and the permanence of this "being-in-the-world" is "not a permanence in the world, but a permanence on my part" (PP 104). In other words, the body is the manner (or permanence) through which perception is possible – the permanence of the body is "the ground for the relative permanence of disappearing objects" (PP 105). Throughout these discussions the facticity of body is assumed (in comparison to the posthuman conception of the body as infinitely malleable and changing).[265]

Meaning is generated in the interwoven relationship between the body-subject and the world, and through bodily intentionality. In the body-subject (or embodied subject) the relationship between the subject and the object, of mind and body, is one of mutual intertwinedness, a relationship of reversibility. Body and mind, in Merleau-Ponty's view, are inseparable moments of lived dialectic (PP 189), and are dependent upon each other. It is the irreducibly linked relationship in such duality which gives birth to perception. Such

[265] Compare Section 2.4.

an understanding of the body, as the pre-theoretical starting place of all perception, suggests that any purely 'objective' conception of both the body and the world is inadequate.

The 'embodied subject' is always embodied *in this world,* according to Merleau-Ponty. To this end, the notion of Gestalt is a crucial aspect of perception for Merleau-Ponty (in contrast to empiricist and intellectualist perspectives, wherein no such recognition is found). Gestalt entails a phenomenal field – a direct experience of the world against a background. This phenomenal field is the field of our subjective experience which includes objects, people, beliefs, ideas, and emotions. Merleau-Ponty argues that what we perceive as embodied subjects are not mental images, but rather the world itself mediated through the body. Instead of a world of subjects and objects, and even though these terms may sometimes be useful, such dualities should always be recognised as being irrevocably relationally constituted.[266]

Within this phenomenal field, we find the body-subject acting with specific intentionality (a concept that was important in Husserl's thought as well). Whilst Husserl's thought deals with intentionality in consciousness, Merleau-Ponty speaks of a specific intentionality within being-in-the-world that can only be understood through a 'stepping back in wonder' (PP xiii, xvii). What distinguishes bodily intentionality from intellectual reflection is the 'generality' or 'primordiality' that is found in the body-subject's intentionality (PP 214–216). Intentionality reveals the world through an 'operative intentionality' at work before any positing or judgement (PP 429).[267] This 'operative intentionality' is fundamental to 'acting intentionality'. Through directedness, in perception and bodily motility, intentionality allows meaning to be generated for the individual. The basic intentionality of bodily movement (motor intentionality) is described through an example of a person who wants to pick up a pair of scissors. That person's hands are "potentialities, already mobilized by the perception of the scissors … the central end of those 'intentional threads' which link [one] to [the object I wish to pick up]" (PP 106). Similarly, a door handle beckons for a

[266] The relational aspect of the body forms a foundational part of the modern individual's engagement with digital technology, and suggests that an objective account of the body cannot be sufficient for describing the phenomenon of digital technology – from here the critique of 'objective thought' by Merleau-Ponty (as described in Section 2.3.3).
[267] Operative intentionality represents a *logos* of the aesthetic world, or an art hidden in the depths of the human soul (PP 429).

specific form of basic intentionality when one wishes to open the door. This embodied intentionality is highlighted when Merleau-Ponty says that "being towards the thing through the intermediary of the body" becomes an "I can" of potentiality (PP 160, 161). Intentionality, in this way, characterizes the unitary being, allows the manifestation of the 'tacit cogito', the 'presence of oneself to oneself' and forms the basis of embodiment (PrP 5, PP 403-404). It should be highlighted that the individual's embodiment is distinguishable from the objective body, which is a thing in the world, and is reflected in the postural schema, or body schema, the 'I can' of the relationality of the body to the world in terms of its movement and ability.

The discussion shall now return to the question of digital technology. Human-technology relations (in digital technology interactions) link directly and inextricably to this phenomenological description of the body and of the body schema. The result is that one may identify unique emergent characteristics of the phenomenon of digital technology by focusing on the modulations of embodiment (and the flesh) which digital technology artefacts cause.[268] Embodiment is, in other words, the non-objective phenomena through which the 'lived body', 'I-body' or the 'body-subject' of the subject's own corporality is revealed, and from which any description of the phenomenon of digital technology begins. The facticity of the individual's subjectivity and the relation of the individual with the object as found in embodiment, "that primordial layer at which both things and ideas come into being" (PP 255), cannot be bypassed in such descriptions.

3.2.3.1. The body in digital technology – which body?

The body is taken in this study as the most basic avenue for a description of the phenomenon of digital technology, but from this theoretical perspective the body is also the first problem that should be investigated. The body per the body-subject is not a simplistic concept. One problem with the description of digital technology from the basis of the body is the 'multiplication' of bodies that is suggested in the literature on digital

[268] The relational aspect of the body forms a foundational part of the modern individual's engagement with digital technology, and suggests that an objective account of the body cannot be sufficient for describing the phenomenon of digital technology. From here comes the critique of 'objective thought' in Merleau-Ponty's philosophy (as described in Section 2.3.3).

technologies (such as 'virtual bodies' versus the 'physiological body') and by the recourse to empirical accounts of technology (in particular postphenomenology).[269] These approaches miss the basic character of embodiment, the inherent facticity of the body as basis for perception, and the relevance of the body for a description of the phenomenon of digital technology. Even posthuman accounts of the phenomenon of digital technology start from the basis of questioning the relevance of the body as facticity in accounts of digital technology. Instead of a multiplication of bodies or taking empiricism as recourse, it is necessary for a re-conceptualization of the body *as it is* in relation to the phenomenon of digital technology (again, in contrast to posthuman conceptualizations). The approach suggested in this study starts from the facticity of embodiment of the body-subject, whilst opening the space for a new understanding of digital technology through a reconceptualization of the relation between the embodied individual and the digital technology artefact. Finally, the question of the body stands centrally. Postphenomenology, as prominent contemporary treatment of the body in technology, suggests one perspective on the question of digital technology.

Don Ihde wrote in *Bodies in Technology* (2002) on the body and its relation to technology from a phenomenological standpoint. In this book, he compares and contrasts the extension of the senses via scientific instrumentation with extension of the senses derived from digital technological means. However, there is a strong focus on activity in his investigation, whilst the passive role that a body often plays in such relations is not extrapolated fully. Amongst contemporary Philosophy of Technology thinkers, Feenburg (2003) takes up the baton to develop a passive description of the body as well. Whilst Ihde describes the first and second body, respectively the body informed by the senses and the body as shaped by culture, Feenburg introduces a third and fourth, the dependent body and the extended body respectively. This multiplication of bodies, Feenburg argues, correlates with phenomenological insights into the specificity of lived experience. However, the facticity of the single, unitary body is challenged through objective and sociological theorizing, departing from the individual's lived experience of inhabiting (or being) a single body.

[269] The critique of empiricism that Merleau-Ponty presents shows how such empirically founded investigations are per se untenable.

One problem with the multiplication of bodies in analyses of digital technology is a conflation of the word 'virtual' (as in 'virtual reality') and the concept of embodiment as linked to the virtual in Merleau-Ponty's thought.[270] The postulation of multiple bodies leads to a misunderstanding of what Merleau-Ponty means with his use of the concept of the virtual body. When Merleau-Ponty mentions the virtual body, his description relates closely to the body schema and imaginative potentiality, rather than referencing any form of 'virtual' presence in digital technology. The use is not directly translatable to concepts such as cyberspace and virtuality, and the proliferation of multiple instances of the body should be recognized as a departure from Merleau-Ponty's phenomenology of embodiment.[271] Merleau-Ponty starts his phenomenological description from the body as single and unitary framework, from the basis of the body-subject, and the integration of multiple bodies (compare Ihde and Feenberg) presents an alteration of the basic facticity of the body that Merleau-Ponty argues for.

A 'multiplication' of the body, as Ihde and Feenberg propose, seems largely semantic, because the distinction becomes difficult to pin down to strict concepts. What exactly do these other bodies entail in terms of the individual's lived embodiment? Moving beyond the body-subject entails a move beyond the phenomenological method and, most importantly, this multiplication of bodies is unnecessary in terms of describing the relation between the embodied individual (in the Merleau-Pontian sense of the body-subject) and digital technology artefacts. The body, in the Merleau-Pontian sense, rather than in reference to the sensory, cultural, dependent or extended body, is just the body and encompasses all the facets of embodiment (as fully developed into the concept of the flesh as the surface between body and the world). Merleau-Ponty states, "I do not observe [the body in itself]: in order to be able to do so, I should need the use of a second body, which itself would be unobservable" (PP 104). To distinguish multiple bodies seems therefore to confuse central elements of the embodied phenomenological approach and contributes little to a description of the phenomenon of digital technology. In contrast, the re-appropriation of the body (as basis for the Embodied Screen, a concept which will be introduced in Chapter Four) presents a

[270] Compare also the postulation of the cultural body in relation to the body-subject.
[271] Under the influence of methodological approaches such as pragmatism, empiricism and social constructivism.

description of the phenomenon of digital technology that engages with the body in its prerequisite unitary sense.

A more convincing argument is thus to describe these different bodies as different dimensions of a single body, and not for conceptually descriptive reasons, or merely for semantic reasons. Failure to do so specifically suggests a conceptual fragmentation of the body-subject, leading to confusion of the limits of the body in digital technology encounters. However, the question of the limits of the body (and the world) remains an important issue. The body in its unitary sense, as 'in the world' (Heidegger), with its flesh as intertwined with itself, others and the world (Merleau-Ponty), is taken as the foundation of the concept of the Embodied Screen. The Embodied Screen as a concept thus links the embodied individual, as embodied in a *unitary* body, with digital technology artefacts, in the phenomenon of digital technology.[272]

Moving beyond inadequate conceptualizations of the virtual body or a multiplication of bodies, one must ask what the *nature* of the body is for Merleau-Ponty. Merleau-Ponty conceptualizes the body as *unitary* basis of the individual's lived experience. He argues that a philosopher's idiom is always in one's non-private bodily being, but Merleau-Ponty's work opens up a space for considerations of other forms of being-in-the-body than was his own. He argues that there is no favoured style or modality of being, just as there is no quantifiable measure of a minimum needed for bodily experience – all experience is 'full' experience, even if impoverished, incomplete or merely other.[273] There exists in embodiment always the acknowledgement that our particular embodied situatedness could just as easily be another embodiedness, another situatedness. There is a transcendence, an intentionality and a unity. However, the transcendence could be complete or ambiguous, the intentionality inhibited or unsure, and the unity discontinuous or staggered, and so on (Verhoef, 2016: 135). There are many forms of body, ways of being-in-a-body, but there is always the body as foundationally constitutive for perception and experience. The transcendence, intentionality and unity of body have thus the possibility of expansion, change and modulation in and through the phenomenon of digital

[272] From this description, one may trace how the individual's perception of the self, the world and the other functions differently in this 'between' of the phenomenon of digital technology.
[273] Or maximum reachable, in terms of technology, as will be discussed in this chapter.

technology. However, a mere ad infinitum multiplication of bodies is unconvincing and unnecessary in an account of the phenomenon of digital technology, beyond its theoretical or rhetorical value. The embodied nature of the individual is rather a constant thread and it is this concept of the body (following Merleau-Ponty) that will be utilized in describing the relation between the human and digital technology artefacts, conceptually encapsulated in the Embodied Screen. To accept that there is but one body opens up the question – in regard to the relation between the human and the phenomenon of digital technology – about the complex limits of this body, rather than semantic distinctions of the body as bodies. The body and its limits should, however, be understood very dynamically. The phenomenon of digital technology has the ability to contort, shift, stretch and alter the body. Such a view of digital technology's potential, as 'expanded' embodiment via imaginative and narrative signification, leads to a more fruitful and dynamic conceptualization of the body in modern technology. This allows, in turn, a better understanding of how the individual exists (bodily) in the contemporary digital age. Beyond embodiment, however, the concept of flesh is crucial for an ontological explication of the Embodied Screen (presented in Chapter Four).

3.2.4. The flesh and reversibility: An intertwining and a crossing

The concept of *flesh* (Fr: *la chair*)[274] is developed in *The Visible and the Invisible*, and is particularly explicated in the chapter entitled *The Intertwining – The Crossing.* Chiasm or chiasma is an x-shape or overcrossing (of the body and the world, in Merleau-Ponty's metaphor). The notion of intertwining and crossing is an idea already introduced in *Phenomenology of Perception*, compare "the body … will carry with it the intentional threads linking it to its surrounding and finally reveal to us the perceiving subject as the perceived world" (PP 83). The flesh goes beyond perception as described in Phenomenology of Perception, instead presenting an intertwining of the chiasmically associated 'dualisms' (such as world and consciousness, or sensing and sensible) that are in fact interdependent, including the faculty of sensing and the sensible thing. The idea that the world is not merely an object "does not mean that there was a fusion or coinciding of me with it: on the

[274] The word *la chair*, translated from French, here implies a 'container', a 'reservoir', as well as a 'wagon' that carries (one's perception).

contrary, this occurs because a sort of dehiscence opens my body in two, and because between my body looked at and my body looking, my body touched and my body touching, there is overlapping or encroachment, so that we may say that the things pass into us, as well as we into the things" (VI, 123).

Merleau-Ponty's idea of the flesh is important for understanding the embodied subject and perception in the broader context of Merleau-Ponty's overarching project of phenomenology of embodiment (as presence enmeshed in the world), particularly through his challenge of traditional philosophical dualisms in the quest for an ontology. Flesh presents a new development in Merleau-Ponty's ontological monism that strives to 'exorcise' the 'demons' of Cartesian dualism that still reside, in his view, in *Phenomenology of Perception*.[275] With his concept of the flesh, Merleau-Ponty moves far beyond a discussion of subject-object dualism to constitutive presence, to a full-fledged ontology of being, that answers what Merleau-Ponty believed to be the primary flaw of *Phenomenology of Perception* (i.e. the remaining Cartesian dualism) by dissolving the division between body-subject (or consciousness) and the object (or world) (Matthews, 2002: 161).[276] Merleau-Ponty hereby emphasizes the involvement of the individual in the world, but even describing concepts like 'individual' or 'world' implies a separation. What Merleau-Ponty suggests is that the individual, in her being, in her 'being-in-the-world', cannot be separated from the world she inhabits:

> Starting from [the consciousness-object] distinction, one will never understand that a given fact of the 'objective' order (a given cerebral lesion) could entail a

[275] The remaining Cartesian dualism in *Phenomenology of Perception*, between matter and spirit, or consciousness and subject, is described by Merleau-Ponty as presenting a challenge to the overcoming of the problems he addresses in that book (VI 250). *The Visible and the Invisible* serves as final criticism of dualism, even the dualism between the sensuous (the visible) and the world of thought (the invisible) (Moran, 2013: 357). There is, for Merleau-Ponty, an overlap and encroachment between the poles of dualistic pairs, such as self and other, subject and object, body and world, among other things. The meaning of the 'gap' or 'oscillation' between such conceptual poles is represented through the flesh and reversibly in Merleau-Ponty's thought. All dualisms are entangled with each other, and distinguishing these dualisms is only a move for conceptual understanding (VI 197). Merleau-Ponty challenges Cartesian Scepticism with his description of flesh, and reformulates a priori concepts of the unity of the world. The unity of the world is only possible through a phenomenology of embodiment that is grounded in embodied life (within the world).

[276] There is debate on whether Merleau-Ponty's final work presents a major divergence from his original project. This study asserts that his final work amplifies and extends themes from his earlier work. Compare "Merleau-Ponty's thought is profoundly unified" (Barbaras, 2004). Compare also, for example, the description of flesh and Merleau-Ponty's statement that one's body is the texture common to all objects (PP 272).

> given disturbance of the relation with the world— a massive disturbance, which seems to prove that the whole 'consciousness' is a function of the objective body … It is these very problems that must be disqualified by asking: what is the alleged objective conditioning? Answer: it is a way of expressing and noting an event of the order of brute or wild being which, ontologically, is primary (VI 200).

'Brute' or 'wild' being is prior to consciousness, the theme that was central in *Phenomenology of Perception* as the bodily and existential dimension of conscious experience (Carmen, 2008: 122). This 'brute' or 'wild' being begins in one's unconscious immersion within the world. The flesh is fundamentally linked to one's existence, to one's being, as the unconscious ontological bedrock of conscious experience (sense experience and bodily comportment) (Carmen, 2008: 123). The later Merleau-Pontian understanding of not just perception, but also being, hinges on his conceptualization of flesh which begins in this 'brute' or 'wild' being. Merleau-Ponty describes the 'flesh' as follows:

> The flesh is not matter, is not mind, is not substance. To designate it, we should need the old term 'element', in the sense it was used to speak of water, air, earth, and fire, that is, in the sense of a general thing, midway between the spatio-temporal individual and the idea, a sort of incarnate principle that brings a style of being wherever there is a fragment of being. The flesh is in this sense an 'element' of Being (VI 139).

The flesh is clearly not the naïve concept of corporality, of 'blood, muscles and bone' in a narrow materialism,[277] nor is it a continuation of the consciousness-object dualism that Merleau-Ponty rejects. Rather, flesh is "the underlying ontological foundation of sensory receptivity and motor spontaneity" (Carmen, 2008: 123). The flesh refers to the entirety of sensed things with which the body forms a continuous surface, through the crossing of the body-subject to the world and the body-subject's intertwining with the world (an

[277] Compare also Carmen, 2008: 123. John Milbank, a prominent Merleau-Pontian scholar, describes the flesh as "[a]t the point of 'bodies', flesh somehow folds back on itself, becomes 'for itself' as well as 'in itself', and in being able to touch itself it is also able to touch the whole series of … things." (2003: 12). As Milbank highlights, the 'flesh' as Merleau-Ponty describes it, is as much physical as it is spiritual, and spiritual experiences may be included as constitutive of the world.

intertwining immersion of the perceiver and what is perceived, as far as those terms are still conceptually relevant in Merleau-Ponty's later thought). The flesh *is* the intertwining, and the flesh *is* the crossing, between the embodied individual and the world. Chiasm or chiasma reflects the intertwinedness and crossing of the body with the world and the world with the body – as two interwoven threads of the same flesh. It is 'on' or 'through' this surface that the crossing to and from the world (in its fullest sense) takes place – rather than the individual just being *in* the world, the flesh positions the individual as *of* the world (Carmen, 2008: 123).

In no other way, argues Merleau-Ponty, could this emplacement in the world happen than through the flesh, which represents the "reciprocal insertion and intertwining of one in the other" (VI 138).[278] The flesh is the formative medium between the subject and the object, "a general thing, midway between the spatiotemporal individual and the idea … a concrete emblem of a general manner of being" and constitutes the 'space' between "the seer and the visible, touching and touched" that emplaces the individual in the world for she is *of the world* (PrP 163; VI 147). This is not a 'space' of separation, but rather a 'space' of connection, and the flesh is that layer of engagement with the world that envelops one's own embodiment, that surface with which one encounters the world like a 'skin'. It is the 'surface of embodiment' with which one encounters the world. However, the concept of the flesh reaches beyond simple embodiment and perception (as described in *Phenomenology of Perception*), and entails concepts like perceptual faith, reversibility, chiasm, and being itself. All of these 'converge' in the flesh (which is not static, but dynamic – a reciprocal movement or 'membrane' between the individual and the world she lives in).

Merleau-Ponty thus formulates perception not as passive reception (as empiricists do), but emphasises the activeness of perception through his description of the flesh – there is a 'chiasm', an 'intertwining', or 'interlacing'.[279] The subject that perceives is a bodily subject

[278] Compare "Flesh is the stuff common to ourselves and the world, what we are made of, as it were. And yet the term is not just another name for physical or material stuff … [it is] the *sensibility* of things, the perceptibility both of the perceptual environment and of ourselves as perceivers – the *visibility* of vision, the *tangibility* of touch, the *exposure* of anything to which the world itself can be exposed in experience, including the bodily sense or experience of motor intentionality" (Carmen, 2008: 123).

[279] The flesh is not merely physical, or a reformulation of the 'objectivity' of the world, but also 'spiritual' in the sense that it includes the entirety of the sensing of things (and the body itself) in and through the body. The object and the subject, sensible body and sentient awareness are of the same order, they are of the flesh. Merleau-Ponty postulates

that interacts with the world via the flesh with constant possibility of reversibility. Perception is a two-way engagement; it is reciprocal between the flesh of the embodied subject and the flesh of the world. All perception is thus grounded in a basic lived engagement with the world. Our existential 'being-in-the-world' in the Heideggerian sense is thus echoed in Merleau-Ponty's own existential phenomenology. The body, as engaged through the flesh, co-ordinates experiences of its emplacedness within the world. This embodied experience provides the framework through which the person can relate to the world, and to others. The person is always part of or in this world, and through self-experience (Husserl's *Selbsterfahring*) and primary presence (*Urpräsenz*) one already transcends oneself. There is a gap or chasm wherewith one is not with oneself, self-distanciated, and crosses over to the other and objects in the world (Moran, 2013: 365). One is thrown outside oneself, always and already. Through this self-transcendence, through the flesh, one is opened up to other and to the world. One's flesh meets the "flesh of the world" (VI 248).[280]

Merleau-Ponty argues that "the body as sensible and the body as sentient [is] what we called previously objective body and phenomenal body", conscious experience as a whole is grounded in the pre-phenomenal flesh of visibility, which is the underlying ontological necessity of 'brute' and 'savage' being within a bodily communion with the world (VI 180, 136). There is a tighter intertwined unity of consciousness and the physical in his description of flesh, wherein consciousness is a characteristic of the lived world (it is not separated from it), and perception (through flesh) gives access to this unity of subject-object (the intertwined relation between consciousness and world). His concept of the flesh is also not just a synthesis of these dualisms, but rather a type of continuous circuit that exists between the world and consciousness. Merleau-Ponty explains this intertwinedness in terms of his concept of flesh:

a unity of the mind-body, subject-object dualisms in his concept of embodied subject, and the notion of flesh (with its accommodation of the invisible) should not be understood now to be a move back to mind or consciousness. This echoes Gibson's (1979: 116) view that "[t]he supposedly separate realms of the subjective and the objective are actually only poles of attention." Merleau-Ponty is not an idealist. He does not argue that individuals are 'consciousnesses floating on air' with merely access to the outer world, nor does he suggest that the body simply mediates mechanistically the mental and the physical.

[280] Fr: *La chair du monde.*

> The flesh of the world is not self-sensing (*se sentir*) as is my flesh – It is sensible and not sentient – I call it flesh, nonetheless […] in order to say that it is a pregnancy of possibles, *Weltmöglichkeit* (the possible worlds variants of this world, the world beneath the singular and the plural) that it is therefore absolutely not an object, that the *blosse Sache* mode of being is but a partial and second expression of it (VI 250).

The world itself is not just an 'object'; there is more to it, it is flesh not as self-sensing, but as sensible and full of possibilities.[281] The organisation of the world as flesh is a property of those sense organs proper to it, of the flesh of the embodied subject. Because the organs of the embodied subject are living organs, the organisation of flesh is never final and there is always a potential for revision within flesh and subsequently for revision in perception. The dynamism of perception via flesh is reflected in the reversibility of the flesh – "the finger of the glove that is turned inside out" (VI 263).

3.2.4.1. Reversibility

Central to Merleau-Ponty's account of perception is the concept of reversibility (cf. VI 133). In *Phenomenology of Perception*, the concept of reversibility is already introduced through the description of an individual's two hands touching each other (PP 106). Merleau-Ponty explains that each hand is neither touching nor being touched, whilst at the same time each hand is touching and being touched. One cannot touch without the inherent awareness of one's own touchability, without realizing that there is a reversibility. Reversibility serves to illustrate that subjectivity and objectivity are not separated, but intertwined in one's bodily existence within the world through the flesh as 'connective tissue'.

The reversibility (between the flesh of the subject and the flesh of the world) also has the potential to be fundamentally asymmetric. The asymmetry of reversibility may be seen in

[281] On the one hand, this conceptualizing of the world directly relates to the Husserlian *Lebenswelt*, but on the other hand is much more 'alive' through its interconnection of the world and the subject-in-the-world. There is no 'reversibility' in Husserl.

Merleau-Ponty's example of a hand touching a table (this represents the typical subject-object divide). Whilst the hand (subject) touches the table (object), one does not feel the table touching one in the same way that one feels one's hand touching the table. The table is not a part of one's body. The table is flesh (as in, the flesh of the table), but it is not self-sensing.

The dynamism of the flesh (as reversible or doubling surface) reveals also the reversibility of one's own perception. Both the embodied subject and the world possess, via the flesh, an 'entirety of sensed things which form a continuous surface'. The embodied world and the embodied subject meet, and intertwine, on this surface of the flesh. If one's perception is to be traced along the flesh, so the world too (and so the phenomenon of digital technology) asymmetrically 'perceives' and is perceived through flesh – the embodied individual and the world remains in both cases revisable and reversible. The world as flesh serves a revealing function here. It reveals the bodily nature of one's being in the world (which is itself flesh). The facticity of embodied being within the world as flesh reveals one's role as intertwined perceiver. There is no need then for 'another seer' (intellectualism) or for reducing oneself to the limits of our visual range (empiricism).

A similar asymmetry exists in visual perception. The senses serve as a 'zero degree' in touch and in perception – one can move around and investigate the environment around oneself through tactile contact and through sight. One's bodily senses provide one with the 'zero degree' in the process of sense-making in the world: [282]

> … my body – has its place in the same visible universe that I itemize and explore with them, as, conversely, every vision takes place somewhere in the tactile space. There is double and crossed situating of the visible in the tangible and of the tangible in the visible; the two maps are complete, and yet they do not merge into one" (VI 134).

[282] The 'zero degree' of the senses remaining constant occurs even in the phenomenon of digital technology. Whilst investigation (particularly through the engagement of sight and sound) can occur, the 'zero degree' can only be twisted and moulded but never fully escaped. Embodiment is constant, and disembodiment does not occur due to the embedded nature of the senses. This embeddedness will be discussed further in Chapter Four.

The asymmetry of the reversibility of perception lies in the fact that I, being tangible in the world, can see the world, but the world, tangible and visible, cannot 'see' me in the way to cause 'the two maps to merge'. Reversibility is not denied or rejected by Merleau-Ponty in this quote; the asymmetry of reversibility is merely acknowledged. Again, as with touching the table, the flesh of the world (the visible, the tangible) is what intertwines with the embodied subject's flesh in perception. Perception remains reversible – a reciprocity of perception due to the facticity of one's existence within the world. The subject and object remain united through their flesh.

This reversibility of perception described as the visible in the tangible and the tangible in the visible (VI 134) elucidates the intertwinedness, the inextricable relation between the embodied individual and the world. The reciprocity in this relationship reminds one of what Merleau-Ponty, in his analysis of language, explains as a 'call and response structure' of the relationship between the individual and the world. For Merleau-Ponty there is a 'call and response' (reversible) process that takes place in visual perception as well. He emphasizes the reversibility of visual perception to counter the empiricist claims that vision is merely light reaching the eyes – a one-way process of perception. Visual perception is rather, in Merleau-Ponty's view, constituted by movement through the world, looking at what we see from the 'zero degree' through seeing and bodily movement. There is a continuous process of revision and reversibility and there is no passive reception of data on the side of the subject. Merleau-Ponty emphasises:

> Between the exploration and what it will teach me, between my movements and what I touch, there must exist some relationship by principle, some kinship, according to which they are not only, like the pseudopods of the amoeba, vague and ephemeral deformations of the corporeal space, but the initiation to and the opening upon a tactile world. This can happen only if my hand, while it is felt from within, is also accessible from without, itself tangible, for my other hand, for example, if it takes its place among the things it touches, is in a sense one of them, opens finally upon a tangible being of which it is also a part (VI 133).

Visual perception, touching, knowledge of the world, is not experienced as a one-way data stream from the world to my senses, but in the relationship between 'my exploration, the meaning of what I explore, and my movements' with the tactile world. One's tangible being is experiencing the touch, but is also part of the tangible world. Vision is similarly always embodied – the zero point is found as belonging to a body and it is this zero point of the body that provides the scaffolding for the analysis of anything in the world.[283]

Perception, which always begins with the embodied subject, is intrinsically linked to the flesh – the entirety of sensed experience – to include the 'visible', or sensed things, and the 'invisible', of consciousness. Merleau-Ponty accommodates in his understanding of perception that there is something 'more', something 'magic', something 'invisible' revealed by the phenomena themselves. Whilst materialism and scientific rationality have disenchanted the world through their naïve conceptualization of perception, Merleau-Ponty's phenomenology of embodiment advocates a more comprehensive understanding of perception through flesh, which allows a space for the re-enchantment of phenomena found in the world. The flesh is the dynamic and open surface whereupon all interactions of the body take place with that which is not the body, but in this process that which is not the body becomes part of the body. Flesh is not a 'water proof' surface between the body and the world, but rather a reciprocal point of contact, a 'membrane', a porous 'screen'. The 'screen' of the flesh is in relation to all experiences, while the 'Embodied Screen' narrows this contact and interactions down to the experiences of digital technology.

3.2.5. Other critical facets of Merleau-Ponty's phenomenology of embodiment for the phenomenon of digital technology

In this section, terminology from Merleau-Ponty's oeuvre that is crucial for the development of a new conceptual framework for the description of the phenomenon of digital technology is mentioned and discussed. The Embodied Screen, this suggested conceptual framework, entails the use, creative re-deployment and renewed application of these conceptual starting points for the development of it as neologism. In the following

[283] This insight of Merleau-Ponty will be applied to the phenomenon of digital technology and further explored with regard to specifically this phenomenon.

sections, Merleau-Ponty's accounts of perceptual faith, the imagination and language will be presented in preparation for the Embodied Screen.

3.2.5.1. Perceptual faith

Cartesianism cannot establish *things* as the ground of one's subjective perceptive of said things.[284] Perceptual faith (Fr: *La foie perceptive*), however, does open up the possibility of sense-making – it underlies the possibility of gaining coherence of the world, objects and the subject herself.[285] Through a co-ordination of the various senses (sight, touch, etc.) a world is made up, constructed from the phenomenal field given to each. These phenomenal fields are interconnected through their grounding in one's body. From the basis of these phenomenal fields, looking at and moving in the world can take place (such looking and moving allows the full embodiment of the individual). Perceptual faith is, for Merleau-Ponty, the shared pre-reflective conviction humans have through their coordination of the senses and their engagement with the other that the world (as given to our perceptual experience) truly is the world. In other words, perceptual faith serves to ground the world as true beyond the way the world is mediated by one's own sense organs. Merleau-Ponty explains:

> The 'natural' man holds on to both ends of the chain, thinks *at the same time* that his perception enters into the things and that it is formed this side of his body. Yet coexist as the two convictions do without difficulty in the exercise of life, once reduced to theses and to propositions they destroy one another and leave us in confusion (VI 8).

Perceptual faith opens up the possibility for an understanding of *things* as the ground of one's subjective perception, for it is from the basis of perceptual faith that sense-making

[284] Taylor argues that the Cartesian method of doubt is remedied by Merleau-Ponty's postulation of (perceptual) faith, for individuals "can't be left reeling under the cumulative effect of all the possible sources of error, where the ancients abandon [one] with the injunction to cease the fruitless quest for certain knowledge" (2004: 42).
[285] The non-delimitable nature of the world (as separate from the body) leads Merleau-Ponty to the concept of the perceptual faith.

could take place. Perceptual faith (Fr: *la foie perceptive*)[286] is the pre-reflective conviction that perception corresponds to the world as it actually is, whilst being mediated by the senses. It is the "unjustifiable certitude of a sensible world" (VI 11) that underlies one's perception of the world. In our engagement with the world this is unproblematic, but when rationally articulated its apparent paradoxical character often leads to confusion (VI 23-24, 28). The reason for this is that perceptual faith is an existential commitment and pre-theoretical assumption that is foundational in our perception of the world. Perceptual faith underlies any object under investigation, and thus underlies the perceptual itself.[287]

Perceptual faith is "the archetype of the originating encounter", an openness to, and interrogating of, being (VI 159). Merleau-Ponty writes:

> We are interrogating our experience precisely in order to know how it opens us to what is not ourselves. *This does not even exclude the possibility that we find in our experience a movement toward what could not in any event be present to us in the original and whose irremediable absence would thus count among our originating experiences* (VI 159).

Perceptual faith is that basis wherefrom one's experience of the world is established, not as what is perceived but from what is 'placed' there by the individual. There is a circularity, found in our interrogation of what is not ourselves in order to trace our own being. Perceptual faith instils in (and opens up) ourselves 'in' the other, 'in' things, and thus locates one's perception far from ourselves (VI 160). One perceives oneself thus as one believes others perceive one. Lived experience instils one, paradoxically, in oneself and in the other, in things. At the foundation of this lived experience, and underlying one's perception, is one's perceptual faith which forms a part of primordial experience. Through one's experience of the world (the other), separate from oneself, one ironically, at the point of separation, 'becomes' the world, through the leap into perceptual faith.

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[286] *La foie* emphasizes that the perceptual is 'given' – the perceptual is given by 'something' (the world). Perceptual faith is a central concept in *The Visible and the Invisible*, although the concept does inherently show up in *Phenomenology of Perception*.

[287] Perceptual faith is also intrinsic to Merleau-Ponty's conception of the flesh, and it is necessary to understand the relation between perceptual faith and the flesh to trace the phenomenon of digital technology (but also its challenge to perceptual faith).

Initially the concept of perceptual faith seems linked to the imaginary, but the imaginary takes on a different character in Merleau-Ponty's phenomenology.[288] Imagination, for Merleau-Ponty, constitutes an entire world that is fully dependent on and accessible to the imaginer. Merleau-Ponty highlights how the embodied subject does not confuse the phenomenal world with the imaginary world through perceptual faith:

> The real is a closely woven fabric. It does not await our judgement before incorporating the most surprising phenomena, or before rejecting the most plausible figments of our imagination. Perception is not a science of the world, it is not even an act, a deliberate taking up of a position; it is the background from which all acts stand out, and is presupposed by them (PP xi).

Thus Merleau-Ponty argues that an intrinsic coherence of 'representations' is not enough to distinguish the imaginary from the phenomenal. Instead, the 'real is a closely woven fabric which does not await our judgement'. The imaginary is something we analyse, we judge, but the real is so 'real' that when we perceive it we do not even think about it as real. Inherent in perception is thus a faith in the real world (given certainly by perceptual faith), while imagination entails an awareness of the 'realm of the imaginary'. In this study, imagination and imaginative signification are distinguished. The latter is a primary means of sense-making in the Embodied Screen.[289] With regard to fanciful imagination as such, Merleau-Ponty presents a phenomenology of embodiment that is a philosophy of *presence*. Perceptual faith is what ensures the grounding of one's perception in this presence. Even though the imagination and perception may be engaged in, for example aesthetic judgements as argued in *Eye and Mind* and *The Visible and the Invisible*, Merleau-Ponty's earlier works promulgate this same framework of presence, but especially his later thought emphasized this presence as a presence intertwined and enmeshed with the world. What, then, does the concept of the imaginary entail for Merleau-Ponty?

[288] Compare Section 3.2.5.2.
[289] Compare Chapter Four.

3.2.5.2. Merleau-Ponty and imagination

The imagination[290] represents, for Merleau-Ponty, that capacity to creatively experience the world in a certain way, a creative manner that weaves into unitary experience both that which is present and that which is absent. This is not mere synthetization, but rather a way towards invention and discovery in one's experience of the world. Merleau-Ponty highlights this point in *Eye and Mind* (1964) when he describes imagination not as "a tracing, a copy, a second thing" but rather as that process where without "we would never understand the quasi presence and imminent visibility which make up the whole problem of the imaginary" (S 126). The imagination plays a central unifying role in the individual's perception. There is in the imaginary thus not merely fanciful thinking, but more centrally a close link to perception as present and immanent.

How does imagination fit into Merleau-Ponty's phenomenology of embodiment? The link is explored broadly in *The Visible and the Invisible* (1968), wherein the role of the imaginary in perception is highlighted. The imaginative, for Merleau-Ponty, is not a 'negation' of the real as it is for Sartre in the for-itself/in-itself dialectic, but rather a necessary part of perception and of presence.

Much of Merleau-Ponty's discussion of imagination in *Phenomenology of Perception* and *The Visible and the Invisible* echoes the description of imagination developed by Jean-Paul Sartre in *L'imagination* and *L'imaginaire*. This account of imagination sketches it as an escape from the body and the limitations imposed thereby. Furthermore, the basis of Merleau-Ponty's ontology is perception as 'accurate' account of the world (through the intentionality of looking and touching, for example, in the vein of Husserl). This

[290] Compare the introduction to Richard Kearney's *The Wake of Imagination: Toward a Postmodern Culture* (1988). Later, Kearney (1998: 15) would describe how different meanings of the imagination can be understood to bear merely what Wittgenstein would call 'family resemblances'. For example, four types of imagining in relation to Merleau-Ponty's thought may be distinguished, namely the perceptual (the closely intertwined imaginative character of perception, which will be described in this section), the aesthetic (the type of imagination that plays a role in the appreciation and production of art forms), the fanciful (which relate to 'flights of fancy' that foundationally differ from the perceptual) and the pathological (the uncontrollable character of imagination often found in pathological cases) (Steeves, 2004). The question of imagination as broader concept will not be investigated in this study beyond its use in Merleau-Ponty's phenomenological account, and thus distinction will not be made between terms such as the imagination, the imaginary, the imagined and the imaginative. However, a discussion on how these four types of imagining are folded upon each other will be discussed in Section 5.5.

phenomenology of embodiment is a philosophy of *presence*, rather than of the imagination. It is particularly in Merleau-Ponty's later works that his views on the imagination begin to differ substantially from those of Husserl and Sartre. In the second chapter of *The Visible and the Invisible* ('Interrogation and Dialectic') Merleau-Ponty criticizes Sartre's perceived dualism (between 'being in itself' and 'being for itself'), and his interlacing of being and consciousness by the embodied subject through the intertwining of the perceptual and the world of culture (Moran, 2013: 357). In contrast, Merleau-Ponty emphasizes the dialectical relation between subject and object, the intertwining and dynamism for "the thing needs me in order to exist" (SNS 29, 51). The world is not something brute and alien; it is a sensory world, a physical world and a human world. For Merleau-Ponty the imagination works within one's everyday experience, and he does not distinguish between the perceiving and imagining consciousness as for example Sartre does in *Being and Nothingness* (1958). This signifies that the imaginary is much more closely related to one's perception in the Merleau-Pontian account than in the Sartrean account.

While at first an emphasis on perception seems to stress the perceptual over the imaginary in Merleau-Ponty's work, Morley argues that "the primacy of perception privileges neither the interior psychological self nor the external physical world" (Morley, 2014: 94). There is a mutuality between the interior and exterior, a closely intertwined link with a constant interplay between the perceiving self and the perceived world. This interplay has specific implications for the relation between the real and the imaginary.

In Merleau-Ponty's view, the imaginary is not in contradistinction to the real but rather on par with the individual's perception. The imaginary is from the start woven into the intrinsic *texture* of the world as perceived.[291] By reframing Merleau-Ponty's phenomenology as taking the concept of imagination not as a fanciful activity but rather as inherent in how our perception takes place, we gain insight into the "imaginary texture of the real" (Lennon, 2015: 3) and the "richer reality" (McDowell, 1994: 192). This insight of 'the real' comes not only from the imaginary but through the senses, a unification of experiential horizons that

[291] The concept of the imaginary is thus centrally important to an understanding of Merleau-Ponty's phenomenology of embodiment. What is found in Merleau-Ponty is a reclaiming of imagination for perception, and the imaginary forms a thread that thinkers like James B. Steeves (*Imagining Bodies: Merleau-Ponty's Philosophy of Imagination* (2004)), Kathleen Lennon (*Imagination and the Imaginary* (2015)) and Richard Kearney (*Carnal Hermeneutics* (2015)) have teased out as central element of Merleau-Ponty's work on perception.

form the integrated lived experience of the world. Merleau-Ponty's description of perception, through embodiment, flesh, and perceptual faith, therefore creates a space for the imagination to play a role in creating sense and making sense of the world. In this process, a re-enchantment of the world takes place, because there is always more to discover in and through the relation between the 'real' and the 'imaginary'. For example, a prisoner locked in a cell is not merely perceptually locked in a cell, for the physicality of the space is always enriched and enhanced by the inherent imaginative processes that form a part of perception. Furthermore, a lone tree seen through the window of the cell is not just a piece of living wood, but rather a symbol of hope and life. Perception always already extends to the imaginative, and one makes sense of the perceived through the imagined. Merleau-Ponty explains this as follows:

> At each moment, my perceptual field is filled with reflections, sudden noises, and fleeting tactile impressions that I am unable to link to the perceived context and that, nevertheless, I immediately place in the world without ever confusing them with my daydreams. At each instant, I weave dreams around the things, I imagine objects or people whose presence here is not incompatible with the context, and yet they are not confused with the world, they are out in front of the world, on the stage of the imaginary (PP lxxiv).[292]

In other words, for Merleau-Ponty the imaginary forms an inherent feature of the perceptual processes that colour the shape of the perceived.[293] One should be careful not to overstate the role of the imaginary to the point of idealism – and this is not what Merleau-Ponty argues. Rather, he describes how one 'weaves dreams' (the imaginary) into the tapestry of lived experience, but he does not state that the imaginary confounds one's perception of the world with the world of the fanciful. The 'real' is this perceptual process that is 'woven around' with dreams:

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[292] This reference is from the Donald A. Landes translation. The earlier Colin Smith translation of *Phenomenology of Perception* adds another layer of meaning to the last sentence of this quoted passage: "*Equally constantly I weave dreams round things*. I imagine people and things whose presence is not incompatible with the context, yet who are not in fact involved in it: they are ahead of reality, in the realm of the imaginary" [own emphasis] (PP xi). Smith's translation highlights the simultaneous character of perception and imagination.

[293] One would be remiss here to not note the similarity of Merleau-Ponty's philosophical argument at this point to Prospero's soliloquy from Shakespeare's *The Tempest*: "We are such stuff / As dreams are made on; and our little life / Is rounded with a sleep". The imaginary is a constant theme in lived experience.

> If the reality of my perception were based solely on the intrinsic coherence of 'representations,' then it should always be hesitant, and, delivered over to my probable conjectures, I ought to be continuously dismantling illusory syntheses and reintegrating into the real aberrant phenomena that I may have at first excluded. But this is never the case. The real is a tightly woven fabric; it does not wait for our judgments in order to incorporate the most surprising of phenomena, nor to reject the most convincing of our imaginings. Perception is not a science of the world, nor even an act or a deliberate taking of a stand; it is the background against which all acts stand out and is thus presupposed by them (PP lxxiv).[294]

Instead of eschewing the imaginary as the 'unreal', one should recognize that one lives in and through a world that is also an 'imaginary' world. One's perception, and imaginative construction (and re-construction), of the world "has a salience and significance which renders [the world] intelligible, makes sense of our responses to it" (Lennon, 2015: 11). Imagination does not override perception of the world, but being part of the perceptual process also implies that the imaginary cannot be disentangled from our experience of the world either.[295]

This interwoven relation between the perceptual and the imaginary may be described and explained through the image of two polynucleotide DNA strands which are twisted closely and complementarily. Just as DNA is composed of two intertwined strands to function as DNA, so perception is the closely intertwined relation of perception of the world and imagination. This is one's lived experience, not as any single act or process but as one's opening up to the world. In this image, perceptual faith is the 'nucleotide bonds' that hold perception together.[296] This description of the imaginary is particularly relevant to the nature of digital technologies. Whilst in older forms of technology the real and the imaginary are interwoven continuously, in digital technologies the strands of the real and

[294] This reference is from the Donald A. Landes translation.
[295] Lennon describes this entanglement of perception and imagination in Merleau-Ponty's work as "all projects [being] anchored in the shape the world takes in our encounters with it" (Lennon, 2015: 44).
[296] Already from Merleau-Ponty's earliest works the imaginative may be viewed as forming the perceptual basis of experience (Steeves, 2004: 3).

the imaginary are pulled apart in such a way that the specific nature of digital technology becomes clear. This can only be achieved when one takes notice of how the strands of the real and the imaginary are pulled apart in digital technology through the sense-making act of the individual, and how this pulling apart differs from experiences that can be achieved through other means.

Merleau-Ponty argues that one finds an anchoring in the open-ended continuum of the imaginary and the perceived, not through the physicality of the world, but through our perceptual faith. In perceptual faith there is inherently a 'tolerance for ambiguity' between trust and distrust, perception and imagination, and belief and disbelief. Perceptual faith is thus a pre-conceptual acceptance that due to the tightly woven fabric of the imaginary and the perceived ("[t]he real is a tightly woven fabric" (PP lxxiv)[297]) we cannot absolutely divide between the imaginary and the non-imaginary phenomenon.[298] Although Merleau-Ponty's central thesis claims the primacy of perception, an inquiry into his use of the term 'perception' shows that its use always relates to the imagination. 'Perception' is not an empiricist act of experience, *à la* Locke. It is founded in that relation between the perceiving self and the perceived world; that richly intertwined dialectic between oneself and the world. In Merleau-Ponty's working notes to *The Visible and the Invisible* (1968) he bemoans his use of the word 'perception' in *Phenomenology of Perception* because "[t]he problems posed [in *Phenomenology of Perception*] are insoluble because [he] starts there from the 'consciousness'-'object' distinction" (VI 200). The terms presuppose the type of dualism that Merleau-Ponty criticizes in *The Visible and the Invisible* and he therefore suggests a reformulation of 'perception' as divergence (*écart*) or 'dehiscence' (opening). This is underlined by the following section from *The Visible and the Invisible*: "… we also do not allow ourselves to introduce into our description concepts issued from reflection, whether psychological or transcendental: they are more often than not only correlatives or counterparts of the *objective* world. We must, at the beginning, eschew notions such as 'acts of consciousness', 'states of consciousness', 'matter', 'form', and even 'image' and

[297] This reference is from the Landes translation.

[298] Although appreciative of Sartre's research into the imagination, Merleau-Ponty remains critical of Sartre's claim that imagination is the 'negation' of the real and that there is a separation between the 'real' and the 'imaginary' (which Sartre would later develop into the for-itself/in-itself dialectic) (Merleau-Ponty's book review of *L'imagination* (IM 9-10)). This point of difference serves to highlight why Merleau-Ponty would describe the real as a "tightly woven fabric" in his earlier work, contrasting Sartre's perspective on the matter.

'perception'. We exclude the term perception to the whole extent that it already implies a cutting up of what is lived into discontinuous acts, or a reference to 'things' whose status is not specified, or simply an opposition between the visible and the invisible" (VI 157–158). The reference to the word 'perception' in this section is telling of Merleau-Ponty's central quest to recapitulate, perhaps implicitly in this section, the imaginary as part of the process of perception. The elevation of the imaginary in Merleau-Ponty's account presents not a recourse to idealism, nor does his discussion of embodiment make Merleau-Ponty a materialist. The 'radical' notion of embodiment (radical because of its sharp departure from previous metaphysical traditions) presents a perceptual world that is 'tightly interwoven' with the imaginary. Through perception, imagination, and (as discussed in the next section) language, one makes sense of the world through one's embodiment.

3.2.5.3. Merleau-Ponty and language

For Merleau-Ponty language is based in corporeality and is thus irreducible to linguistic data as means for analysis of its engagement with the world – it thus plays an important part in Merleau-Ponty's phenomenology of embodiment.[299] Linguistic analysis and systematization of language removes language from the very thing it is engaged with: the concrete world. The inseparably intertwined character of the body with the world is emphasized when Merleau-Ponty states that one's "whole bodily system concentrates on finding and saying the word, in the same way that [one's] hand moves of itself toward what is offered to me" (PW 19).

Language is therefore not just linked with linguistic content, but also to bodily production of words and gestures. Gestures alone, and words alone, are however not primary for if either the word or the gesture becomes the sole focus of attention then that aspect loses an aspect of its signifying power (PW 116). Not merely words, but irreducible phrases, constitute a linguistic gesture that remains fixed within a linguistic context.[300] This accounts for the precision that is found in language communication. Whilst linguistic

[299] The relation between linguistic expression and perception "stands at the centre of Merleau-Ponty's work" (Edie, 1987: 41).

[300] Again, there is a Gestaltian figure-and-ground connection here, where the linguistic context becomes the Gestalt wherein it appears.

analysis may give account of a multitude of definitions for a single word, through the bodily gesture and the context (concrete world) the meaning of a word is assigned within a sentence. This is most clearly reflected in poetry, where a reading entails not just the conceptualization of the words, but rather a following of the flow, thrust and milieu of the meaning. In the same way, language is pregnant with meaning. Merleau-Ponty explains:

> The spoken word (the one I utter and the one I hear) is pregnant with meaning which can be read in the very texture of the linguistic gesture (to the point that a hesitation, an alteration of the voice, or the choice of a certain syntax suffices to modify it), and yet is never contained in that gesture, every expression always appearing to me as a trace, no idea being given to me except in transparency, and every attempt to close our hand on the thought which dwells in the spoken word leaving only a bit of verbal material in our fingers (S 89).

The pregnancy of the word, the pregnancy of meaning that dwells therein, is brought to fruition by the 'embodied act' of that word and by the Gestalt wherein it is produced. Language reduces to near meaninglessness when removed from the world through linguistic analysis, but is brimming with *meaningfulness* through bodily use. Merleau-Ponty advocates thus a concept of 'incarnated language' where there is no absolute distinction between the world, meaning and language – they are all 'flesh'. Meaning is structurally embedded in the matrix of language as embedded in the matrix of the world, and meaning leads from a multitude of gestures to the expressive gesture: "'Contact' is not on the level of a single word and the individual thing but of the semantic Gestalt and the world; it takes place in the gaps between words, as the cosmos-chaos tension of language, in the hollows of space, time and signification they mark out" (Watkin, 2009: 51; S 123, 76). Merleau-Ponty provides compelling reasons for thinking that the intertwinedness of language, one's body and the tangible world is undeniable and his phenomenology of embodiment attempts to take account exactly of this.[301]

The existence in 'flesh' of language, the subject and the world is crucial for their relation. Merleau-Ponty says there is a dialectical relationship of 'call and response' between the

[301] Compare also Merleau-Ponty's discussion of bodily movement and making sense of words by reading a text.

world and language. The world calls for interpretation of its meaningfulness. The world calls by being open to wonder by the subject, but the subject has to respond by opening himself up to the wonder thereof. This call is not based on determinate meaning, of objects with objective meanings, nor is meaning given by the call itself. The call is to be responded to, to be interpreted through interrogation, astonishment and investigation into the world. The world becomes thus a question or call that is open to response (VI 206). He presents language as having a 'flesh', as being on a continuum with perceptual experience through the role of the signifier (the text) (S 87–97). There is a flesh (the entirety of sensed things which forms a continuous surface) of the body (physical and spiritual)[302] and a flesh of language (visible text, and invisible meaning). Just as the world as flesh is already 'pregnant' with structure, meaning and form, so the flesh (scaffolding) of language gives the same pregnancy via the visible to the invisible.[303]

Meaning (the outcome of this 'call and response' process) is therefore not just passively received nor projected onto the world. Rather our ontological mode is to interrogate the world due to its solicitations of potential unfoldings of meaning within the world. It is against the chaos of the world that the scaffolding for the form of language is provided, as moments within which form and meaning are being shaped. In *Phenomenology of Perception* the link between expression and language is related as 'figure to ground', because "once language is formed, it is conceivable that speech may have meaning … against the mental background held in common …" (PP 186–188; Watkin, 2009: 47).

For Merleau-Ponty, the dialectic relation between body and world provides the grounds for the call, and expression through meaningfulness is the answer (response) to that call. Linguistic meaning (which is reliant on gestures) is one form of this expressive response, finding and creating in the world what it may. Merleau-Ponty postulates a pre-reflective

[302] Compare "Man is a body in the same degree that he is spirit, wholly body and wholly spirit. His most fundamental instincts, eating and reproduction, he has elaborated into the subtle arts of gastronomy and courtship" (Mounier, 1952: 3).

[303] Merleau-Ponty is here presenting both a reformulation of Saussurean presence of concept in the sign (there are no conventional signs – "there are only words into which a whole history of language is compressed, and which effect communication with no absolute guarantee, dogged as they are by incredible linguistic hazards" (PP 188) and a challenge to poststructuralist conceptions that place philosophical contemplative language over one's everyday, primal engagement with the world (Watkin, 2009: 48). At this point, Derrida's critique of Saussurean presence may also be applicable.

cogito that presumes the possibility of consciousness without language, as a means to achieve primordial experience. Language thus arises from the Gestalt of the body and the world in such a way that the flesh of language, the flesh of the world and the flesh of the body become entrenched within each other. Merleau-Ponty elucidates the bodily or existential facticity in this intertwined relationship very clearly:

> Fact and essence can no longer be distinguished, not because, mixed up in our experience, they in their purity would be inaccessible and would subsist as limit-ideas beyond our experience, but because – Being no longer being *before me,* but surrounding me and in a sense traversing me, and my vision of Being not forming itself from elsewhere, but from the midst of Being – the alleged facts, the spatio-temporal individuals, are from the first mounted on the axes, the pivots, the dimensions, the generality of my body, and the ideas are therefore already encrusted in its joints (VI 114).

Merleau-Ponty hereby sketches his theory of language, namely: meaning is given against a background,[304] the uncommunicated is just as important as the communicated for establishing language, and "for something to be said, it must not be said absolutely" (PW *36*).[305] Both the presence or the absence of meaning are a unity, mutual and indistinguishable, and "communication is [thus] always intertwined with the uncommunicated" (Watkin, 2009: 48).[306] Language itself cannot be removed from the world; it is inseparably intertwined with existence.[307] However, while Merleau-Ponty could argue for a brute and primordial cogito in *Phenomenology of Perception*, in *The Visible and the Invisible* he highlights the importance of language, particularly philosophical language, as a prerequisite for the cogito. This aspect of Merleau-Ponty's thought reflects, and partly

[304] In the Embodied Screen, this background is the latticed structure of digital technology artefacts.

[305] Merleau-Ponty here presents both a reformulation of Saussurean presence of concept in the sign (there are no conventional signs – "there are only words into which a whole history of language is compressed, and which effect communication with no absolute guarantee, dogged as they are by incredible linguistic hazards" (PP 188) and a challenge to poststructuralist conceptions that place philosophical contemplative language over one's everyday, primal engagement with the world (Watkin, 2009: 48).

[306] A crucial aspect of language use for Merleau-Ponty relates to the irreducibly meaningful style thereof (with specific rhythms, tempos and tones). This conception of language is sketched in contrast to language analysis (*langue*).

[307] In Merleau-Ponty's Sorbonne lectures (1949–50) he describes how language acquisition takes place in children through 'attunement' to the language through 'baby-talk' in a world to be interpreted. There is no separation between language and world in this process, and the existence of both is a prerequisite for the other to exist.

lays a foundation, for the later linguistic turn in phenomenology found in Hermeneutic Phenomenology.[308]

These sections have highlighted crucial aspects of Merleau-Ponty's phenomenology of embodiment, such as perceptual faith, imagination, and language, which will become important for the conceptualization of the Embodied Screen descriptive for the phenomenon of digital technology in the next chapter. However, at this point it is important to describe Merleau-Ponty's own proto-account of older forms of technology.

3.3. Merleau-Ponty's proto-theory of technology

This section will specifically describe Merleau-Ponty's discussion of technology through examples used in his work. Merleau-Ponty describes embodiment in technology through his image of a blind man walking with a cane, wherein the blind man's body is extended not only in the active dimension (where the cane functions as sensory apparatus to observe the world around him), but also in the passive dimension (of his own objectivity or object-ness – he is observed by others, they recognize him as blind and it affects their behaviour). This metaphor describes key features of technological embodiment in Merleau-Ponty's proto-theory of technology, allowing insight into the phenomenon of technology (specifically older technology). While this embodied account of technology suitably describes human-technology relations in older forms of technology, the dawn of the digital era of technology has highlighted the need to expand Merleau-Ponty's proto-account of technology (see Chapter Three). Importantly, in this study, these elements of Merleau-Ponty's phenomenological analysis are kept. However, the phenomenon of digital technology necessitates a re-arrangement and re-deployment of their interrelations.

Two caveats should be mentioned at the start. Firstly, though a development of Merleau-Ponty's concept of embodiment is found in the postphenomenology movement, in his own work he develops at best a proto-theory of technology use. There are few examples of technology in his work, and when technology is mentioned it is mostly in reference to skilled use of technological devices. Merleau-Ponty cites at least five technological

[308] Compare Section 2.3.4.

examples in this work: a feathered hat, a car, a blind man's stick, a typewriter and an organ. Other passages of Merleau-Ponty seem to link with the theme of technology, but specifically relate technology to the extension of the body through *skills* (or, stated more accurately, the 'border' between oneself and a car, for example, is disregarded and the spatiality of the object through extension of one's body in a relational sense affects the spatial positioning of the body). *Phenomenology of Perception* is, for example, not primarily concerned with technology but rather with embodiment and perception.[309] Secondly, Merleau-Ponty necessarily wrote only about older forms of technology, for his works were published before the prevalent rise of digital technology in contemporary society. However, it is still significant for this study to discuss Merleau-Ponty's thought on technology.[310]

Merleau-Ponty's description of the body as a 'potentiality of movements', or a field of possibilities of interaction with the environment, is the central starting point of his proto-theory of technology. The body itself is not understood spatially, except when engaging with the body itself as an object – one might be aware of the spatiality of one's body if one has been sitting uncomfortably in the same position while marking a student's thesis, for example, or one might be aware of the spatiality of one's body when a physiotherapist instructs one to do a particular movement. In most situations, however, the spatiality of one's body remains in the background – the body is not experienced as an object in one's everyday dealings in the world, but rather as a medium through which one engages with the world. In contrast, the environment is experienced as a spatial structure through the awareness of objects in the environment (such as a table, a skew painting, or technology artefacts). When engaging with the environment, the parts of one's body are experienced spatially solely in terms of motor acts.

The body is thus a "space of ability" or an 'I can' (the motor capability of the body), versus the "space of situation/position" or a 'there is' of the world (with the body emplaced in a

[309] He did not take as central focus the concept of technology, in contrast to phenomenologists like Heidegger.
[310] Postphenomology, as significant development of Merleau-Pontian thought on technology, was discussed in Chapter One. Compare Section 1.4.

specific position within the world) (PP 98-102).[311] Merleau-Ponty describes this space of ability thus:

> What counts for the orientation of the spectacle is not my body as it in fact is, as a thing in objective space, but as a system of possible actions, a virtual body with its phenomenal 'place' defined by its task and situation. My body is wherever there is something to be done (PP 291).[312]

The body is the framework that provides the possibility of motor action and orientation towards the environment. Thus, the body is to be understood through its ability to enter into one's projects, through motor acts that are sketched against the field of bodily potentiality, against motor relations.[313] Motor relations are described through the *body image*, or more accurately the *body schema*, through which one's body and its potentialities are known. The body schema is an organizing structure found in one's body which is experienced as a unified whole or 'Gestalt'. Tiemersma (1989) and Brey (2000) prefer to translate *schéma corporel* as *body schema* instead of *body image* used in the English translation. This implies a nonrepresentational structure which is more accurate than an image. The body schema provides an immediate, pre-reflective knowledge of one's bodily circumference and positioning in space in direct relation to the motor possibilities of the body.[314] In the body schema reside the possibility of doing tasks (whether present or possible), the steps needed to accomplish the task, the relation of the body to objects in the world.

In this description of motor and perceptual habits is an inherently 'praxical' conception of embodied engagement with the environment, a praxical aspect of embodiment that is crucial for Merleau-Ponty's proto-theory of technology. The body schema is a subjective,

[311] Compare "My body is geared into the world when my perception presents me with a spectacle as varied and as clearly articulated as possible and when my motor intentions, as they unfold, receive the responses they expect from the world" (PP 292).
[312] It is crucial to note here the use of 'virtual' by Merleau-Ponty, which describes the body schema and the space of motor action potentiality. This use differs from the use of 'virtual' by techno-theorists. Compare Section 2.2.
[313] In this there is a form of spatiality, but a form that differs from the spatiality found when discussing objects outside the body (Brey, 2000: 6). Merleau-Ponty calls this a 'space of situation', rather than a 'space of position' towards the world (PP 98–102).
[314] The existence of phantom limbs underlines this point, reflecting the structure (or body schema) that precedes, pre-reflectively, the motor possibilities of a given situation.

meaningful space from which motor actions take place, and the skilled deployment of motor actions through technology artefacts are described by Merleau-Ponty by means of motor habits (with reference to a woman and her feathered hat) or perceptual habits (through the example of a blind man walking with a cane).[315] It is into the body schema that technology artefacts are incorporated and used, as Merleau-Ponty's discussion of the feather in a woman's hat highlights:

> A woman may, without any calculation, keep a safe distance between the feather in her hat and things which might break it off. She feels where the feather is just as we feel where our hand is. If I am in the habit of driving a car, I enter a narrow opening and see that I can 'get through' without comparing the width of the opening with that of the wings, just as I go through a doorway without checking the width of the doorway against that of my body (PP 165).

The woman's body schema is altered and expanded, and according to Merleau-Ponty the woman may pre-reflectively navigate her body and her feathered hat through the environment to keep from bumping into objects. One may argue that a period of habituation may be needed; the woman may bump the feather against the taxi's door on the way to a party. However, upon her return she is able to navigate her environment proficiently and skilfully while wearing her feathered hat.

An individual's body schema may thus be expanded through learning and training (within the limits of embodied facticity). Through skilful practice one may be able to play a violin or to drive a car – when one has the skill to use a tool, for example, said tool is incorporated into the body schema and its use becomes second nature – and also, after a brief habituation period, one may be able to navigate a party with a feathered hat. Although the body schema has certain invariant elements, and can be merely extended, the realm of body potentialities is open to further change by the acquisition of habits (Merleau-Ponty:

[315] Relevant pages of *Phenomenology of Perception* that link to technology are pages 142–147 on motor habits and pages 151–153 on perceptual habits.

"habitude") and skills (Dreyfus, 1996). Such skills alter and broaden the body's potentiality through motor skills or perceptual skills.[316]

The example of the feathered hat thus shows how a technology artefact is incorporated into the body schema, and how the body schema becomes extended through said artefact. The technology artefact becomes part of the way in which one engages with the world, instead of a mere object in the world. His discussion of a typist using a typewriter highlights his primary focus on skills in technology use:

> When the typist performs the necessary movements on the typewriter, these movements are governed by an intention, but the intention does not posit the keys as objective locations. It is literally true that the subject who learns to type incorporates the key-bank space into his bodily space (PP 167).

Whereas for a skilled typist the keyboard is an extension of her body, the unskilled typist has an encounter with the keyboard each time she searches for a specific key. In the former case, there is no boundary between the subject and the typewriter; in the latter case, the boundary between subject and world does not include the typewriter (Brey, 2000: 8).[317] It is crucial to note here a major difference between an older form of technology (a typewriter) and digital technology. In the phenomenon of digital technology, the individual does not encounter an inert artefactual object that is open to linear use, but rather an encompassing, dynamic, uncontrollable, unedited, and continuous technological phenomenon that engages with the whole of the individual's embodiment as much as the individual engages with it. The boundary between the individual and the digital technology artefact does not just disappear once one is a skilled user of a device such as a cell phone, as is the case with the skilled use of typewriter. Rather, the boundary between the individual and the digital technology artefact is traversed by the Embodied Screen – which

[316] Merleau-Ponty, whilst distinguishing motor skills and perceptual skills, states that motor skills have elements of perceptual skills and perceptual skills have elements of motor skills.

[317] "To get used to a hat, a car or a stick is to be transplanted into them, or conversely, to incorporate them into the bulk of our own body. Habit expresses our power of dilating our being in the world ..." (Feenberg, 1999: 3).

will be described in the following chapter as a creative re-deployment and development of Merleau-Ponty's proto-theory of technology that leads to further philosophical insight.

Returning now to Merleau-Ponty's proto-theory of technology, we find that his examples of a feathered hat and a typewriter relate mainly to motor skills, but not directly relate to perceptual skills as such. Therefore, this is just one class of technological embodiment relations for Merleau-Ponty (motor skills expressed through the artefact), whilst a second class of technological embodiment relations is based on the artefactual means through which perception takes place. Perceptual skills relate to those embodiment relations that happen when an artefact becomes the medium for perception – this happens prominently in the Embodied Screen, but in the Embodied Screen this perception is coloured by the imagination (as will be discussed in the next chapter). These perceptual skills relate to sight (telescopes, spectacles), hearing (hearing aids, stethoscopes), and feeling (probes, canes). Perhaps the most insightful example of Merleau-Ponty's proto-theory of perceptual embodiment relations in technology is found in his description of a blind man walking with a stick, where the stick serves the function of the man's vision and extends the contours of the blind man's body (body schema) through the stick (technology):

> The blind man's stick has ceased to be an object for him and is no longer perceived for itself; its point has become an area of sensitivity, extending the scope and active radius of touch and providing a parallel to sight. In the exploration of things, the length of the stick does not enter expressly as a middle term, as an entity-in-itself; rather, the blind man is aware of it through the position of objects through it. The position of things is immediately given through the extent of the reach which carries him to it, which comprises, besides the arm's reach, the stick's range of action (PP 165).

In short, embodiment or bodily intentionality extends through the artefact into the environing world in a unique technological mediation. Merleau-Ponty thus conceptualizes technology as an extension of bodily capabilities, when utilized in a skilled manner. The use of a walking stick in an unskilled manner extends or expands one's body and alters the

body potentialities on a basic level (with regard to motor potentialities), but once one learns to use a walking stick it begins to function as a direct extension of oneself, becoming part of one's body schema, increasing both the motor potentialities and the perceptual potentialities. The blind man uses the cane to sense the world, and so is not conscious of the cane itself but rather of what the cane touches. The cane is a medium of perception, just as spectacles allow clear vision.[318] Merleau-Ponty describes the blind man's cane as an extended sense organ, as requiring perceptual skills, when he says that "learning to find one's way among things with a stick, which we gave a little earlier as an example of motor habit, is equally an example of perceptual habit" (PP 175). The man's body schema is extended in both the active and the passive dimension. In the active dimension of embodiment, the cane functions as bodily extension and sensory apparatus to observe the world around him, and in the passive dimension of being observed by others and being recognized as blind. This affects others' behaviour; they may be wary of accidentally bumping into the blind man.

Whilst this description is sensible for pre-digital technologies to a large extent[319], the emergent characteristics of the phenomenon of digital technology require an expanded description (which will be presented as the Embodied Screen in Chapter Four). Often when Merleau-Ponty's phenomenology is utilized as approach in Philosophy of Technology, the focus is on perceptual capabilities (particularly the visual) and not on existential aspects. In Chapter Four, which focuses on the application of the Embodied Screen to real-world scenarios, a descriptive framework is suggested that traces also the existential implications of the phenomenon of digital technology. Through an exploration of embodiment and the flesh, it is possible to find a more primordial description of the phenomenon of digital technology.

[318] In a similar though more complex way, the phenomenon of digital technology functions as medium of perception. However, the phenomenon of digital technology entails an intertwining of the digital technology artefact with the human (this analogy will be developed in a more nuanced manner when discussing the phenomenon of digital technology through the Embodied Screen in Chapter Four).

[319] Compare De Preester's discussion of prostheses in *Technology and the Body: the (Im)possibilities of Re-embodiment* (2010) for a fascinating application of Merleau-Ponty's proto-theory of technology.

3.3.1. The challenges of the phenomenon of digital technology for Merleau-Ponty's proto-theory of technology

A major question is whether Merleau-Ponty's proto-theory of technology is, without modification, applicable to and descriptive of the phenomenon of digital technology. If it is the case that this proto-theory is directly suitable to contemporary forms of technology, then no modification, re-deployment and development of Merleau-Pontian concepts with regard to the phenomenon of digital technology is needed (nor, arguably, is the development of Merleau-Pontian embodiment in empiricism- and pragmatism-based postphenomenology necessary).

Firstly, Merleau-Ponty's proto-theory of technology is distinctly based in the embodied skilful use of technology (whether motor habits, such as the use of typewriter, or perceptual habits, as is the case of telescopes, hearing aids or a blind man's cane). While it may take some time to learn how to use digital technology artefacts, an individual's use of internet news-sites or instant messaging on a cell phone could hardly be called skilful. The use of a GPS while driving, for example, envelops the driver's perception of the route that the car is on. The phenomenon of digital technology thus imposes itself upon and envelops the individual, whether digital technology devices are used skilfully or not. Thus, while not wholly disregarding the skilful use of digital technology artefacts, the phenomenon of digital technology reaches beyond mere extended embodiment through the skilful use thereof. The dangers of describing skilful use of digital technology artefacts as merely embodied extension is that such an assumption opens up a discourse on the conception of the body as 'virtual' or as 'split from itself' in accounts of digital technology.[320]

A second challenge to Merleau-Ponty's proto-theory of technology is the distinction between 'active' and 'passive' extension in the use of technology. As mentioned before, Merleau-Ponty describes embodiment in technology through his example of a blind man walking with a cane, wherein the blind man's body is extended not only in the active dimension (whereby the cane functions as sensory apparatus to observe the world around

[320] See specifically this study's critique of virtual bodies and the multiplication of bodies in accounts of digital technology in Section 3.2.3.1.

him), but also in the passive dimension (to be observed by others, who recognize the man as blind and which changes their behaviour). In the phenomenon of digital technology, this extension of the body occurs in both the active and the passive dimension (this description does not take a recourse to concepts of the 'virtual'). In digital technology, the passive dimension (to be observed) is at the same time "active" – no observation in the phenomenon of digital technology is possible without active creation (through language) of the self (a self is in constant flux and is transformed through interaction with other individuals).

Thirdly, it was highlighted while older forms of technology tend to become hidden and are constantly changing, digital technology in particular presents an intensification of these challenges.[321] While saying much of the individual's embodiment in technology, skilled use of devices, and embodied extension, Merleau-Ponty's conceptualization of technology addresses to a much lesser degree these specific challenges of the phenomenon of digital technology (except through recourse to the phenomenological method of reflecting on one's embodiment in technology). The Embodied Screen, suggested in the next chapter, takes these initial ideas of Merleau-Ponty with regard to technology and develops a new conceptualization of the phenomenon of digital technology for the contemporary milieu. The Embodied Screen is thus a further development and appropriation of Merleau-Pontian concepts, and not a disavowal thereof.

3.4. Some limitations of Merleau-Ponty's phenomenology of embodiment

Beyond critique of Merleau-Ponty's chosen methodology (phenomenology), there are several points of critique with regard to Merleau-Ponty's phenomenology of embodiment that should be noted for this study.

Regarding *Phenomenology of Perception*, G.B. Madison describes how Merleau-Ponty is criticized because his pre-reflective and pre-personal embodied grounding of all

[321] Refer to Section 1.2.2.

intellectual and cultural concepts actually results in a form of reductionism and anti-intellectualism.[322] There is a focus on the body as prior to thinking and philosophical thought, a being-in-the-world that shifts away from the isolated intellectualism of many other streams of philosophy. However, the shift toward the body need not be seen as either reductionism or as anti-intellectual. The recognition of the body, as holistically engaged with the world, does not reduce experience to solipsism, nor does it reduce the other to merely mental contents of the embodied individual. Rather, such a focus allows a much richer description of the body's facticity, as confronted with the world and the other. Similarly, intellectually engaging with the facticity of the body through phenomenological reflection does not render such embodied thinking as contrasting with intellectual philosophizing, nor does Merleau-Ponty's criticism of empiricism and objectivism render his own argument anti-intellectual. Prominently, Merleau-Ponty saw his subsequent work in the 1940s and 1950s as response to these criticisms, particularly in his development of an ontological structure in *The Visible and the Invisible* (Madison, 1999: 558–559). In this study it is postulated that this methodological decision may lead to more insight into the phenomenon of digital technology.

A.J. Ayer, a logical positivist philosopher, argues against Merleau-Ponty's renunciation of the concept of sensation in empirical theorizing – in Ayer's view, Merleau-Ponty's critiques are inconclusive and open to objection on this point (Ayer, 1982). However, Merleau-Ponty's criticism of the concept of sensation, as utilized reductionalistically particularly in empiricism, is logically developed and rigorous as means to expand philosophical enquiry.[323] Regarding the chapter entitled "The Body in its Sexual Being", Ayer considers Merleau-Ponty's insights as similar to those of Sartre in *Being and Nothingness* and open to the same type of criticism as Sartre's argument (1984: 216–7, 222). We see here a dismissal of both phenomenological and existential insights from a strict empiricist thinker, the presuppositions of which are directly criticized by both Sartre and Merleau-Ponty. Again, the move away from strict rationalism and empiricism is seen as advantageous for this study's quest to gain a new perspective on the phenomenon of digital technology (rather than as delimiting possible insights).

[322] Compare Sullivan's *Domination and Dialogue in Merleau-Ponty's Phenomenology of Perception* (1997) for a discussion of Merleau-Ponty's anthropocentrism in this same critical vein.
[323] As described in Section 3.2.1.

A modern feminist critique of Merleau-Ponty's arguments is that such arguments cannot be presumed to be gender neutral, rather presenting an account of embodiment through the universalization of male embodiment. Compare, for example, Judith Butler's consideration of Merleau-Ponty's "The Body in Its Sexual Being" in her *Sexual Ideology and Phenomenological Description* (1989), and the revisionist critiques of existential phenomenology of Iris Marion Young who wrote essays such as "Throwing Like a Girl: A Phenomenology of Feminine Body Comportment, Motility and Spatiality" (1980). It is argued that Merleau-Ponty can only ever make these arguments from a male perspective, and that these arguments are limited by the confines of his male-ness. The degree of these patriarchal elements in Merleau-Ponty's work is open to debate, for Merleau-Ponty himself argues for a conceptualization of embodiment that, in spite of acknowledging that a philosopher's idiom is always in one's non-private bodily being, opens up a space for considerations of other forms of being-in-the-body than was his own. Compare, for example, Ahmed's feminist adoption of Merleau-Ponty in *The Contingency of Pain* (2002) as illustration of how the feminist critique may be overcome in a convincing manner.

3.5. Conclusion

This section presents, in this vein, a novel modification of Merleau-Ponty's reflections on technology, through an integration of his later work, to show a much closer interrelation between the body and the digital technology artefact. It is important to note here that Merleau-Ponty's concepts of the flesh and perceptual faith are the genesis of a different view on the phenomenon of digital technology that enriches the early account of technology found in Merleau-Ponty's work (e.g. of a walking stick or a typewriter) may be found. The importance of these concepts will be indicated in the conceptual development of the Embodied Screen. The aim of this chapter has not been to set out a comprehensive outline of the entirety of Merleau-Ponty's thought, but rather to highlight the main characteristics of his phenomenological project that may be applicable for the development of a more foundational, encompassing and multimodal account of the phenomenon of digital technology. This chapter dealt with several aspects of Merleau-Ponty's

phenomenology of embodiment, which are briefly summarized and highlighted below (due to their relevance to the rest of this study).[324]

Merleau-Ponty demands "a pure description [that] excludes equally the procedure of analytical reflection on the one hand, and that of scientific explanation on the other" (PP ix). One's primordial engagement with the world is found in the body as zero degree for all perception. The facticity of one's subjectivity and the relation with the object is found in embodiment, "that primordial layer at which both things and ideas come into being" (PP 219). From the basis of the body-subject, Merleau-Ponty postulates the flesh as ontological notion of Being itself (VI 248–51). The flesh can capture the presence of things because it is elemental being, moving to adjust itself to the axes of the visible for "he who sees cannot possess the visible unless he is possessed by it, unless he is of it …" (VI 134-135, 139). However, while we are of the world, we are paradoxically not the world (VI 127).[325]

The flesh presents a conceptual development of embodiment that has prominent implications for a description of the phenomenon of digital technology. The concept of the flesh finally shows that the world is not theoretically delimitable, which means that the phenomenon of digital technology can never be separated from the world or our experience of the world. The non-delimitable nature of the world, and the phenomenon of digital technology, will form a central point of a foundational, encompassing and multimodal account of the phenomenon of digital technology (refer to discussion of the Embodied Screen in Chapter Four). Importantly, the flesh is, in itself, not merely an extension of embodiment. Merleau-Ponty's concept of flesh presents an alternative to the traditional philosophical dualistic thinking on the separateness of body and world, self and other, subject and object, looking and being looked at, touching and being touched.[326] It is the

[324] A full account of Merleau-Ponty's conceptualization of art and aesthetics in *Cézanne's Doubt* (1945) and *Eye and Mind* (1964), beyond its descriptive value in tracing perception phenomenologically, or his account of history in *The Crisis of Understanding* (1964), for example, is beyond the scope of this study.

[325] Just as there is encroachment between the two poles of these 'dualisms', so the world encroaches upon us and alters us (this facet is a crucial aspect of the Embodied Screen which will be introduced in Chapter Four).

[326] In this study such reversibility occurs specifically between the human and digital technology. Such dualisms are challenged through Merleau-Ponty's suggestion of inseparable association between such elements, their enmeshedness within their separateness – the chiasm and the intertwining. Reversibility and the chiasm form intrinsic concepts of Merleau-Ponty's conceptualization of the flesh. In this regard and important for this study, the flesh is the foundational formulation of Merleau-Ponty's thought, arising from his tracing of the ontological implications of a phenomenology that could account for its own limitations in his final work, *The Visible and the Invisible*.

unitary concept of Merleau-Ponty's thought that leads to a unitary description of the phenomenon of digital technology in the next chapter.

Through the flesh, the phenomenon of digital technology encroaches upon one, and one's embodiment encroaches on the digital technology artefact. The body remains the stable yet dynamic foundation of this encroachment; one need not postulate posthuman changes in embodiment. Rather, there is encroachment upon one by the phenomenon of digital technology, and vice versa, in one's full humanity. In this originating encounter, this passage from the self unto the world, is the space wherein the reciprocal intertwining of the relation between the human and digital technology occurs. It is this space that necessitates the concept of the Embodied Screen. Both the individual and the artefact 'become' through the intertwining in lived experience, through perception based on perceptual faith. It is in this space where the transcendent rays of digital technology cross over into the body-subject. Merleau-Ponty describes this in a non-technological context as "What I find in 'myself' is always the reference to this originating presence and to retire into oneself is identical to leaving oneself" (VI 65). This seeming contradiction of 'retiring into and leaving oneself' is described by Merleau-Ponty as a chiasm, and this 'crossing over' (from oneself to the world and back) functions in a unique and overwhelming manner in the Embodied Screen (when it comes to experiencing the phenomenon of digital technology). This chiasm creates (a 'there is' that is also an 'I am') meaning and cohesion, because I am the origin of a world in which I am already implicated. This does not imply idealism, but rather an opening up through the body to something else. It is from this point of meaning and cohesion that an embodied descriptive account of a 'disembodied' phenomenon such as the phenomenon of digital technology may be found. This also indicates why digital technology cannot be described as disembodied.

Perceptual faith, as the basis of perception, is the pre-reflective conviction that perception corresponds to the world as it actually is, whilst being mediated by the senses. It is the "unjustifiable certitude of a sensible world" that underlies Merleau-Ponty's thought on perception and the world. In our engagement with the world this is unproblematic, but when rationally articulated its apparent paradoxical character leads to confusion (VI 23–24/8). While the concept of perceptual faith is important in the interrogation of our lived

experience, the Embodied Screen entails a continuing re-conceptualization of this interrogation of our lived experience through specifically digital technology artefacts. In our lived experience of the phenomenon of digital technology, there is at once proximity (through questioning) and distance (what is not ourselves).

Imaginative signification fills the spaces left by challenged perceptual faith, as will be described in the next chapter. In the Embodied Screen this open-ended continuum and continual interplay (between the real and the imaginary) becomes of central importance, for between the embodied facticity of the individual and the infinite possibilities that digital technology artefacts present lies the lived experience of the phenomenon of digital technology. It is both perception and the imagination, bound together by perceptual faith, that are challenged by digital technology artefacts, and which necessitates imaginative signification in the Embodied Screen.

A final element of Merleau-Ponty's account of embodiment is language, which is on a continuum with perceptual experience. He argues as follows:

> To have the idea of "thinking" (in the sense of the "thought of seeing and of feeling"), to make the "reduction," to return to immanence and to the consciousness of . . . it is necessary to have words. It is by the combination of words (with their charge of sedimented significations, which are in principle capable of entering into other relations than the relations that have served to form them) that I *form* the transcendental attitude, that I *constitute* the constitutive consciousness (VI 171).

The flesh of the world and the flesh of language are related, and it is only through an embodied engagement with the world that the act of language production may take place (rather than through conscious reflection). There is an intertwinedness here that is distinctive of Merleau-Ponty's postulation of the flesh, a 'call and response' structure between the world and language. The world calls for interrogation, wonderment and investigation, and one form of the response is linguistic meaningfulness (the pregnancy of meaning in the word is brought forth through embodied acts).

These concepts of Merleau-Ponty's phenomenology of embodiment will serve to develop the concept of the Embodied Screen as novel approach to the phenomenon of digital technology in the next chapter.

Chapter Four – The Embodied Screen and the embodied individual

4.1. Introduction

Phenomenology in general, but particularly phenomenology in Merleau-Ponty's account, is a "manner or style of thinking" that directs philosophical analysis to a "direct and primitive contact" and description of the world (PP viii). Merleau-Ponty's concept of embodiment was argued to present a crucial methodological starting point for describing the phenomenon of digital technology, in contrast to inadequate methodological approaches found in prominent contemporary Philosophy of Technology methodological approaches, posthumanism and postphenomenology.[327] An artefactual description of digital technology was also dismissed as inadequate.[328]

In Chapter Three, an argument was made highlighting the need to describe the phenomenon of digital technology from the basis of radical embodiment (contrasted to influential approaches in Philosophy of Technology that rely on disembodied accounts and limiting rationalism). The current chapter presents an argument for the unique nature of the immersion and intertwining of the embodied individual and the digital technology artefact, an immersion and intertwining that differs from the embodied individual's encounter with older technology artefacts and in non-technological encounters of the world. This unique immersion and intertwining leads to specific emergent characteristics, which will be bounded with the concept of the Embodied Screen (discussed in this chapter).[329] Without recognition of such emergent characteristics in the phenomenon of digital technology, an account of the phenomenon of digital technology would potentially be fragmentary, limited and reductionist. The Embodied Screen[330] is argued to form the basis of a novel embodied description and understanding of the phenomenon of digital technology that takes account of such emergent characteristics.

[327] Compare Chapter One.
[328] Compare Section 1.2.3.
[329] Starting from the body in philosophical and phenomenological reflection on the phenomenon of digital technology reveals emergent characteristics that arise from the interaction of the embodied individual with digital technology artefacts that enlighten both the nature of the embodied individual in digital technology interactions and digital technology artefacts themselves. In other words, such characteristics only come into being through the interaction between the embodied individual and the digital technology artefact.
[330] Compare Section 4.3.

The Embodied Screen is a nuanced and technical neologism and is this study's central conceptual contribution, which is argued to allow insight into the interaction of the embodied individual with the phenomenon of digital technology, and into digital technology artefacts themselves (as will be described in the next chapter). The Embodied Screen is a phenomenological description of the relation between the individual's embodied facticity and the digital technology artefact, suggested by the need for a wholly new conceptualization of the phenomenon of digital technology following the methodological starting point of Merleau-Ponty's phenomenology of embodiment to circumscribe the phenomenon of digital technology. *As working definition, one may describe the Embodied Screen as that access point that exists as modulation between a multitude of digital technology artefacts and the embodied individual through which there is a reciprocal engagement between both these two 'poles'. The screen is the hyper-modulation of flesh that allows passage between the embodied individual and digital technology artefacts in a unique manner that cannot but be described by means of embodied concepts, due to the fundamentally embodied though reversible character of this relationship. It specifically describes that unique contact point (a 'see-through' and 'double-sided' screen) between the embodied individual and digital technology artefacts.* The Embodied Screen is thus the creative application and re-deployment of Merleau-Ponty's phenomenology of embodiment to the phenomenon of digital technology.

The Embodied Screen postulates unique access to the phenomenon of digital technology from the foundation of the individual's pre-theoretical, lived embodiment and through the particular modulation of the flesh by digital technology artefacts.[331] Starting from these foundational points reveals a richly intertwined and mutable dialectic relationship between the embodied individual and digital technology artefacts. On the one pole of this dialectic relationship stands the embodied facticity of the individual, and on the other pole the digital technology artefact – the phenomenon of digital technology is found in the 'between' of these two poles[332] and only arises in this circuit between body and artefact. The Embodied Screen conceptually encapsulates the individual's body and the digital

[331] Compare Section 3.2.4.

[332] Importantly, these poles are inextricable (a terminological separation is only necessitated for purposes of analysis and description).

technology artefact, as well as the unique emergent characteristics that arise from this relationship in the phenomenon of digital technology. These emergent characteristics (which may seem tangential) are crucial for explaining how the individual's embodied sense-making is challenged and altered in the individual's experience of the self, the other and the world in the phenomenon of digital technology.

The Embodied Screen is transparent; it is a porous 'membrane' where reciprocal interaction between the embodied individual, through her flesh as the totality of sense experience, and the digital technology artefact takes place. This is a reversible, intertwined relationship – the individual touches and is touched in digital technology interactions. Such reversibility and modulation of the flesh challenges and changes the embodied individual's sense-making through, amongst others, challenges to perceptual faith and increased imaginative signification.[333] The Embodied Screen will be explicated in the current chapter, but first more conceptual clarity must be given regarding the Embodied Screen – especially regarding the unique nature and specific need for such a neologism. Such clarity will be gained by answering a series of questions:

Why is a new concept needed? – Why is the new concept of the Embodied Screen needed, and not merely a Merleau-Pontian embodied phenomenological approach towards digital technology suggested?

How does the Embodied Screen differ from Merleau-Ponty's concept of flesh? – How does the contact point of the Embodied Screen differ from the Merleau-Pontian concept of the flesh which already acts as the 'contact point' between the embodied individual and phenomena?

Why a 'screen'? – What motivates the choice of the concept 'screen', and what does the concept 'screen' refer to as part of the Embodied Screen? Is the 'screen' visible, is it a symbol, or how does it negotiate to be a point of contact?

[333] The challenges to perceptual faith and increasing imaginative signification underlie the Embodied Screen conceptually. What is meant by a challenge to perceptual faith is that the belief in a world as signified by perception is continually altered and put to the test by the digital technology artefact, which necessitates that one constructs and re-constructs a world oneself through imaginative signification.

How does the Embodied Screen differ from Merleau-Ponty's proto-theory of technology? – How does the Embodied Screen present an advancement of Merleau-Ponty's proto-theory of technology? Is the Embodied Screen really something new and in what sense then?

In the following sections, each of these questions will be answered in turn.

4.2. Embodied Screen as terminological neologism

In this section the use of the Embodied Screen as concept will be discussed, with the intention of showing the unique contribution and necessity of such a neologism. In Section 4.3, the ontological and epistemological characteristics of the Embodied Screen will be explicated.

4.2.1. Why is a new concept needed?

It is argued that insights from Merleau-Ponty's phenomenology suggest that, as starting point, the phenomenon of digital technology should be open to non-objective (i.e. embodied) considerations – considerations of the individual's lived experience. Stated more strongly, a vital starting point for an embodied account of the phenomenon of digital technology and perception via digital technology is the 'facticity' of the body.[334] It is from the foundation of the body that a relation with the phenomenon of digital technology occurs, and it is from this point that conceptualizations of spatiality are seemingly altered in ways that *seem* to suggest disembodiment, projection outside the body, or 'virtual' presence.[335] This study argues, in contrast, that the interplay of the individual's body and

[334] Embodiment implies that one does not experience one's own body spatially, as one does objects within the world (Brey, 2000: 5). The circumference of one's body is not spatially identified as are objects in the world, for the circumference of the body represents the zero point from which one engages with the world. The body is the medium of the world (and in later Merleau-Pontian philosophy, this concept was refined as the world being the medium of the body as well (in *The Visible and the Invisible*, through reversibility)). The body itself is not experienced spatially.

[335] Compare *Phenomenology of Digital-Being* (Kim, 2001), wherein it is argued that "…a digital being can exist at multiple locations simultaneously – that is, it defies normal spatiotemporal constraints" (87), and *Ontological implications of Being in immersive virtual environments* (Morie, 2008) describing a "bifurcation of our Being" (1). The facticity of the individual's embodiment is therefore challenged by the digital technology artefact, but Merleau-Ponty's conceptualization of embodiment suggests that such projection may be illusionary.

the digital technology artefact allows the appearance of such disembodiment and virtuality to arise, while the individual remains fully embodied.

The Embodied Screen is necessary as concept to describe the unique application and re-deployment of Merleau-Ponty's phenomenology of embodiment to digital technology because of the unique nature and challenges of digital technology.[336] The Embodied Screen does not refer to the embodied individual's contact with technology in general, but is necessitated by the immersion of the individual in the phenomenon of digital technology specifically – when a 'tipping point' of engagement and entanglement of the embodied individual with digital technology artefacts (spatially and temporally) is reached. This tipping point refers to the encompassing immersion which takes place of the individual within the overwhelming bodily and epistemological influence of digital technology artefacts, which does not occur in such an encompassing manner with older forms of technology but relates to how the individual is 'surrounded' by the phenomenon of digital technology. For example, the user of a smart phone is mostly spatially near her phone, and when she is not within reach of the device her expectations are still shaped around the device (she may feel 'disconnected' from others, or may 'imagine' that her phone rings) due to the perceptual and experiential characteristics of said device. In this sense there is a qualitative dimension (the perceptual and experiential nature of the encounter) and a quantitative dimension (multiple encounters over long periods of time and across various devices) to this tipping point.

The intertwining relation between the individual and digital technology artefacts is spread across a multitude of digital technological instances that the individual encounters (from smart phones, to computers, to tablets, to televisions, to GPS devices in cars). The Embodied Screen refers not merely to a single point of engagement with the phenomenon of digital technology, but rather to a complete immersion of the individual – an immersion that is not only spatial but temporal as well.[337] It is argued that this new concept serves as

[336] Compare, for example, Section 1.2.2.

[337] However, in contrast to posthuman perspectives, the individual always has the potential to be disconnected, to smash the digital technology artefacts that confront her. The individual does not become 'cyborg', for the artefacts remain external and inert when not in use.

an encompassing conception for the unique immersive interaction of the phenomenon of digital technology, a conception that necessitates a shorthand term for reference.

Even one digital technology device used rarely would not reveal the necessity of describing the phenomenon of digital technology by means of the Embodied Screen, for the emergent characteristics of the phenomenon of digital technology may be primarily observed as these emergent characteristics influence the individual's perception of the world when perception is *continually and constantly challenged*. At the tipping point, one's perceptual faith is uniquely challenged, and a large degree of imaginative signification is necessitated to make sense of the world and of others as mediated through the phenomenon of digital technology, but also reversibly to make sense of oneself. The neologism may thus contribute value to the contemporary debate regarding digital technology, for it allows a resounding description of the unique characteristics of the phenomenon of digital technology that builds upon Merleau-Pontian concepts.[338]

4.2.2. Difference from Merleau-Ponty's concept of flesh as contact point between the embodied individual and her lifeworld?

The flesh, as discussed before, is the seminal formulation of Merleau-Ponty's later thought on embodiment.[339] The flesh is integral to the postulation of the Embodied Screen, because the flesh is the surface of engagement through which one encounters the world. The flesh is unifying, because all entanglements with the world are caught up in the flesh. However, the flesh is also exposed and challenged through its interaction with digital technology artefacts in a unique manner – these areas of modulation of the flesh by digital technology artefacts may be referred to as techno-flesh (modulations of the flesh through digital encounters). The difference between traditional conceptualizations of flesh and the techno-flesh through the Embodied Screen is important here. The flesh as traditionally understood is the surface of all experience of the world, while the Embodied Screen describes specifically the relation between the embodied individual and *digital technology artefacts* via techno-flesh (flesh which has been modulated by digital technology artefacts).

[338] These are concepts that were not fully applied to the question of technology, and especially digital technology, in Merleau-Ponty's proto-theory of technology. Compare Section 3.3.

[339] It is the development of his initial challenge towards intellectualism and empiricism in *Phenomenology of Perception* to a fully formed ontology in *The Visible and the Invisible*.

The flesh is shaped through the perceptual and experiential characteristics of singular digital technology artefacts, and these artefacts engage the embodied person in a unitary manner (which the Embodied Screen conceptually traces). The Embodied Screen thus describes, in part, the specific lived experience via the flesh in the phenomenon of digital technology.[340] The techno-flesh is that crossing of the 'screen' that is named in the Embodied Screen – that 'porous' membrane in which reciprocity of the individual and the artefact is always acknowledged in terms of sense-making of the self, the world and the other.

The concept of Embodied Screen is postulated in order to get a clearer picture of how digital technology challenges and modulates the flesh in a particular way. In this sense, techno-flesh is a specific singular modulation of the flesh while the Embodied Screen is the broader concept that incorporates all emergent characteristics of the phenomenon of digital technology, including specific modulations of the flesh (techno-flesh) but also increased imaginative signification and an alteration of the role of language. While almost all worldly engagements of the individual may be seen as some form of modulation of the flesh, as the means by which perception is possible ("transcendent rays of the world" (VI 244)), it is in the phenomenon of digital technology where we find a point of modulation that differs in distinct ways from the world and other forms of technology – sense-making is here uniquely latticed upon digital technology artefacts.[341]

In a broader sense, the concept of the Embodied Screen suggests that the phenomenon of digital technology can create an 'immersion', an overwhelming, an 'unconscious' or hidden totality of experiences of relatedness (as contact) to the world (but also to oneself and others) that is inherently (digital) technological in character. The world as encountered by the embodied person is shaped by the perceptual and experiential avenues that are provided by these digital technology artefacts, and through the continual use of these artefacts over a period of time the embodied person is plunged into the phenomenon of digital technology (via the Embodied Screen), as one is plunged into a pool. The flesh does

[340] Through the demarcated scope of the Embodied Screen one can reflect back on the challenges of digital technology artefacts with regard to flesh.
[341] Latticed in this regard implies that the digital technology artefact serves as conduit for carrying meaning in a structured and organized fashion.

not disappear in this conceptualization of the phenomenon of digital technology. Rather, through this more restricted, or rather more focused, understanding of the flesh as techno-flesh the unique modulations of the flesh in the phenomenon of digital technology may be explicated.

Digital technology artefacts (such as smart phones or GPS devices) serve as points of hyper-modulation, as points of cross-over between the technological artefact and the body in the unique relation between the human and digital technology. Through her smart phone, the embodied person's perceptual and experiential horizons are expanded far beyond what would have been associated with embodiment in the past. She may, for example, engage with different ways of being, or gain access to information in a manner that was unfathomable with older technologies. Art and psychedelic drugs may be argued to do much the same thing, as a crossing-over between the work of art or the pharmaceutical substance and the embodied individual. However, these modulations are not built upon structured technological lattices, digital technology artefacts, that link both the 'things' in the 'digital world', and the 'other' as represented on a screen, to the embodied individual so closely, or affects her self-conceptualization so intimately, dynamically and consistently in such a structured and deterministic manner. The challenge and modulation of digital technology artefacts with regard to the flesh lie – because of the nature of digital technology and one's immersion in it – primarily on the level of perceptual faith. Digital technology artefacts present a challenge to the pre-theoretical basis of perception through a techno-flesh (that particular way in which the flesh is modulated in the Embodied Screen).

4.2.3. Why a 'screen'?

The concept of a screen is central in digital technology artefacts, and presents the primary means through which digital information is presented – even in applications such as facetime video communication, or augmented reality applications, the screen remains central and seems external to the embodied individual.[342] However, reductionist theories of digital technology present the screen as external to the embodied individual, as something to be merely engaged with passively. The Embodied Screen, in contrast, asserts

[342] Once the screen has become biologically part of the individual, one may with circumspection describe the individual through posthuman frameworks (whilst still incorporating phenomenological insights).

that the relation between the embodied individual and the screen (or other means of digital information presentation) is much closer. In fact, as is argued by the postulation of the Embodied Screen, it is not sensible to view the digital technology artefact or the screen upon such devices as inert, external to the embodied individual.

The Embodied Screen as neologism has a twofold meaning: a screen (as in computer screen) presents information through images to the individual, but a screen may also be understood as a screening-off. A screen may hide something, or may prevent something from being seen. 'Screen' is used in the neologism 'Embodied Screen' in the sense that it may help one to see more clearly (such as a colour template) to highlight certain aspects, while also unrecognizably or unconsciously blocking off certain areas of the individual's experience Note also the use of the term 'screen' as it links to Russell J. Cook's description of how physical screen requirements allow individuals to spatially situate their experienced selves in digital media through horizontal stretching of screen space (Cook, 2017: 8). The Embodied Screen expands on this idea, although in a much broader manner of not just relating to a single screen, but also to multiple screens across multiple devices. The Embodied Screen thus expands this concept of the screen as single and concrete part of a digital technology artefact, breaking through the boundaries of the physical screen through the tracing of the intertwined relationship between the individual and the digital technology artefact.

To illustrate the use of the concept 'screen', a real-world description of different screens is presented. When one goes to a cinema, for example, an individual may discern that what is perceived on the screen is not the 'real' world but rather a projected image.[343] There is an inherent expectation in the viewer, for a film does not presuppose to be the world – the cinematic image is presented as entertainment, for example, or for education. There is a

[343] To make the phenomenological distinction between the 'real' world and the 'world' of the film requires an understanding of the nature of the experience, however. Famously, and perhaps somewhat apocryphally, an early showing of *L'arrivée d'un train en gare de La Ciotat* (1895) caused audience members to rise from their seats in fear, terror and panic – "Ein Kurzfilm wirkte besonders nachhaltig, ja er erzeugte Furcht, Schrecken, sogar Panik" (Karasek, 1994: 154). Rarely does this same 'fear, panic and terror' arise in the modern cinema landscape, for the experiential extent of film is known and film as phenomenon is easily identifiable. The Embodied Screen suggests that such an experiential account of the phenomenon of digital technology is not found in contemporary society due to inadequate methodological starting points for reflection on the said form of technology.

cinematic aura, a smell of popcorn even, and the viewer proceeds to suspend her disbelief – she watches the film.

Though digital film stock may be used in projecting the film, the Embodied Screen does not describe this form of technology for there is not a constant, immersive, unedited dynamism in film whereby the embodied individual has the potential to directly interact back 'into' the film, as is the case with the phenomenon of digital technology. The phenomenon of digital technology presents an intensification of unedited and dynamic techno-flesh modulation that underlies a changed reversibility between the embodied individual and the digital technology artefact. A film is a highly-edited work, while the perceptual and experiential characteristics take on an immediate, instantaneous character. There is both a qualitative and quantitative difference between film and what the Embodied Screen suggests – as discussed in Section 4.2.1.[344]

Furthermore, via the Embodied Screen there are continual unnoticed challenges to the individual's perceptual faith of the self, the world and the other. The challenge to perceptual faith is *encompassing*, *continual* and *barely noticed* because perceptual faith is challenged in the phenomenon of technology not simply in an isolated instance or through the interaction with a single digital technology artefact. Rather, a vast tapestry of challenges to perceptual faith continually occurs, integrated into the background of the individual's everyday experience. This interrelation of challenges to perceptual faith is the starting point of the conceptualization of the Embodied Screen.

In order to engage critically and philosophically with the phenomenon of digital technology, one must see the screen again, see its unique characteristics as integrally part of sense-making. An example to illustrate the powerful role of the digital technology artefact's screen in sense-making is the modern practice of watching a live music concert through a cell phone screen while recording the event, or the practice of climbing to a mountain top only to be immersed in a digital camera's screen while taking photographs

[344] There is a quantitative difference in the sense that the Embodied Screen describes many screens, spread out across time and space; a film intends one to focus on one screen at a single moment. On the other hand, there is a qualitative difference in the sense that film implies a specific experience (as a set work); while the Embodied Screen is unedited and dynamic.

of the beautiful landscape. Why does this happen? Why does the screen suggest such a foundational means to make sense of what is perceived? The Embodied Screen suggests that the close embodied relation between the screen of the digital technology artefact and the individual brings the event or the view 'closer' to the individual, perhaps rendering the event more 'real' or 'relatable' due to the circuit inherent in the Embodied Screen (between individual and artefact) being elevated. Therefore, the screen is a central component of the phenomenon of digital technology and is thus utilized as a central descriptive term as part of the concept of the Embodied Screen.

4.2.4. Difference from Merleau-Ponty's proto-theory of technology?

The Embodied Screen suggests that digital technology is not merely extended embodiment or related to physical capability (skills), as may be said of older technologies in a reading of Merleau-Ponty's view of technology. Rather, modern technological developments seem to show that the phenomenon of technology, especially digital technology, requires an expansion of this early proto-theory of technology. The phenomenon of digital technology entails the intertwining of the body and digital technology artefacts in such a way that the body and personhood of the individual is itself altered, not just through the integration of skills or of extending embodiment, nor through a leap to postulations of the 'virtual'. It is in this realm of intertwining that an embodied account of the phenomenon of digital technology may be described. The altered conception of the phenomenon of technology suggests why earlier technological conceptions not based in embodiment were unable to trace the potential outline of the phenomenon of technology to its fullest extent. The way in which the phenomenon of digital technology alters the individual's personhood will be discussed in more detail in Chapter Five. Personhood is altered in the sense that the way a modern individual (immersed in the phenomenon of digital technology and having constant access to information of the world) views herself, the world and the other differs on a basic level, on the level of that individual's personhood, from the way these elements may have been viewed by an individual 100 years ago, or even 50 years ago. The phenomenon of digital technology, rather, exists as interplay between the digital technology artefact and the embodied individual which is described in this study as the Embodied Screen. Such a description extends beyond mere semiotics or interpretation as

well, suggesting an intrinsically complex intertwining that does not describe the phenomenon of digital technology as any "thing" itself.[345] The concept of the Embodied Screen refers to the unique characteristics and interactions that emergently arise in this intertwining, which extend beyond Merleau-Ponty's early views on technology. With the concept of the Embodied Screen, more is implied than Merleau-Ponty's proto-theory of technology; the intertwining of the embodied individual and digital technology artefacts has ontological and epistemological implications, and is not merely related to skilful use of artefacts as a means to extend embodiment alone.

The intertwining of body and digital technology artefacts through the Embodied Screen exist not merely between the individual and single artefacts. Rather, a symphony[346] of digital artefacts shapes the perception of the modern individual, playing both an ontological role (in how the world is 'constructed') and an epistemological role (in how knowledge of the world is gained). The Embodied Screen refers to that unique point of contact between the embodied individual's techno-flesh and a range of digital technology artefacts (which underlie the 'symphony' of a multitude of digital technology artefacts).

The Embodied Screen enmeshes and encompasses the individual to such a degree that it actively and continuously affects the way in which individuals in industrialized societies engage with the self, the world and the other.[347] On the one hand, digital technology is a phenomenon that is so pervasive, and so changeable, that it is difficult to pin down into strict conceptual categories without recourse to empiricism and social constructivism. On the other hand, Merleau-Ponty's phenomenology of embodiment as reflective analysis entails a resistance against the forcing of conceptual categories onto human experience and achieves insight through reflective observation of the things themselves. The phenomenon of digital technology, and the pervasive problems of disembodiment (or excarnation) in accounts thereof, is a telling example of overlooking of things when strict conceptual categories are enforced. Rather, it is suggested that the facticity of the body allows a rich

[345] The challenges that the phenomenon of digital technology present to our understanding of embodiment when dealing with technology show just how such an embodied account of the phenomenon of digital technology cannot simply be a form of extended embodiment or an increase in physical capabilities.
[346] The use of the term 'symphony' should not be understood as normative evaluation.
[347] Merleau-Ponty's phenomenology of embodiment needs to take account of this in a new way, and this is what the Embodied Screen refers to.

and insightful basis from which to describe the phenomenon of digital technology. To this end the Embodied Screen as neologism that encompasses the two foundational aspects of the phenomenon of digital technology (the embodied individual and the digital technology artefact) is suggested. The Embodied Screen utilizes Merleau-Pontian concepts, which are based in embodiment, to allow a new point of access into the phenomenon of digital technology. This is a wholly expanded and re-developed account of Merleau-Ponty's concept of skilful use of technological artefacts.

4.3. The Embodied Screen: Its ontological and epistemological dimensions

In this section the Embodied Screen, specifically in terms of its ontological and epistemological dimensions as founded on embodiment, will be discussed in order to elucidate the central concept promulgated in this study. The intertwining and immersion of the embodied individual with the digital technology artefact may in this way be described. A re-deployment of, for example, 'perceptual faith' allows one to re-imagine how the phenomenon of digital technology 'goes about its business'. However, like a stack of dominoes pushed over or a woven tapestry with a tattered thread, once basic conceptualizations of the phenomenon of digital technology are challenged (through Merleau-Ponty's phenomenology of embodiment) the entirety of assumptions related to the empirical and social constructivist account of the phenomenon of digital technology falls apart to reveal a new, embodied account – the Embodied Screen. Similarly, in the phenomenon of digital technology the individual's perceptual faith is challenged more systematically and the individual must use imaginative signification to make sense of the self, the world and the other, reaching beyond the empirical domino. Similarly, language use becomes altered once one tugs on that social constructivist thread from the basis of embodiment. Each of these aspects will be discussed in the next section to highlight the necessity of the Embodied Screen as descriptive framework for the phenomenon of digital technology.[348]

[348] The Embodied Screen encapsulates the individual's pre-theoretical, lived experience and embodied behaviour in a systematized, very specific way: through the structured lattice provided by digital technology artefacts, the individual's flesh and perceptual faith is challenged, imaginative signification is necessitated by the phenomenon of digital technology and language use is altered. This will be explicated in the rest of this chapter and in the following

4.3.1. The Embodied Screen and the Flesh – The rise of the techno-flesh

Merleau-Ponty problematizes the concept of the *body* found in Cartesian and behaviourist accounts through his theory of embodiment that questions the character of the world in relation to the thinking subject. Instead of a world of subjects and objects, and even though these terms may sometimes be useful, such dualities should always be recognised as being relationally constituted.[349] The *flesh* (VI 248-51) presents an intertwining of chiasmically associated 'dualisms' that are in fact interdependent, for example the faculty of sensing and the sensible thing.[350]

The sensible thing promotes a style of being through transcendent 'rays of the world', across time and space, by its solicitation of the flesh; the flesh can capture the presence of things because it is elemental being, moving to adjust itself to the axes of the visible (the idea of a wagon, of movement, is central here). This is the genesis of sensibility, for "he who sees cannot possess the visible unless he is possessed by it, unless he *is* of *it* …" (VI 134-135): just as there is encroachment between the two poles of these 'dualisms', so the world encroaches upon us and alters us. However, while we are *of* the world, we are paradoxically not *the* world (VI 127). The flesh is thus between the spatio-temporal individual and the idea (or incarnate principle) of bringing being where there is a fragment of being, an elemental being through which sensibility is possible (VI 139).

Reversibility hereby presents an alternative to dualistic thinking on the separateness of body and world, self and other, subject and object, looking and being looked at, touching and being touched – dualisms which are challenged through Merleau-Ponty's suggestion of inseparable association between such elements, their enmeshedness within their

chapter the focus will be on digital artefacts. The process of looking through the 'screen' to the embodied individual, to see how digital technology influences one's bodily existence, will be revisited in the next chapter.

[349] The facticity of one's subjectivity and the relation with the object is found in embodiment (PP 219) which is distinguishable from the objective body, which is a thing in the world, and is reflected in the postural schema, or body schema, the "I can" of the relationality of the body to the world in terms of its movement and ability.

[350] The idea that the world is not merely an object "does not mean that there was a fusion or coinciding of me with it: on the contrary, this occurs because a sort of dehiscence opens my body in two, and because between my body looked at and my body looking, my body touched and my body touching, there is overlapping or encroachment, so that we may say that the things pass into us, as well as we into the things" (VI 123).

separateness. While distinction and differentiation of such pairs are necessary for subjectivity, their relation is not simply dualistic. Rather, there is an overlap and encroachment between the poles of such pairs. The meaning of the 'gap' or 'oscillation' between such poles is represented in Merleau-Ponty's thought in the concept of reversibility. We cannot touch without the inherent awareness of our own touchability, without realizing that there is a possible reversibility. In this example, there are elements of the true complexity of existential phenomena, for our own touching and touchability, through its intertwining (or intersection of the lines of a chiasm), brings to our awareness our embodied subjectivity. Beyond touch, such reversibility extends to perceptual faith and its articulation (VI 93), the mind and the body (VI 247, 259), the subject and the object, and the self and the world (VI 123). This reversibility forms the basis of Merleau-Ponty's concept of flesh.

A crucial part of the conceptualization of the Embodied Screen is the recognition that reversibility plays an important part of the relation between the embodied individual and digital technology artefacts. How does this occur? The emergent characteristics in the phenomenon of digital technology 'project' onto the individual, as transcendent 'rays of the [presented] world' from digital technology artefacts – digital technology artefacts are not inert and affect the individual's personhood through modulation of the flesh, or what has been termed in this study the techno-flesh.[351] Through continued exposure and immersion of the individual, both spatially and temporally, the phenomenon of digital technology continually challenges and changes the way that the individual experiences the self, the world and the other. However, without the individual who 'gives life' to digital technology artefacts, such artefacts remain inert.[352] This mutuality is what the Embodied Screen describes.[353]

The Embodied Screen suggests a reciprocal relationship, with digital technology artefacts providing a context to the individual's perception of self, the world and the other on the

[351] From there a critique of purely artefactual-level analyses of technology in the description of the phenomenon of digital technology.
[352] An artefactual-level analysis is therefore insufficient for tracing the phenomenon of digital technology.
[353] At first, digital technology artefacts challenge one's perceptual faith (as will be described later in this chapter). Then imaginative signification and expression through language are challenged and play a central role in the individual's experience of the digital technology, and the sense-making of it.

one hand, and on the other hand the embodied individual is a necessary part of the circuit. The Embodied Screen argues that without the flesh (as modulated by digital technology artefacts as techno-flesh, as the 'screen' of the body) the lived experience of the phenomenon of digital technology would be impossible, just as without the digital technology artefact (the 'screen' of digital technology artefacts) no lived experience of the phenomenon of digital technology would be possible. The Embodied Screen as concept and methodology, as ontology and epistemology, focuses on where these two 'screens' meet, the contact point in the circuit, to develop an account of the phenomenon of digital technology.

The Embodied Screen is therefore not the same as the flesh. It has characteristics that differ from those of the flesh because it focuses only on digital technology and how unique emergent characteristics arise in the broader circuit. The closest correlative term to the Embodied Screen would be a techno-flesh, but this term would not describe the digital technology artefact as such as working in 'symphony' as described in Chapter Five.

4.3.2. The Embodied Screen and Perceptual Faith – A continual and concerted challenge

Perceptual faith underlies Merleau-Ponty's conception of the flesh. Perceptual faith is the pre-reflective conviction that perception corresponds to the world as it actually is, whilst being mediated by the senses. It is the "unjustifiable certitude of a sensible world" that underlies Merleau-Ponty's thought on perception and the world. In our engagement with the world such certitude is unproblematic, but when rationally articulated this certitude's apparent paradoxical character leads to confusion (VI 23-24).[354]

Digital technology artefacts challenge perceptual faith. There is an inherent faith-based assumption in perception that what is being experienced correlates with the world – for this is the individual's experience, prior to opinion and reflection, that one is inhabiting a world through one's body that is truthfully seen (VI 28). Underlying our perception is not any more originary knowledge or a more primary act of thinking; rather Merleau-Ponty

[354] Instead of Cartesian and natural scientific reflection on this aspect of perception that is detached, Merleau-Ponty's account is found in the flow of the world.

argues that perception only becomes possible against a background of perceptual *faith*.[355] A stepping back from that which seems at first sight obvious, moving away from the technological artefact, reveals that digital technology represents the world only in so far as it has seized and altered one's perceptual faith regarding the world that is expected to be encountered.

In one's non-technological lived experience, there is a direct correlation with the world as perceived – the world as viewed through the lens of perceptual faith is one of relative certitude, with only singular moments wherein perceptual faith is challenged. Such challenges may be reviewed and isolated as representing falsehood, for there is always a 'rest of the world' with which to compare these challenges. Compare, for example, the adult mind when confronted with a magic trick – there is a recourse to rational explanation of how the magical illusion was achieved, instead of believing that a true magical act has occurred. But would the same happen if a skilled sorcerer shifted the entirety of an individual's everyday points of reference?[356] How would one, through recourse to perceptual faith, discern the difference? In this metaphor, the sorcerer correlates with the manner in which digital technology artefacts shape the individual's perception of the world[357] – the phenomenon of digital technology affects perception encompassingly, for the non-technological world is overlaid with the world of challenged perceptual faith encountered in the phenomenon of digital technology, a world that is imaginatively signified. Such emergent characteristics are described by the Embodied Screen.

The Embodied Screen describes the sustained and deliberate challenge to the individual's lived experience through the phenomenon of digital technology. Such a challenge to perceptual faith (and possible alteration thereof), *is a direct result of the very functioning of digital technology artefacts*. The phenomenon of digital technology functions in a different manner than would art or literature, which implies inert objects (or artefacts) that contrast with the dynamic nature of digital technology artefacts when engaged with by the

[355] This is already underlined in *Phenomenology of Perception* when Merleau-Ponty sketches perception not as a science of the world, a deliberate act or a specific position, but rather as the ground upon which all practical and theoretical acts are built. Husserl calls this *Urglaube* or *Urdoxa*, the primordial belief or opinion which forms the basis of all intentional relations. Upon this is built all our other relations to intentional objects.

[356] The similarity with Descartes' description of a demon that enchants his senses is intentionally echoed here.

[357] This world refers to both the world created through digital data, and the superficial layer of data that is superimposed on the external world through constant exposure to new data.

embodied individual. Digital technology artefacts present, to some extent intuitively, the pretention (inherent message, or conviction) of representing a world accurately, or at least presenting the world in a way that is assumed to correlate with some form of reality for the individual. For example, when one uses communication technology to chat with a friend (through the use of Skype or WhatsApp), one expects one's communication to be at least tangentially similar to the way in which a face-to-face conversation would be had. Though one's friend is not present, one assumes some correlation in this digital interaction with one's actual friend. Compare this experience with first communicating with a colleague over an e-mail before meeting them. One has already constructed an identity for the colleague before meeting in person; one's mind has struggled to construct the embodied individual before meeting him or her. Often, upon encountering the colleague face to face, this presumptuous imaginative construction of his or her identity is challenged.

Digital technology artefacts modulate that which may be taken by (perceptual) faith as correlatable with objects in the world. Thus, an account of the phenomenon of digital technology must necessarily be built from this originary moment, with the knowledge that this originary moment is found in a perceptual faith that is fundamentally embodied and fundamentally challengeable due to the encompassing and dynamic influence of digital technology artefacts. In tracing these specific techno-flesh modulations, which alter perceptual faith, one traces the phenomenon of digital technology itself – and recognizing oneself as part of this circuit, begins to perceive the Embodied Screen (which also encapsulates this altered perceptual faith). The initial assumption of perceptual facticity is challenged in the phenomenon of digital technology; any pretensions of accurate representation of the world become subservient not to perceptual faith, but to imaginative signification. Imaginative signification becomes essential for sense-making in light of the perpetual challenge to perceptual faith wrought by digital technology artefacts.

4.3.3. The Embodied Screen and Imagination – Encompassing imaginative signification

It has been argued that digital technology artefacts, par excellence, challenge perceptual faith by influencing the originating experience, with the 'crossing over' from the artefactual to the individual presuming to be the originating encounter with the world itself. The

question is now: What is the mechanism or process that allows an individual to make sense of the world, the perceptual faith of which has been challenged by digital technology artefacts? Though we cannot interpret what we experience in the phenomenon of digital technology as representing a world from the objective perspective from nowhere, there must be some way in which the individual may make sense of such perceptually challenged interactions.

It is argued that the challenging of one's perceptual faith of the world in the phenomenon of digital technology necessitates imaginative signification to allow for sense-making by the embodied individual. The individual is driven to make sense of the world presented to her, to achieve a maximal grip on her perception of the world presented to her, to integrate the world presented to her with her everyday experience of the world. Because the challenge to perceptual faith is so encompassing and so immersive, however, the primary recourse of the individual is to imaginatively signify the world presented by the Embodied Screen and to overlay these imaginings onto her everyday encountering of the world. In this imaginative signification, which is necessitated by the continual challenge to perceptual faith by digital technology artefacts, diverse fragments of information received from digital technology artefacts are combined and missing fragments of information are re-constructed from available information. Similarly, information of the world is creatively constructed. The everyday world and the Embodied Screen are overlaid, enriching both. From a friend's name on a chat-app is extrapolated the mood of the individual. From a snippet of a news story, or a headline, on a news-streaming site, an entire current event is reconstructed.[358] Here we turn from a perceptual faith commitment to the theme of imagination, and specifically the role that imagination plays in signifying a world.

Though traditionally in Merleau-Ponty's phenomenology there is an emphasis on embodiment, an underemphasized theme in his work is the imaginative.[359] The imagination is, however, closely linked to perception, that central thread that runs through

[358] The normative cannot be ignored here, for digital technology artefacts may carry politics and lay down social directives.

[359] Compare Steeves (2004) who argues that the imaginative should not be taken to be underemphasized, but should rather be seen as integral to Merleau-Ponty's phenomenology of embodiment. This argument supports the view that imaginative signification is central in the individual's encounter with the phenomenon of digital technology. The body serves, in the Embodied Screen, as the central linking point between perceptual faith, imaginative signification and the phenomenon of digital technology.

Merleau-Ponty's work.[360] Imagination is closely intertwined with making sense of the world from the point of embodiment, and encompasses how one deals with perceptual faith. The Embodied Screen, whereby the role of perceptual faith is challenged, implies that the role of imagination is much more pronounced. The imaginative does not merely have a perceptual, aesthetic, fanciful or pathological role, but plays a foundational role that encapsulates all these forms of imagining to imaginatively signify and construct a world from disparate bits of information. In the Embodied Screen, there is a folding upon itself of different forms of imagining. For example: perceptually, digital technology artefacts shape one's perception of the world while also, pathologically, leading to possible addiction (Schalow, 2017) and altered conceptualizations of oneself and the other in ways that do not correspond to non-technological encounters. These forms of imagining merge and kaleidoscope to form the world as encountered through the Embodied Screen, a world that is imaginatively signified.

Because perceptual faith has been challenged, the recourse of the individual is to find her remedy in imaginative reconstruction of a world that has not provided 'real' information on what is being perceived – recall that Merleau-Ponty describes how the real is a tightly woven thread of the perceptual and the imaginary. This is not to be subsumed as a normative statement; rather, this point has epistemological and ontological implications, and designates the emergent characteristics described by the Embodied Screen. The world, as engaged with via digital technology artefacts, is filled with blanks and holes, like Swiss cheese. Imaginative signification must fill these blanks to overcome the challenge of perceptual faith that has been challenged and subsumed as an accurate representation of the world. What is perceived via digital technology artefacts (the self, the world and the other) is thus built from this challenged perceptual faith and created (or re-created) through imaginative signification (i.e. it is tinged with a dream).[361] This world, which has

[360] Refer to Section 3.2.5.2 for an encompassing description of Merleau-Ponty's description of the imagination.

[361] A possible question in this regard is whether this modulation of the flesh is a 'hijacking' of perceptual faith, or a self-governed 'choosing' of perceptual faith (a choosing which may also be done by the engineer or inventor), or a combination of these. In some sense these questions are difficult to trace. On the one hand, perceptual faith may be 'hijacked' by factors such as directed advertising, construction of the artefacts through which engagement with the digital world is facilitated or other social factors. On the other hand, digital technology allows the individual unprecedented freedom of choice regarding the ways and type of contact that he or she wants to have with the world. On both the points we find that social constructivism may provide insights into the ways that perceptual faith may be changed, particularly as these elements have a basis in the social. However, while this avenue of investigation remains open; it is beyond the scope of this phenomenological study.

been imaginatively signified, is then overlaid onto the individual's everyday encountering of a world. It may be argued that both these worlds are enhanced, but just as easily one's everyday world becomes more 'imagined' through this process of overlaying.[362] For most individuals, such a process happens in an unquestioned manner through the everyday use of digital technology artefacts.

The Embodied Screen thus describes how the phenomenon of digital technology may become a perceptual echo chamber, with ideas dynamically merging and altering through the pre-theoretical and often unnoticed process of imaginative signification as part of the individual's perceptual process. Herein many forms of imagination fold into one, for imaginative signification lets the individual incorporate varied forms of imagination (the fanciful, or the aesthetic, for example) to allow sense-making to take place.

In the phenomenon of digital technology one finds that the closely, tightly woven fabric of the real becomes disentangled, due to the influence of digital technology artefacts on perceptual faith. If perceptual faith is the glue that binds the real (perception and imagination) together in our pre-theoretical lived experience, a challenge to perceptual faith presents a challenge to how closely and accurately the interweaving of the perceptual and the imaginary in a unitary fashion takes place. Without a secure mooring in perceptual faith, the role of the imagination and imaginative signification becomes uplifted to 'centre stage' in one's experience of the self, the world and the other.

As metaphor for how this may happen, the following example: The myopic (near-sighted) academic may see a familiar shape in the distance. She might identify this shape as a friend or colleague, extrapolated from the limited information (perception) regarding this shape (due to her near-sightedness). There may be a tinge of recognition in a movement, or a hairstyle may seem to the academic familiar. Here the imagination begins to play a

[362] An account of the phenomenon of digital technology, conceptualized via the Embodied Screen to include its specific emergent characteristics, must take into account imaginative signification, for digital technology has a very specific effect of challenging the individual's perceptual process. The Embodied Screen provides a conceptual framework for further analysis with regards to how sense-making takes place in this context. The Embodied Screen describes that modulation of the flesh, that challenge to perceptual faith, and that imaginative signification that occurs in the phenomenon of digital technology. Without the Embodied Screen as conceptual framework, insufficient critical reflection of this sense-making process in the lived everydayness of the individual's encountering of the phenomenon of digital technology may take place.

dominant role. She may wave or engage in some other form of greeting, only to be ignored. For this shape is not a friend or colleague of the academic, but rather an imaginary phantom of her friend or colleague put into the field of the perceiver's perception (by the academic's myopic vision). It is not the act of seeing as such that placed the friend of colleague there, but rather imagination as dominant here, as tightly interwoven with the academic's perception of the world. If the bare act of seeing is insufficient, the perceptual faith has been challenged, and the imaginary serves to extend and fill the perceptual space. Ironically, in this example a technological artefact (spectacles) may bring the perceptual in line with the 'real', but with the phenomenon of digital technology the opposite is argued to occur (due to a lack of 'world' whereupon the Embodied Screen is built).

It should be noted that in the Embodied Screen a particular form of imagining, namely imaginative signification, is involved, which differs from perceptual, aesthetic, fanciful and pathological imagining (the four types of imagining described by Steeves (2004)).[363] There is an integration, an intermingling, of these aspects of imagination that takes place in imaginative signification. In relation between the embodied human and digital technology artefacts, as described by the Embodied Screen, it is imaginative signification that plays a crucial role in describing sense-making via the phenomenon of digital technology. Imaginative signification is built on the constructed frameworks or lattices of the digital artefacts themselves. It is a signification process that is funnelled through the particular modulation of the flesh that these artefacts allow. The tightly woven fabric of the real in perceptual faith is challenged by digital technology, and therefore the 'real's fabric' has been unwound. The challenge of perceptual faith differs from what is found in aesthetic and in pathological imagination because the challenge to perceptual faith is built upon the artefactual object (the digital technology artefact). Due to the 'funnelling' of perception in the Embodied Screen through digital technology artefacts, various imaginative processes are folded onto each other to form the unitary process of imaginative signification.

A central part of the Embodied Screen is thus imaginative signification in relation to a perceptual faith that is challenged. Such an elevation of imaginative signification to a

[363] In fact, the Embodied Screen may be said to fold these various types of the imaginative processes into a singular form of imaginative signification that is characteristic of human-technology interactions in the phenomenon of digital technology.

central role in perception affects human behaviour, which further necessitates the neologism of the Embodied Screen. Importantly however, the bond with embodiment, with the flesh, is never loosened in the Embodied Screen. Although it is difficult to trace the imaginary in the Embodied Screen, there is a concretization that may be observed in the role that language plays in this process.

4.3.4. The Embodied Screen and Language – A digital ontology of language

Merleau-Ponty presents a specific conceptualization of language in terms of embodiment that is of importance for understanding the changing role of language in and through the Embodied Screen. An inherent element of Merleau-Ponty's account of embodiment is *language*, which is on a continuum with perceptual experience. He argues that "[t]o have the idea of thinking (in the sense of thought of seeing and thought of feeling), to make the phenomenological reduction to the things themselves, to return to immanence and to consciousness, it is necessary to have words. It is by the combination of words that I form the transcendental attitude" (VI 171). Merleau-Ponty argues that the flesh of the world and the flesh of language are directly linked, and it is only through an embodied engagement with the world that the act of language production may take place (rather than through conscious reflection).[364]

Merleau-Ponty describes language as a 'call and response' structure.[365] There is an intertwinedness here that is distinctive of Merleau-Ponty's postulation of the flesh, a 'call and response' structure between the world and language. The world calls for interrogation, wonderment and investigation, and one form of the response is linguistic meaningfulness (the pregnancy of meaning in the word is brought forth through embodied acts). In this

[364] Furthermore, it is only through language, and particularly philosophical language, that the cogito may be placed. He presents language as having a 'flesh', as being on a continuum with perceptual experience through the role of the signifier (the text) (S 87-97). There is a flesh (the entirety of sensed things that forms a continuous surface) of the body (physical and spiritual) and a flesh of language (visible – text, and invisible meaning). Just as the world as flesh is already 'pregnant' with structure, meaning and form, so the flesh (scaffolding) of language gives the same pregnancy via the visible to the invisible.

[365] In the Embodied Screen, this 'call and response' structure serves to link the tripartite of the individual and digital technology artefacts via language (a concretization of imaginative signification). In the real world, imaginative signification remains closed off from the other. However, in the Embodied Screen, due to the lattice of digital technology artefacts and the concrete constructive and re-constructive role that language and other forms of visual communication play, imaginative signification becomes something 'world-shaping' and 'reality-altering'.

process of sense-making, language serves as a lattice to imaginatively (re-)construct the world through the Embodied Screen, and also oneself, the world and the other. The role of language is central in the construction of the world through the Embodied Screen.

The previous sections have described how, when experiencing the world through the techno-flesh, we find that perceptual faith is challenged and that the gaps in lived experience of the world in the relation between the embodied individual and digital technology artefacts is filled in with imaginative signification. The question now is the mechanism by which this may be observed or traced – how can one determine whether such a process truly takes place? Through the Embodied Screen one may observe an ontological concretization of imaginative signification by means of the use of language, particularly in how language use functions to create lingual (a description of my identity on Facebook) and visual (the self-picture used to identify myself) narratives of representation of the self, world, and other. An example of such ontological concretization of embodied language is the use of 'selfies', or social media posts of food to create a 'self' with which the other may engage through the Embodied Screen. By means of the description provided by the Embodied Screen, one finds that language is a means of scaffolding the process of imaginative signification onto the digital technology artefacts, to concretize experience and to open said experience up for the encountering thereof by others, for through words and pictures there is a return to immanence and consciousness (VI 171). Through the Embodied Screen, language (and its visual equivalents, such as selfies) takes on a more pronounced, closer relation to the individual's being itself due to the prominent role that imaginative signification plays in sense-making (or, in this sense, sense-giving) and the way in which language concretizes the process of imaginative signification.

Through the Embodied Screen, the flesh of the world (as presented through imaginative signification) and the flesh of language are folded into each other by means of the digital technology artefact. There is a continual construction and reconstruction of the self, the world, and the other; expressed through language and necessitated by the continual process of imaginative signification (which in turn, is necessitated by the challenge to perceptual faith by digital technology artefacts). The primary means of response to

imaginative signification in the Embodied Screen is linguistic meaningfulness, and the pregnancy of meaning in the word is brought forth by the individual through engagement with digital technology artefacts (which form a lattice that makes concrete the process of imaginative signification, as language and expression). Not only are responses like the lingual a response to the world (as presented); it also creates a 'world' through the relation between the embodied individual and digital technology artefacts. This reciprocity is also a construction of being, a creation of self; similarly, the other and one's perception of the other is open to creation and re-creation. The use of lingual expression, built from necessity upon a challenged perceptual faith and imaginative signification, becomes the framework whereby sense is made of the self, the world and the other. Sense-making is thus concretized by digital technology artefacts in the Embodied Screen, and language and words become the concrete means of sense-making in the phenomenon of digital technology. The world as mediated through the Embodied Screen calls for interrogation (perceptual faith), wonderment (imagination) and investigation (perception), much more so than the world we perceive in non-digital interactions.

4.4. The Embodied Screen as foundational, encompassing and multimodal perspective on the phenomenon of digital technology

The Embodied Screen functions as the access or contact point whereby (or through which) one may describe the phenomenon of digital technology in a foundational, encompassing and multimodal manner. This is not a static access point, but a porous screen, a recognition of the intertwining relation between the human and digital technology artefacts. This reciprocal relation allows individuals to change technological artefacts through feedback, design and construction, but through the Embodied Screen digital technology artefacts also change the personhood of the individual by challenging the individual's perceptual faith and shaping the embodied relation of said person to herself, others and the world in ways particular to digital technology. There are in the Embodied Screen as conceptualization of the phenomenon of digital technology an openness for an ontology of digital technology, epistemological implications and potentially an ethics.

The phenomenon of digital technology can only be understood in a foundational, encompassing and multimodal manner, as the Embodied Screen, by describing the unique emergent characteristics that arise from said immersion and intertwining (of the embodied individual and the digital technology artefact) – however, these emergent characteristics are not just minor elements but rather centrally what characterize the phenomenon of digital technology. By taking account of these emergent characteristics, digital technology as phenomenon is opened up to further investigation and insight.

Firstly, the methodological approach should give an account of digital technology. In this study, the body is suggested as such a basis for technological experience, as the body is the framework through which the world is encountered. The body is the point from which the individual's lived experience may be traced. Such an approach is sketched in contrast to rationalist, scientific reductionist perspectives on technology (typified by pragmatism and social constructivism).[366]

An account of the body ensures that the description of the phenomenon of digital technology that is developed phenomenologically would be founded in the facticity of the individual's lived experience. The Embodied Screen is foundational in the sense that it is founded in a *Punctum Archimedes*, the body, in a solid and stable ground[367] from which to describe the continually changing and evolving phenomenon that is the phenomenon of digital technology. The Embodied Screen is thus a foundational description, arising from the foundation that is the body.

Secondly, the methodological approach should allow multi-disciplinary insights to be brought to bear on the question of digital technology, due to the multi-faceted nature of digital technology. Such an approach implies moving beyond the artefactual. A multi-disciplinary approach suggests, in turn, a resistance against reductionist approaches when addressing the phenomenon of technology in general – there is an openness in a multi-disciplinary approach with regards to multimodality.

[366] Compare Chapter One.
[367] There is a dynamic character within embodiment as well, a dynamism that arises from a solid foundation.

Embree describes phenomenology as a "multidisciplinary school of thought", seeing the discipline as a means to bridge fields as diverse as architecture, cognitive science, dance, education, literature, psychiatry, psychology, religion and sociology (Embree, 2013: 396). Particularly in this field, philosophers have made concerted attempts to integrate ethics, aesthetics, feminism and politics into the tradition (Drummond & Embree, 2002). Inherent in phenomenology is thus an openness, the capacity for an opening up to multi-disciplinary insights of the phenomenon that is under investigation. Whereas pragmatism and social constructivism limit the range of methodological insights that could be brought to bear on a phenomenon in Philosophy of Technology, phenomenology presents an opening up.

Furthermore, taking the body as starting point of perception and lived experience means that a range of methodological approaches could be brought to bear on the question of the phenomenon of digital technology. The body is a multimodal entanglement of forces, such as the rational, emotional, imaginary, etc. In this sense, the Embodied Screen presents a description of the phenomenon of digital technology that is characterized by several different modes of activity or occurrence through an incorporation of the body and of the senses – a range of modes that are open to further multi-disciplinary insight and inquiry. The Embodied Screen thus presents a multimodal account.

Thirdly, the methodological approach should also present an integrative account of digital technology, because technology remains an integrated phenomenon (even though it may be divided, historically, into different developmental periods or be spread out across different artefacts). Again, an integrative account implies that the methodological approach should not allow reductionist perspectives (or micro-studies with a focus on the artefactual) to be presented as encompassing reflections on the phenomenon of digital technology.

Thus, the Embodied Screen is argued to present a foundational, encompassing and multimodal description of the phenomenon of digital technology because it provides an account of the body, opens up the question of the phenomenon of digital technology to multi-disciplinary insights, and integratively describes said phenomenon. The Embodied Screen was postulated as concept that fulfils all these criteria and thus opens up the space

for more in-depth discussions of the phenomenon of digital technology, allowing insight into the embodied individual and into digital technology artefacts.

4.5. Conclusion

A description of digital technology in the contemporary era necessitates not a greater understanding of the social (such as found in SCOT), nor an intensification of micro-studies (such as found in postphenomenology). These approaches present a fragmented perspective on technology that is limited in scope. Rather, to more adequately describe the phenomenon of digital technology requires a description that starts from the body. One's body allows (following Merleau-Ponty) a *Punctum Archimedes* from which to describe the phenomenon of digital technology. In this sense, the body is both a stable descriptive point, but also a dynamic framework from where digital technology artefacts are encountered.

Of importance with regard to the body (as the starting point for describing the phenomenon of digital technology) is not just Merleau-Ponty's discussion of embodiment presented in *Phenomenology of Perception* (1945), but specifically his conceptualizations of the flesh (*char*) and *perceptual faith* as developed in his later work. These later concepts make it possible to describe the phenomenon of digital technology by starting from the pre-reflective, pre-conceptual areas of experience, to trace the nature, limits and potential of the phenomenon of digital technology, and of our understanding of the world as mediated in the relation between the human and digital technology artefacts.

Phenomenology allows the incorporation of all facets of lived experience into the descriptive capability of the body (specifically in Merleau-Ponty's phenomenology of embodiment). From this integrative point, an encompassing description of the phenomenon of digital technology is possible due to the entirety of engagement with digital technology artefacts forming the basis of the individual's lived experience of said phenomenon. There is no aspect of the phenomenon of digital technology that is not presented to the embodied lived experience of the individual, and thus the Embodied

Screen presents a means to describe integratively and encompassingly the phenomenon of digital technology.

It is only by tracing the way in which digital technology mediates what is presented to consciousness, to the body, that the phenomenon of digital technology itself may fully be accounted for. This takes place through an investigation into the perception, and alterations in perception, that these forms of technology create and perpetuate. These influences also affect behaviour, in the Merleau-Pontian sense. The aim has been to develop an account of digital technology that is not limited to theoretical conceptualizations of technological artefacts, but which is based in the unreflective or 'lived experience' of contemporary human-technology relations in its full complexity.

There are several elements of the Embodied Screen that have been discussed as defining characteristics in this chapter, and the complexity and interrelatedness of these characteristics is central in this neologism. The Embodied Screen requires a certain scale of engagement that affects the individual in an immersive way – the tipping point. There is both a qualitative and quantitative dimension to this tipping point, as has been discussed.[368] The Embodied Screen starts with embodiment, and is based in an altering of perceptual faith. The challenging of perceptual faith by digital technology artefacts necessitates imaginative signification wherein the changing role of language comes to the forefront and becomes crucial for sense-making.

This chapter showed the necessity of conceptualizing the phenomenon of digital technology through the neologism of the Embodied Screen, which is argued to present an account of the phenomenon of digital technology that is foundational, encompassing and multimodal. Merleau-Ponty's phenomenology of embodiment is a starting point for such an account, which presents a re-interpretation and re-deployment of Merleau-Pontian concepts. The question one must now turn to is whether the Embodied Screen is merely an imaginative abstraction, disconnected from technology as encountered in the individual's everyday life. The next chapter presents an answer to this question by focusing on the digital technology artefact and applying the Embodied Screen to these artefacts in

[368] Refer to Section 4.2.1.

order to trace the implications of this suggested novel approach to the phenomenon of digital technology.

Chapter Five – Seeing the digital technology artefact anew through the Embodied Screen

5.1. Introduction

The previous chapter investigated the phenomenon of digital technology through the concept of the Embodied Screen, with a particular focus on the nature of the embodied individual (in her relationship with digital technology artefacts). In this chapter, the investigative lens of the Embodied Screen is turned to the digital technology artefact. The Embodied Screen suggests that little or no understanding of the digital technology artefact is possible outside an awareness of the artefact's relation with the embodied individual; however, there are still some conclusions that could be drawn from the Embodied Screen with regard to how individual digital technology artefacts, or digital technology artefacts *en masse*, function in this relation – one need only keep in mind the artefact's intertwined relation with the body-subject.[369]

This study thus far sought to develop a novel embodied description of the phenomenon of digital technology in light of the insufficiencies of artefactual, pragmatist, social constructivist, posthumanist and postphenomenological[370] perspectives. Husserlian and Heideggerian perspectives on technology[371] were also investigated in this regard, but the turn to the social in these phenomenological perspectives on technology was deemed problematic with regard to the embodiment of the sole individual in the phenomenon of

[369] An investigation into the nature of the digital technology artefact (as seen via the Embodied Screen) is thus achieved through reflection on how the digital technology artefact functions in its intertwined relation with the embodied individual.

[370] Postphenomenology (as derived mainly from the works of Ihde) presents a prominent development of Merleau-Ponty's thought on embodiment and technology. Through the incorporation of technological questions and pragmatism into classic phenomenology, Ihde strives to develop an account of human-technology interactions. However, this account relies on empiricism for its conclusions. Furthermore, he does not present a coherent view on technology, because his investigations often focus on micro-analyses and do not attempt to penetrate to the phenomenon of technology itself.

[371] Husserlian perspectives on technology are based on the perspectival shift in society that are caused by a move towards calculative reasoning in science (which affects fields such as technology studies). Heidegger, on the other hand, similarly traces the way that technology and technological thinking propagate certain conceptualizations of being that obscure Being, particularly through his conceptualization of Enframing. He is highly critical of how modern scientific and technological developments lead to the idea of a standing reserve with regard to the world and individuals, as resources to be utilized under the auspices of calculative reason.

digital technology. In Merleau-Ponty's thought[372] the starting point for a different relation between the individual, not as socially conceived, and digital technology, not as merely artefactually conceptualized, was found.[373] It was argued that in the phenomenon of digital technology there exists an intertwined, enmeshed relationship between digital technology artefacts and the individual as embodied, a relationship that influences both.

A philosophical excavation of Merleau-Ponty's embodiment, and particularly his conceptualization of the flesh, was argued to suggest an approach towards digital technology that is foundational, encompassing and multimodal.[374] The concept of the Embodied Screen was thus introduced to circumscribe the unique modulations of the flesh via the 'symphony' of digital technology artefacts, and the unique emergent characteristics that arise from this interrelation. The creative re-development of Merleau-Ponty's phenomenology through the Embodied Screen was presented as a more encompassing description of the way that technology is experienced – based on modulation of the flesh, a challenge to perceptual faith, an encompassing imaginative signification, and the altered use of language when the individual encounters digital technology artefacts. Rather than simply seeing technology as an extension of one's embodiment or as the integration of skills into the body schema, the phenomenon of digital technology understood via the Embodied Screen describes a reversible relationship between the individual and the digital technology artefact, which leads to specific emergent characteristics within this relationship, such as a challenged perceptual faith, increasing imaginative signification, and a new utilization of language. The Embodied Screen describes the immersed and intertwined engagement between the embodied individual and the digital technological artefact as a crossing over, and it is via this crossing over or access point that the digital technology artefact may be

[372] Merleau-Ponty did not develop a comprehensive treatment of the phenomenon of technology in his work, though he did develop a proto-theory of the relation between body-subject and technology; he saw technology as extending embodiment and as increasing the possibilities of embodied action through the integration of motor and perceptual skills into the body schema of the individual. The limited development of Merleau-Ponty's own thought on technology allows for the development of a novel embodied, phenomenological account of digital technology that moves beyond earlier conceptualizations.

[373] What is proposed in his theory of language, for example, is a call and response structure. The phenomenon of digital technology becomes an integrated part of the world that similarly calls to the user. The phenomenon of digital technology opens up the possibility for a response, potentially in the form of a 'language' (skilled use of digital technology artefacts).

[374] In previous chapters it was argued that a more encompassing and foundational description of the phenomenon of digital technology should allow a space for multi-disciplinarity, be unifying with regard to what technology is, and be based in embodiment in order to trace the individual's lived experience of said phenomenon. The Embodied Screen was suggested as neologism to answer to these criteria.

understood anew.[375] Therefore, whereas the embodied individual was the focus of the previous chapter (as part of the formulation of the Embodied Screen), this chapter focuses on what the Embodied Screen implies regarding the digital technology artefact.

5.2. Two metaphors: From black box to rainbow box

To describe the digital technology artefact through the Embodied Screen necessitates at least initially the appropriation of Langdon Winner's metaphor of the black box of technology.[376] Winner argues for the potential value of social constructivism in addressing questions of technology while also highlighting the shortcomings of such an approach. The term 'black box' is used to denote a device that is described solely in terms of its inputs and outputs, a metaphor for how technology is often approached by philosophers.[377] Winner, as well as social constructivists, criticizes a black box approach towards technology due to its neglect of the structures, workings and social origins of technology (Winner, 1993: 365). Social constructivists, Winner concludes, have opened the black box of technology through their social analyses to reveal the variety of "social actors, processes, and images therein" (Winner, 1993: 374-375). However, in his view the box remains a hollow one – social constructivists fail to provide any "general position on the social and technological patterns under study" (1993: 375). Social constructivism is inadequate for describing the phenomenon of digital technology, in Winner's view and as suggested by the Embodied Screen as descriptive framework.

5.2.1. The rainbow box (digital technology artefact)

The Embodied Screen suggests the possibility for an alternative perspective on the black box of technology, re-interpreting the digital technology artefact as a metaphorical rainbow

[375] This interaction describes an emersion of a 'new frontier' of individual engagement with the world and others via a magnified perceptual horizon. On the one hand this suggests an 'opening up' of the horizons of embodiment and perception, while also suggesting that – through embodiment – the individual's relation between the digital technological artefact, the world, and the other, is much closer than presumed in objective thought. Paradoxically this embodied closeness (intertwinedness) makes an account of the phenomenon of digital technology more difficult, for elements such as the digital technology artefact, the world and the other, are revealed to be closely immersed and intertwined via the description provided by the Embodied Screen.

[376] Refer to Winner's article 'Upon opening the black box and finding it empty' (1993).

[377] Pinch and Bijker (1987), for instance, argue that the 'black box' of contemporary and historical technology must be 'opened' to see what is 'in there' and to move beyond a focus on certain valuable pragmatic functions.

box. In this study, through its phenomenological methodology and disavowal of social constructivism, it is argued that the digital technology artefact functions in a specific manner in the lived experience of the individual (as a Rainbow Box that shapes experience). By tracing the contours of this 'box' from the basis of the body-subject, therefore, an account of the phenomenon of digital technology that enhances other accounts of digital technology may be gained which provides a unique perspective on the phenomenon of digital technology.

The digital technology artefact functions as a point of embodied entanglement and modulation with the individual via the techno-flesh. The rainbow box challenges the individual's perceptual faith, which necessitates imaginative signification. However, the rainbow box also provides that structured lattice[378] through which both imagination and language become ontologically concretizing forces. In this metaphor, imaginative signification and altered use of language in response to a challenged perceptual faith lend 'colours' to the rainbow box. These 'colours' cause an altering of the embodied engagement of the individual with the world (by means of the techno-flesh modulations by the rainbow box). The 'colours' of the rainbow box affect the individual's perception of the world, while the rainbow box itself functions as structured lattice, as holding space, for such 'colours' simultaneously. The concept 'rainbow box' is thus shorthand for digital technology artefacts as seen through the Embodied Screen.

Take a smartphone as example of a rainbow box. A smartphone as device (typical example of a digital technological artefact), with deterministic functioning, seems inert when isolated from the individual, but through engagement with the embodied individual (that circuit that forms the crux of the Embodied Screen) reveals itself to be something that challenges perceptual faith (screening things off) while simultaneously creating a space for the revealing of things through imaginative signification and the use of language (a 'screen' of presentation). The smartphone as metaphorical rainbow box describes not merely an inert or deterministic device, but rather a means for opening up the embodied individual

[378] Structured lattice denotes that manner in which digital technology devices serve as metaphorical 'carriers' or 'containers' of what has been described as the phenomenon of digital technology in this study, as ways to allow the phenomenon of digital technology to function. These devices are deterministic (i.e. structured) in how they function, but also serve to 'carry along' the phenomenon of digital technology and to form a surface whereupon the phenomenon of digital technology occurs.

to a latticed imaginative- and language-constructed 'colouring' of the world. It is not an empty box, nor a black box, but a multicolour object, corporally intertwined with the subject, which creates the phenomenon of digital technology through the Embodied Screen.

5.2.2. Rainbow boxes (in the Embodied Screen)

The above example describes a single digital technology artefact via the Embodied Screen, but implicit in the concept Embodied Screen is the recognition that the contemporary individual is not merely confronted by isolated instances of engagement with singular digital technology artefacts.[379] Thus, extending the metaphor of the single rainbow box, one may describe how the 'colours' of a single rainbow box 'bleed out' to affect the individual's broader embodied engagement with the world through a blending of 'colours' into and between other rainbow boxes.[380] The Embodied Screen as immersive and enveloping is described through this inter-box web of 'colours'.

What is hereby suggested is an encompassing and integrated challenge to perceptual faith of the individual, increased imaginative signification that extends beyond a single digital technology artefact, and the expanded role of language use – aspects of the Embodied Screen that have been described in the previous chapter. Rainbow boxes – even though seemingly isolated, spread out temporally and spatially – in 'symphony' shape the individual's engagement with the world and with the other. The term 'rainbow box' (as metaphor for the digital technology artefact) describes how, without 'opening' the 'black box' in the parlance of Langdon Winner, the phenomenon of digital technology may still be described through the engagement of the individual with digital technology artefacts.

[379] It should be recalled here that the Embodied Screen does not merely describe the perceptual faith challenge through the techno-flesh wrought by a single digital technology artefact (or rainbow box).

[380] Contrast Cook's description of how the individual's experience is altered through engagement with the screen of digital technology artefacts: "A unique consequence of embodying images limited by the frame of the screen is apperceiving a coextensive world that extends beyond the frame edge. This seeing with... a larger lifeworld beyond the frame causes a horizontal stretching of experienced screen space. When coupled with continuity-style editing, which most clearly conveys serial changes in perspective needed for narrative, the horizontal stretching of screen space causes a corresponding time compression and event intensification" (2017: 16). The Embodied Screen leads to a re-interpretation of the digital technology artefact as rainbow box, which suggests a much broader embodied engagement of the individual with a world beyond the confines of the screen (through imaginative signification and language use that greatly expands Cook's spatio-temporal account).

Such a description is made from the basis of the body-subject and with regard to the individual's subjectivity in a manner that avoids social epistemological theoretical constructions or pragmatic technological rationalism.

Take the example of planning a road trip using two digital technology artefacts. There is in this example the interrelation of (1) a smartphone to view the route and destination, and to book accommodation before the trip, and (2) the use of the GPS in a vehicle while driving to one's destination. On the night before her journey, through the smartphone's capabilities of presenting (on a screen) her impending route and destination, the individual perceives a place in which she does not find herself present. She then utilizes language that is latticed upon the framework provided by the smartphone, to construct a world (of expectation and of future actuality) through the use of the accommodation booking app. When she arrives at her destination, accommodation that she has perceived beforehand will have been made available to her and this accommodation will correspond (at least tangentially) to what she perceived in the booking app. Finally, on the day of her road trip, the GPS navigation device presents a world while driving that is enhanced with information (such as the speed of the car, or possible alternative routes).

In the road trip example, the Embodied Screen allows further insight into how the phenomenon of digital technology factors into the journey – the use of digital technology artefacts expands one's embodied and perceptual horizons of the journey, horizons that would not have been expanded in the same manner in non-technological encounters with the world.[381] The rainbow box thus describes how embodied and perceptual potentiality is expanded by the digital technology artefact, for the rainbow box is the digital technology artefact as seen through the Embodied Screen, which establishes the whole phenomenon of digital technology.[382]

[381] The Embodied Screen re-evaluates how objective thought may interpret this journey through a description of how such digital technology interactions must be rooted in an embodied understanding of the individual's relation with these two digital technology artefacts, with the metaphor of the rainbow box shedding more light on how specifically these two artefacts function.

[382] Digital technology artefacts open up the horizons of embodiment and perception through increased imaginative signification and the role of language as concretizer of a world

The smartphone as rainbow box provides a lattice or space whereby the individual's perceptual capabilities are expanded, allowing perception of a distant place. The individual is not 'projected' there, she remains present at her home before starting the journey. Perceptual faith is challenged in this seeming discrepancy (between being at her destination, while being present at her home). From the basis of this challenged perceptual faith, the world of the individual's destination is imaginatively constructed from very scant information (pictures on a website, or a digital map) to create a sense of 'being there' that extends beyond the mere fragments of information available. Her embodied horizon is expanded through imaginative construction of a world, and it is imaginative signification that creates a sense of projection across vast distances through the opening up of the space of her destination (as imaginatively constructed). The rainbow box has modulated her embodied experience, functioning to 'colour' the world via the techno-flesh – with the Embodied Screen being central in this process.

The act of booking accommodation via the smartphone also shows the digital technology artefact functioning as metaphorical rainbow box. The individual sees her accommodation presented as a name or via pictures, but again the 'location' is imaginatively constructed (through the digital technology artefact's opening of an embodied and perceptual space). The use of language when making the booking has an ontologically constructive function: it makes present the expectation of staying at that particular space (imaginatively constructed), and has an influence on the world at an entirely different physical location (the booking is made by a desk clerk, or automatically). When she arrives at her destination, she is expected. Language has concretized what was merely imaginatively signified through the lattice provided by the digital technology artefact. The rainbow box has once more modulated her embodied experience through imaginative signification and language as ontologically constructing force.

The use of the GPS navigation device while driving the next day similarly expands her embodied and perceptual horizon in real time. Information from the digital technology artefact is presented to her, and instead of keeping her attention focused solely on the road while driving, she imaginatively constructs the road ahead (before she perceives it directly, based on what has been presented by the digital technology artefact's screen). Her

engagement with the road ahead has been enlarged through the overlay of her direct experience with the world that has been imaginatively constructed via embodied engagement with the GPS as rainbow box. Furthermore, her reconnaissance of the route via her smartphone the previous evening (an engagement with an imaginatively constructed world that is spatially and temporally isolated from her current activity of driving) is also overlaid onto both the world of direct perception and the real-time imaginatively signified world that techno-flesh stimulation of the GPS causes. This overlaying of worlds, both directly perceived and imaginatively signified, emphasizes the necessity of the Embodied Screen as neologism for the description of the phenomenon of digital technology: The individual's engagement with two rainbow boxes whose 'colours' have blended and immersed the individual over and above her direct perception of the world has occurred, which must be described from the basis of her lived embodiment.

This example shows how the digital technology artefact functions (as rainbow box), but may also bring to light the foundational basis of imaginative signification in the Embodied Screen. The increasing imaginative signification that forms part of the Embodied Screen is revealed when the individual encounters a stretch of road that has been washed away by flooding (something that was not described via the smartphone or the GPS navigation device). The imaginatively constructed world(s) break(s) down when confronted with a real-world obstacle; the world(s) presented via the Embodied Screen (by the smartphone functioning as rainbow box, and the GPS functioning as rainbow box) fades away in lieu of the world of direct perception. These imaginatively constructed worlds dissolve, the spell is broken and the 'colours' fade. It is realized that the Embodied Screen presents that world which has been imaginatively signified through modulations of the flesh, a world that can no longer be overlaid onto direct perception of the world.[383] The world presented through the Embodied Screen is revealed to inarguably lack coherence and reliability, just as surely as this same world was experienced as both intensely coherent and reliable just moments before arriving at the stretch of flooded road.

[383] Compare also the individual arriving at her accommodation, and realizing that her booking has not been processed. The world, as constructed via language, is revealed as merely ontologically constructed within the interactions of the Embodied Screen.

If the body-subject was superfluous to the circuit inherent in the Embodied Screen (between individual and artefact), such functioning of the digital technology artefact (modulating the individual's embodied and perceptual horizons) would not be possible, and one would be correct in tracing these artefacts rationally or sociologically. However, the individual is crucial to the functioning of the digital technology artefact in the manner just described, for it is the living, breathing individual that engages with digital technology artefacts through embodiment, imaginative signification and language use which makes such functioning not just possible but unavoidable.

5.3. Re-interpreting the digital technology artefact through the Embodied Screen

A re-interpretation of the digital technology artefact via the Embodied Screen describes how these artefacts function to open up spaces of imaginative signification and language construction that are unavailable otherwise. The digital technology artefact acts as structured potentiality conduit for spaces of imaginative signification, and altered use of language concretizes such spaces to make them available to others – a world is made through the emergent characteristics inherent in the phenomenon of digital technology. Such a re-interpretation of the digital technology artefact has implications for how one understands the presence of the individual, the relation to others, and the relation to nature, in the phenomenon of digital technology.

5.3.1. The digital technology artefact and expanded presence of the individual

The question of presence is a central question not just in Merleau-Ponty's phenomenology of embodiment, but also in analyses of the phenomenon of digital technology (which often suggest a shift away from the embodied presence of the individual). One may ask, for example, whether an individual who is engaged on her smartphone during a social event is truly *present* at the event, or whether an individual recording a live music show is truly *experiencing* the show. Why, for example, would an individual choose to be more engaged

with her smartphone as recording device than with actively watching a live dolphin show?[384] The re-interpretation of the digital technology artefact may suggest an answer.

The digital technology artefact, which functions as point of embodiment modulation, must present something to the individual beyond what is found in direct experience of the event. Instead of suggesting that the individual is choosing not to be present during the event, the concept of the Embodied Screen describes the digital technology artefact as an avenue whereby the individual is in fact *more* present. The digital technology artefact presents a closer unity between the individual and the live event than what is presented through direct perception, and the Embodied Screen offers a suggestion for why this happens. The digital technology artefact challenges aspects of direct perception (it has been argued that these artefacts present a challenge to perceptual faith) while also serving as lattice for increased imaginative signification (and concretized language use) that constructs a world (as will be described in the next paragraph). In this example, the digital technology artefact may be screening off aspects of the dolphin show, while contrarily also presenting perceptual information that provides some benefit to the individual.

The individual's embodied and perceptual horizons are expanded by the digital technology artefact, not merely providing new abilities (through instrumental functions inherent in the smartphone) but also serving to allow her to *be* more present due to an expanded embodiment.[385] She is given access to more embodied and perceptual potentialities through which to experience the live event by means of the digital technology artefact. Contrary to naïve thought, the use of a smartphone allows the event to be more 'real' due to a larger scope of embodied engagement with what is happening in the moment – this embodied engagement with the event occurs via imaginative signification which is latticed by the digital technology artefact. Through the digital technology artefact, the individual is in fact *hyper-present* through her expanded embodied and perceptual horizon, for there are more potentialities for engagement with the world via the digital technology artefact.

[384] The unique intertwining of the individual and the digital technology artefact which is described through the Embodied Screen presents an answer based in phenomenology.
[385] Via the Embodied Screen, the intermingling and intertwining of the body as limited and the 'screen' as potentially infinite is described.

The imaginatively signified world, though not necessarily being of more intrinsic value than the world of direct perception, is a concretized world that is open to manipulation by the individual. This concretization and manipulation will be explained by reference to memory and to temporality to show why the world built from the latticed imaginative signification provided by the digital technology artefact may be of advantage to the individual. Memory as embodied capability, for example, becomes subservient to the capabilities of the digital technology artefact to also 'remember' – via recording a live event (which, in turn, enhances one's capability to remember upon subsequent viewing).[386] There is via the recording an expansion of the experiential horizon, beyond the temporal limitations of the event.

On the other hand, the flow of time (usually uncontrollable in live events) becomes constrained and managed by the digital technology artefact through recording – time becomes tangible, embodied, integrated into the experiential horizon of the individual. Through the constraining of time, the experiential horizon of the individual is, ironically, further expanded. Such capabilities are not merely skills, but rather the acquisition of unique manners of embodiment that could not be present otherwise (without the digital technology artefact).

Watching dolphins frolic on a smartphone screen after the fact, unbound by time but embedded in memory (of oneself and one's device),[387] suggests that embodied imaginative signification allows these dolphins to become closer to the individual's everyday experience, to become more real than the live event or the dolphins themselves – for these dolphins have now become embodied, part of the experiential horizon that the digital technology artefact allows. The digital technology artefact thus presents an entirely new embodied experiential horizon that arises from the individual's embodied facticity, never

[386] Compare Bernard Stiegler's *Technics and Time* series (1994) wherein he describes the relation between humanity and technology as a form of memory following Martin Heidegger, André Leroi-Gourhan, Gilbert Simondon, Bertrand Gille, Jean-Jacques Rousseau, and Jean-Pierre Vernant. Compare also his claim of technics as constitutive of human temporality, in contrast to the embodied account presented in this study.

[387] The digital technology artefact has collapsed the past and present, linking history and simultaneity into a broader embodied horizon via the Embodied Screen. In Merleau-Pontian terms, the now-ness and the not-yet-ness folds onto each other – not as linearly construed but through imaginative signification untethered from the bounds of time. There is a field of relationships, spread out across an infinite surface (the Embodied Screen) spatially and temporally. In terms of bodily capability, there is a move from 'I can never' to 'I can' via the digital technology artefact – through imaginative signification and the ontologically concretizing function of language.

moving beyond this facticity while allowing the integration of new manners of embodiment beyond that which could exist for an embodied individual in non-technological encounters.[388]

It should be noted that this description of digital technology artefact use is based on the idea that the activity the individual is performing on her smartphone is related to the event at hand (recording it, or checking information on dolphins). Would the same sense of expanded presence still arise when she is checking her Facebook profile during the event? It is argued that the same overlaying will happen, that the individual will be present for the live event and for the world imaginatively signified. Her presence has been expanded through an expanded embodiment. At this point the individual is open to choose her point of immersion in either world, though the unique characteristics and benefits provided by the imaginatively signified world may act as lure for her attention.

The encompassing, embodied nature of the Embodied Screen (functioning in this manner through digital technology artefacts) is reflected, for example, in the use of road signs to warn motorists of wandering smartphone users in Germany (see Figure 5.1). The digital technology artefact is not enhancing perceptual experience of an event, but presents an imaginatively signified world that has become more important than perceptual experience of one's surroundings. The individual is so immersed in her expanded embodiment that the experiential horizon is shifted to the world presented by the digital technology artefact, instead of being tethered to her surroundings. The expanded embodiment of the Embodied Screen is more inviting, more intimate, more immediate, and more beneficial, than the walker's surroundings.

[388] This expansion of the experiential horizon is most closely correlated, if one does choose to use the terminology of skills, with an expansion of the potentiality for the skilled use of the mind (psychical). Such terminological use is insufficient, however, because an expansion of the mind would not usually be referred to as something that is skilful or based on habit, and would not in past usage be seen as something that could be expanded through artefactual means. Compare the use of a lever to lift a heavy weight, and the skilful use of that implement, with the increased psychical capacity suggested by the Embodied Screen. Rather, the described expansion of the psychical capacity is integrated as a form of expected, constant and background embodiment for the individual through engagement with the digital technology artefact. This seems similar to Ihde's thought of technology as background phenomenon; however, the inclusion of imaginative signification and language use differentiates the concept of the Embodied Screen from Ihde's work.

Figure 5.1: The encompassing nature of the Embodied Screen illustrated by means of road signs in Germany

The Embodied Screen therefore presents a reconceptualization of how the concept of presence (based on expanded embodiment) may be understood by tracing how the digital technology artefact functions. Memory and temporality, as functioning via the digital technology artefact, serve to underline how the digital technology artefact functions.

5.3.2. The digital technology artefact in relation to the other

Questioning the presence of the body-subject in the phenomenon of digital technology through the Embodied Screen suggests that a questioning of the other's presence may be conducted in the same manner. If one knows oneself to be an individual that is embodied in an expanded manner through the digital technology artefact, an individual that engages through the Embodied Screen with a world that is informed by imaginative signification, one may recognize the presence of the other as being similarly constituted. One's engagement with digital technology, as understood through the Embodied Screen, therefore implies from the beginning that encounters with others through digital technology do not deny their embodiment.

Empiricism and rationalism cannot account for the other in the phenomenon of digital technology in a circumspect manner, just as empiricism and rationalism cannot adequately

account for encounters with the other in one's everyday experience. Both empiricist and intellectualist accounts of the perception of other individuals misrepresent the concept of perception, argues Merleau-Ponty. The other is for the empiricist merely an object whose mental states are "pieces of mechanism worked by springs" (PP 407), the other's experience locked off from oneself. On the other hand, for the intellectualist the other is merely a part of one's own mental reflection, and thus a projection of oneself (PP xiii; 407).

The Embodied Screen, in contrast, presents an awareness that others are embodied in the phenomenon of digital technology as oneself is embodied. Because embodiment is the foundation of the unique intertwined and immersive relation between the embodied individual and digital technology artefacts, the other is also presumed to be embodied in a similar manner in the phenomenon of digital technology.[389] The other is thus outside oneself, but exists as embodied in relation to digital technological artefacts – via the Embodied Screen, the embodied meeting of embodied individuals is acknowledged.

The Embodied Screen does not merely present a situation of encompassing imaginative signification, but also an alteration of how language is used. Take, for example, the continual updating of one's Twitter feed. Inherently, there may be some need to communicate, to place oneself 'out there'. The Embodied Screen, however, suggests that the use of language concretizes an imaginatively signified world and thus plays a central role in constructing oneself, one's embodied identity. The unique intertwined and immersive relation between the embodied individual and digital technology artefacts is concretized through language, as is the individual's encounter with the other. Through this concretized language use, the other reveals herself.

In the same vein, while it is easy to dismiss the selfie phenomenon as a fad, one should also acknowledge that the Embodied Screen reflects something of the motivation for this fad.[390] Selfies represent, beyond textual status updates, a means for construction of physical self and for engagement with the other through embodied language (which takes on a wholly

[389] The basis of this presumption is of course found in imaginative signification, which explains why such presumptions may be challenged when one encounters a chatbot or other automated interactive system.
[390] New smartphones are being designed with high-spec front-facing cameras to facilitate this application of digital technology artefacts.

different character in the phenomenon of digital technology through photographs). In this example, the digital technology artefact is what allows such construction of the self to take place through its latticing of embodied language and images (one becomes represented through the screen). Selfies serve as 'language' with which to engage the other, to present oneself and even to construct oneself carefully (choosing optimal lighting and angle of the photo to enhance what one deems 'desirable' physical characteristics). This act presents a concretization of oneself via the digital technology artefact in a manner that is directed towards the other. The self is constructed as concretized 'language', presented through selfies, with which the other may engage via the lattice provided by the digital technology artefact.

However, these bonds with the other in the phenomenon of digital technology are more than representation and simplistic communication; they are the sharing and interpenetrating of one embodied being with another. Such a description of intermingling and merging of embodied individuals is built upon imaginative signification in one's construction and re-construction of the world through the use of language, insofar as embodiment is conceived of via the Embodied Screen. The digital technology artefact provides the lattice whereby this intermingling and merging may occur, for it is par excellence suited to serve as conduit for such interaction.

5.3.3. The digital technology artefact in relation to the natural world

Whereas the other in the phenomenon of digital technology functions as reciprocal agent, one should also ask what the implications are for the supra-human natural world. While Merleau-Ponty's thought may serve as initial guide in this regard, it is the Embodied Screen that allows a perspective on how the phenomenon of digital technology may play a role in the relation between the individual and nature through the functioning of the digital technology artefact.

The intimate intertwining suggested by the Embodied Screen between the individual and the digital technology artefact (and the individual and the other), as based in embodiment, suggests that individuals can no longer be seen as separated from nature. In a foundational,

embodied manner, there is a connection between the individual and the natural world through the process of imaginative signification. This suggestion links to the thought of JB Callicott, who argues that "nature as Other is over … We are witnessing the shift to a new idea, in which nature is seen as an organic system that includes human beings as one of its components … A new dynamic and systematic postmodern concept of nature, which includes rather than excludes human beings, is presently taking shape" (1992: 16). The digital technology artefact, as seen through the Embodied Screen, presents the avenue that allows the division between the individual and natural world to recede.

Technology, as something manufactured, is not a higher layer of human behaviour (higher than the biological), but fundamentally part of the individual's whole being – biological, spiritual, cultural.[391] The distinction between 'manufactured' and 'natural', or more specifically between 'body' and 'artefact', becomes diffused and narrowed via the Embodied Screen. The intertwining relation between the embodied individual and digital technology artefacts becomes so close that one's being in the world is untethered into the realm of increased imaginative signification through its expansion of the horizon of the Aristotelean senses (particularly sight and sound). This is not a disembodiment, but rather a falling back into one's embodiment.[392]

Through the Embodied Screen and the functioning of the digital technology artefact, the seeming dichotomy between individual and artefact, or human and natural world, is acknowledged. Michio Kaku argues, for example, that "the internet is creating what is called an intelligent planet, that is the skin of the planet Earth is becoming a network by which intelligent creatures can communicate with each other" (Kaku, 2012). The Embodied Screen allows a description of how this happens on an embodied level, through the individual as engaged with the specific functioning of the digital technology artefact in an

[391] Compare: "It is impossible to superimpose on man a lower layer of behaviour which one chooses to call 'natural', followed by a manufactured cultural or spiritual world. Everything is both manufactured and natural in man, as it were, in the sense that there is not a word, not a form of behaviour which does not owe something to purely biological being—and which at the same time does not elude the simplicity of animal life, and cause forms of vital behaviour to deviate from their pre-ordained direction, through a sort of leakage and through a genius for ambiguity which might serve to define man" (PP 220). Compare Callicott, 1992.

[392] The virtual has been already been argued to be insufficient ontologically for describing the phenomenon of digital technology. In contrast, this study postulates an altered form of embodiment in digital technology relations that places centrally the role of the imagination and the concretization of embodiment through language use via the Embodied Screen.

ontological and epistemological fashion. What is suggested is that embodiment, the biological and the ecological cannot be separated, and these aspects become tightly entangled by the phenomenon of digital technology.[393] Through the Embodied Screen it is suggested that there is integration, and connection, between the individual and the natural world, but also with digital technology artefacts.[394]

How this integration between the individual, digital technology artefacts and the natural world may work is intimated by David Abram's description of the radicalization of Merleau-Ponty's earlier work into a type of ecophenomenology – a new direction of Merleau-Ponty's work into a phenomenology of 'the animate earth', 'the breathing biosphere' or 'the more-than-human natural world'. Through the Embodied Screen, digital technology artefacts form a lattice that taps directly into this type of interaction. For while the non-human natural world appears to be the wholly other, via the Embodied Screen it is suggested that no such separation is possible. On its most basic level, digital technology artefacts are produced from the natural world and are physically linked with the natural world. On the level of the embodied individual, the world of nature may be imaginatively signified, and one may become more aware of the natural environment through one's expanded embodied and perceptual horizon. Thus, the phenomenon of digital technology has certain ecological implications if seen through the Embodied Screen.

The Embodied Screen, applied to the ecophenomenological approach of Abram, allows the integration of digital technology artefacts into "the biosphere as it is experienced and lived from within by the intelligent body – by the attentive human animal who is entirely a part of the world that he, or she, experiences" (Abram, 1997: 55). Merleau-Ponty's ecophenomenology, with its emphasis on holistic dialogue within the larger-than-human world, leads to a natural integration with the digital technology artefact's functioning as

[393] Lewis Mumford echoes the idea that the realm of technology cannot replace the biosphere in any beneficial way, stating that technology cannot form an "independent system" from the rest of the natural world (Mumford, 1934: 6).

[394] Contrast with Rolston's claims that a new technosphere (the realm of human technology) is constructed inside the biosphere of the Earth, a technosphere that could one day supersede that of the biosphere (Rolston, 2011: 3). The reason for this is that, although biological evolution has continued for billions of years, the cultural evolution and development of the past hundred thousand years increasingly determines in what form natural history shall continue (a process that has intensified in the last two hundred or so years). Rolston states that the Earth is now in a post-evolution phase.

viewed through the Embodied Screen. Merleau-Ponty's philosophy has always, perhaps implicitly, placed the subject and the object as two sides of the same coin. Merleau-Ponty emphasizes the ontogenesis and phylogenesis of language, which Abram explains by saying that "language is the very voice of the trees, the waves and the forest" (Abram, 1997: 65) – further underlining the importance of language in the Embodied Screen.[395] Language, as the concretizer of a world that is built upon imaginative signification and the lattice of the digital technology artefact, is what brings the natural world into the fold of the phenomenon of digital technology.

Such a re-evaluation does not imply that technology replaces nature, but rather allows the development of the phenomenon of digital technology which presents a new threshold for the interaction between humanity and nature in a more ethical, responsible (because it recognizes the mutual dependence between individuals and nature) and wholly unique way (because the connectedness between individuals is concretized through language in the digital technology artefact).[396] Furthermore, through the Embodied Screen the individual may selectively alter her field of perception in relation to nature, which may lead to an increase in the appreciation of nature.

These implications for the embodiment of the individual, others and the ecological world through the Embodied Screen allow insight into how the digital technology artefact (as part of a symphony of 'rainbow boxes') functions within the Embodied Screen. However, these aspects have all merely implied the central means whereby the digital technology artefact functions – through the concretization of language. It is the use of language in the Embodied Screen that allows insight into the inherent functioning of the digital technology artefact.

[395] Merleau-Ponty says that "the reversibility that defines the flesh exists in other fields," not least of which is language. For speech to appear, there must be a structure of reflexivity in and between self, other and world. Merleau-Ponty therefore describes how one wears language like a skin, a point that aptly describes foundational characteristics of the Embodied Screen. The spoken word is for Merleau-Ponty "that language-thing which counts as an arm, an action, as offense, and as seduction because it brings to the surface all deep-rooted relations of the lived experience wherein it takes form" (VI 126).

[396] This description links to Mumford's central view on worldview and technology: "Although [Mumford] acknowledges the importance of material conditions in society and culture, [he] asserts the relative autonomy of man's 'idolum' or Weltenschauung and so rejects as inorganic (hence mechanistic) the vulgar Marxist view that ideas, values and aesthetic symbols merely reflect or conceal material factors" (Casillo, 1992: 92).

5.4. A global campfire: Storytelling as inherent function of the digital technology artefact

The previous sections have shown how the digital technology artefact as interpreted via the Embodied Screen functions in relation to the presence of the individual, the other and the natural world and helps us to understand the phenomenon of digital technology in a more comprehensive way. The question of language has been introduced in this study, but could not be fully addressed beyond suggestions that language concretizes embodiment in the phenomenon of digital technology without a clear explication of how the digital technology artefact functions. Language is a central element of the Embodied Screen, entailing not merely interpretation or communication, but rather connection with and construction of a world that is latticed upon the digital technology artefact as means of sense-making via the phenomenon of digital technology.[397]

Structured language use is the inherent means whereby the digital technology artefact functions in its relation to the embodied individual in the Embodied Screen. The use of language via the digital technology artefact allows the imaginative construction and re-construction of a world in the spaces that have been opened up through the challenge of perceptual faith. Language in this context is specifically used to tell 'stories' (not as fiction, but part of sense-making) of these imaginatively signified worlds by means of the digital technology artefact, which ontologically constructs and concretizes a world.[398] The individual's use of language, based upon imaginative signification and latticed by the digital technology artefact, implies an embodied manner of constant and immediate storytelling that creates the individual's specific experience of the world via the *phenomenon* of digital technology.[399]

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[397] The embodied relation described via the Embodied Screen is central in this account of the digital technology artefact. Compare, for a narratological, artefactually based account of the functioning of the digital technology artefact, *Interactivity and Interaction: Text and Talk in Online Communities* (Page, 2010).

[398] As distinct from storytelling as entertainment.

[399] Sense-making, world construction and re-construction are concretized in language, in stories. Ironically, it is imaginative signification that leads to this form of concretized, embodied storytelling that allows the body of the individual to 'become' stories through the Embodied Screen that stands between the embodied individual and the 'symphony' or rainbow boxes. Booth states that we live a "great proportion of our lives in surrender to stories about our lives, and about other people's lives" (Booth, 1988: 153). The structure and necessity of imaginative signification through the Embodied Screen means that individuals cannot resist surrendering to stories; and in the phenomenon of digital technology this surrender forms an integral part of the functioning of rainbow boxes.

5.4.1. Sense-making by means of the digital technology artefact through the Embodied Screen

Language serves to concretize the process of imaginative signification within the lattice of the digital technology artefact, which allows sense-making of the imaginatively constructed world.[400] Philosophical anthropologist Pascal Boyer presents an anthropological generalization when he states in *Religion Explained* (2001) that the human instincts that fashion gods, spirits and ancestors function according to the same mechanisms that have allowed cognitive psychology, anthropology, linguistics and evolutionary biology to point to the idea that "human minds are narrative or literary minds" – that storytelling is a central way in which individuals engage with the world (Boyer, 2001: 233). Boyer, for example, speaks of the mind as telling causal stories to represent events in their environment – to re-construct events and to make sense of these events.[401]

A prominent question then, due to the central role of language in the Embodied Screen, is whether this drive towards storytelling is also found in the phenomenon of digital technology.[402] The concept of the Embodied Screen suggests so, for imaginative signification

[400] The use of language, as words or other forms of visual communication, is crucial for sense-making in the phenomenon of digital technology, rather than being based solely in communication between individuals. Compare with Jill Sinclair Bell's description of how narrative in everyday encounters function: "Narrative inquiry rests on the epistemological assumption that we as human beings make sense of random experience by the imposition of story structures. That is, we select those elements of experience to which we will attend, and we pattern those chosen elements in ways that reflect the stories available to us. Although the notion of story is common to every society, the stories themselves differ widely – one of the defining features of a culture is the story structures through which it makes sense of the world" (Duff & Bell, 2002). Narrative thus presents a way to make sense of the everyday world through the imposition of story structures. The Embodied Screen argues that language is used broadly for telling stories (not necessarily as structured narrative) that allow sense-making of the world encountered in engagement with the phenomenon of digital technology.

[401] The self, similarly, may be seen as the product of various kinds of construction wherein storytelling plays an integral role (Howe, 2008: 565). Compare also Merleau-Ponty's claim that "[t]he sensible is nothing but a vague beckoning… 'until it thinks itself in me'" (PP 248-249) and his discussion of *Becoming Phaedra* in "the actress becomes invisible, and it is Phaedra who appears" (PP 212).

[402] Different historical periods have different ways of telling stories, and with the rise of digital technologies, the realm of storytelling (in the historical sense of fanciful imagining) and the realm of a type of storytelling that is closer to a form of perceptual imagining, or imaginative signification as described in the previous section, have changed the way in which contemporary individuals, enmeshed in the phenomenon of digital technology, tell stories to each other. This storytelling circumscribes a way of looking at oneself, the world and the other through digital technology. Increasingly, storytelling as a means to make sense of the self, the world and the other has come to the forefront in digital human-technology interactions. Sense-making in the realm of digital technologies differs from non-digital interactions due to the fluid nature whereupon embodied perception is built (i.e. built upon the basic imaginative signification that is required to make sense of the world in the relation between the human and digital technology). This sense-making leads to a construction and re-construction of a world.

and altered language use only allow sense-making in the phenomenon of digital technology if it is structured in some manner. Because the human mind already has a predisposition with regard to storytelling, it may be argued that the way in which imaginative signification and language use occur via the lattice of the digital technology artefact is through structuring as stories.

These stories are not narratives that are planned and carefully crafted – storytelling does not take place retrospectively nor linearly.[403] Rather, via the Embodied Screen and the digital technology artefact, there is an immediacy of sense-making via embodiment, via storytelling. A world is imaginatively constructed and concretized via language on-the-fly as the individual engages with the unedited and constant stream of information that is presented by the Embodied Screen – in this account there is, on the basis of embodiment, a closer relation to dance (as in-the-moment embodied dynamics) than to reflective and considered narrative. Because of the immediate and pre-theoretical challenge to perceptual faith, and the resultant imaginative signification that plays a foundational role in sense-making via the Embodied Screen, there is an immediacy in storytelling as latticed by the digital technology artefact. Storytelling is a continuous process that is necessitated and stimulated by engagement with the digital technology artefact, for otherwise no perception of a world could take place – there is both a screening off and a creation.[404] Not just is language a disclosure, it is a form of ontological construction in the Embodied Screen (due to the central role that imaginative signification and language use play in these interactions).[405]

[403] Compare "[t]he crisis of narrative method in modernity is what to do with non-linear, almost living storytelling that is fragmented, polyphonic (many voiced) and collectively produced" (Boje, 2001: 1). Contrast also storytelling with the concept of *narrative transportation* (Green, Bock & Kaufman, 2004).

[404] Hannah Arendt's *The Human Condition* argues that the individual discloses him/herself to the world and to themselves through speech and action, that stories become intimately representative of human lives. She says that the "... disclosure of 'who' in contradistinction to 'what' somebody is ... is implicit in everything somebody says and does" (1958: 179). In the Embodied Screen this 'who' and 'what' are folded into each other, for there is no being without narrative construction that is built upon imaginative signification, as perceptual faith has been challenged in the phenomenon of digital technology.

[405] However, the Embodied Screen forms a porous screen (much like the membrane of a cell) that allows movement across its surface. Language and the altered use of language plays an important role here, for language engages with the flesh and the flesh presents a notion of Being itself (VI 248-251). Such considerations show why the Embodied Screen, as founded in embodiment and the flesh, is important existentially.

The digital technology artefact functions as latticed storytelling conduit, functioning through language – this is the most basic function of the digital technology artefact and describes the 'why' of the digital technology artefact in the Embodied Screen. The digital technology artefact 'calls' (through its presentation of information and its challenging of perceptual faith) and the body 'responds' (through imaginative signification and language) by telling stories to make a world. In other words, storytelling shapes the experiential horizon not only as means to perceive as such the world through the Embodied Screen, but also as mechanism to deal with the modulations of the flesh (techno-flesh) by the digital technology artefact that alters perceptual faith – the result is imaginative signification and the making of a world through stories codified in language. The digital technology artefact thereby engages both the embodied individual and the storytelling proclivities of the individual. The 'text' of this imaginative signification and storytelling forms the 'mysterious' matrix wherein the techno-flesh intersect between the individual and the digital technology artefact– a primary aspect of the digital technology artefact.

5.4.2. Communal, transpersonal imaginative spaces created by digital technology artefacts as understood through the Embodied Screen

Individual stories, through the bleeding out and blending of colours between metaphorical rainbow boxes, build upon one another to form collective stories that "create shared meanings, events and help individuals to interpret their actions in light of … particular social contexts" (Cunliffe & Coupland, 2012: 66). Such collective stories shape the societal views of the people in that society and of the world, and in a globalized society link embodied individuals together. In this sense the *phenomenon* of digital technology presents a broader social phenomenon, wherein the individual's embodied and perceptual horizons are expanded and linked through imaginative signification, language, and storytelling, latticed upon the digital technology artefact.

The movement from the 'call' of the digital technology artefact (the encounter with altered perceptual faith) and the 'response' of imaginative signification, language, and storytelling, serves to "connect actions, characters and plots with history and biography" (Gergen, 2005). What is generated is not a consolidated story, but reflects a type of "uncreative writing" that

includes elements of performativity and copying, as well as a close liaison of the experience of the individual (Goldsmith, 2011).

An image that may help to illustrate how this form of fluid storytelling extends between individuals via the Embodied Screen are examples of medical cases of conjoined twins who are joined at the head. A type of thalamic bridge forms in some of these cases, allowing the two 'individuals' to share a single physiological body and to perceive the world similarly – depending on the specific nature of how they are conjoined – for example, what one twin eats, the other twin tastes. To an extent, the Embodied Screen describes such a thalamic storytelling bridge (the digital technology artefact) functioning not merely conceptually, but based in the embodiment of individuals. The digital technology artefact(s), through its central function as conduit for language and storytelling, allows the formation of a continuous, dynamic, and communal imaginative space. While based in the structured digital technology artefact(s), this space is also dynamic through functioning under the auspices of imaginative signification. This continuous, dynamic, and communal perceptual space, this Embodied Screen, is a means for understanding the phenomenon of digital technology.[406]

These communal, transpersonal spaces influence how individuals engage with the world and with other individuals. The storytelling side of sense-making and construction and re-construction of a world was discussed in the previous section. Another such implication is how individuals as emotional beings engage with one another through the Embodied Screen. One may ask: What does the concept of the Embodied Screen say about how individuals interact through digital technology artefacts?

Individuals are immersed in an embodied manner with and via the digital technology artefact, opening up an individual to the latticed emotional attunement of the other. To describe emotional attunement, one needs a theory of embodiment. Emotions are for Merleau-Ponty contingent in relation to the body's organization, and are the way in which

[406] Compare "we may consider cyberspace (computer networks) … as extensions of the human body, and as such, we should investigate the significance … for 'inter-corporeal' human relationships" (Kim, 2001: 108). The Embodied Screen, though not founded in concepts such as 'cyberspace', describes the character of embodied inter-personal relationships in the phenomenon of digital technology and presents a possible response to the suggested further research of Kim (2001).

the embodied individual meets a situation. Feelings are invented like words (PP 189) through reflection on the repercussions of the physical, perceptive and expressive aspects of a person. Moods are attunements towards the world, embodied ways of being in the world. Digital technology artefacts present avenues for constructed attunement of such emotional states. Does this present an enhancement? A limitation? The Embodied Screen entails that our experience is coloured and structured, and the same happens to the emotional. Does this then present a highway for empathy? Through the 'symphony' of digital technology artefacts, such shared emotional attunements may be reflected in the social encounters of individuals, both when engaging through the phenomenon of digital technology and when not.[407] This suggests that the phenomenon of digital technology has at least the potential to facilitate such an 'empathic highway' through the central storytelling function of the digital technology artefact.

Through the Embodied Screen, one may describe the connection between individuals in the phenomenon of digital technology as a form of Communion.[408] The body of the individual becomes story, and this body-story is taken into the embodiment of the other. There is both an embodied and a spiritual element in this description. Story transcends and immerses individuals. To choose to disconnect implies a loss of an integral part of contemporary existence (a type of prisoner's dilemma of the digital age). By avoiding or withdrawing from the Embodied Screen one becomes as a blind man without a walking stick, which implies that one cannot but eat (while also becoming) the Communion 'bread' – as story.[409]

5.5. Dangers of the Embodied Screen

The Embodied Screen encapsulates how the embodied person engages with the phenomenon of digital technology. However, the description of imaginative vistas opening

[407] Compare Olivier (2011: 190-192) for a discussion on the relation between a phenomenology of the human condition and humaneness (particularly in terms of "tenderness, compassion, and sympathy").

[408] Communion is here not meant in its religious usage, as a Christian sacrament wherein consecrated bread (and wine) are eaten as symbol for the realization of a spiritual union between the blood and body of Christ and communicant. Compare, however, "sensation is literally a form of communion" by Merleau-Ponty (PP 245).

[409] Compare also Kearney's *Anatheism: Returning to god after god* (2011), especially page 85-100, and Kearney's 'Merleau-Ponty and the sacramentality of the flesh' for links between Merleau-Ponty's thought and Christian thought.

and beneficial effects of the use of digital technology artefacts should not be taken to normatively imply that the effects of the phenomenon of digital technology are only positive without recognizing the detrimental aspects of said phenomenon. It should be noted that normative claims will not be made in this section (as such claims move beyond the limits of the phenomenological method), but rather that these 'negative' effects of the phenomenon of digital technology may also be accounted for by the Embodied Screen.

Due to the foundational manner in which the Embodied Screen engages with one's perceptual horizons (through challenging of one's perceptual faith), it may be argued that the phenomenon of digital technology may have a distortive effect, screening off aspects of reality from the embodied person. It may be argued that the embodied person is less focused, has a shorter attention span and cannot adequately engage with the 'real' world that surrounds her. There is the potential for digital technology to be misused in this sense, to be charged politically or ideologically.

Furthermore, one may question after the dividing line between an imagination that allows one to notice potential within the real, the invisible within the visible, and an imagination that can no longer distinguish what is real, i.e. how the phenomenon of digital technology may be the engine of pathology. As the Embodied Screen folds all four types of imagination (perceptual, aesthetic, fanciful, pathological) into each other through hyper-modulation of the techno-flesh, how may one distinguish between what is perceptual and what is fanciful. When is the line between the Embodied Screen functioning as perceptual imagination, and the Embodied Screen functioning pathologically, crossed?

While the chosen methodology of this study (phenomenology) may not be geared to answer such questions, the use of theoretical perspectives such as critical theory may serve to enhance the insights of the Embodied Screen and to answer such critical questions.

5.6. Conclusion

The Embodied Screen encapsulates how the flesh as basis of perceptual faith is continually modulated in the relation between the embodied individual and digital technology

artefacts. The immersive modulation of the flesh (as techno-flesh) and challenging of perceptual faith is characteristic of the phenomenon of digital technology as described through the Embodied Screen. Digital technology artefacts thus encroach upon an individual and alter an individual through the Embodied Screen.[410] The reverse is also true, in the sense that the individual can alter, through emergent characteristics (such as imaginative signification and specific use of language), aspects of digital technology – she gives 'life' to the phenomenon of digital technology through the Embodied Screen; she gives (and receives) 'colour' to the individual rainbow box that allows the interrelation and bleeding out of 'colour' between various digital technology artefacts. This constitutes the complex phenomenon of digital technology.

Such emergent characteristics of the phenomenon of digital technology go beyond the simple, deterministic, instrumental use of digital technology artefacts, and imply something different (more experiential and embodied) than the design and construction of digital technology artefacts by engineers and inventors (which is an important consideration in SCOT, for example). These characteristics describe the phenomenon of digital technology in the lived experience of the individual in a multi-coloured way. It is the embodied engagement of the individual with the digital technology artefact that gives colour to the rainbow box (by means of the emergent potentialities that these forms of technology allow through their constructed lattices to allow imaginative signification and ontologically constructing language) and that allows the phenomenon of digital technology to be described through the Embodied Screen (by the embodied engagement of the individual with digital technology artefacts that function in this specific manner).

The structured and consistent modulation of the flesh by digital technology artefacts – which forms in our perception this mirror darkly of the self, the world and the other – challenges the individual's perceptual faith in an encompassing and entangled manner. Taking Merleau-Ponty's thought, and building upon the ideas therein, therefore allow for a description of the phenomenon of digital technology that is linked to the promotion of a style of being via transcendent 'rays of the [digital] world', across time and space, through

[410] This has specific ontological (in terms of reversibility and the chiasm) and existential (in terms of the flesh) implications.

their solicitation of the flesh. This is the genesis of sensibility in digital technology, for "he who sees cannot possess the visible [the digital which underlies the artefact] unless he is possessed by it, unless he *is* of *it* …" (VI 134–135). This chiasmically entwined duality includes also the faculty of sensing (by the individual) and the sensible thing (the screen). The sensible thing, the screen, promotes a style of being through transcendent 'rays of the world', across time and space, through its techno-flesh solicitations via the faculty of sensing.[411] In this description, it is the rainbow box that is the artefactual point of embodied modulation – that thing (object) that generates specific 'rays of the world' which are structured in specific ways (as conduits for storytelling) through the construction and design of the artefact, and which engages with the embodied individual via imaginative signification and altered language use to be fundamentally intertwined with the embodied subject, and which allows the phenomenon of digital technology to crystallize in and through the Embodied Screen.

[411] The flesh can capture the presence of things because it is in Merleau-Ponty's view elemental being, moving to adjust itself to the axes of the visible. This is the genesis of sensibility, for "he who sees cannot possess the visible unless he is possessed by it, unless he *is* of *it…*" [embodiment] (VI 134-135). Just as there is encroachment between the two poles of these 'dualisms', so the world encroaches upon us and alters us (this facet is a central aspect of the Embodied Screen, as in the phenomenon of digital technology the digital technological artefact and the embodied individual encroach upon one another). However, while we are *of* the world, we are paradoxically not *the* world (VI 127). The flesh is thus between the spatio-temporal individual and the idea (or incarnate principle) of bringing being where there is a fragment of being, an elemental being through which sensibility is possible (VI 139).

Study Conclusion: The significance of the Embodied Screen

Introduction

The phenomenon of digital technology has become an immersive and encompassing force for the modern individual, which suggests that philosophical reflection on this subject is needed. This study has developed a description of the phenomenon of digital technology in an initially Merleau-Pontian vein through the excavation and creative re-development of concepts inherent in his phenomenology of embodiment to develop a neologism: The Embodied Screen. The overall aim of the study was (as the title indicates) to develop a Merleau-Pontian account of the phenomenon of digital technology; to move from disembodied accounts of digital technology to an account through the Embodied Screen.

The Embodied Screen signifies the access point that exists as modulation between a 'symphony' of digital technology artefacts and the embodied individual, which implies a reciprocal engagement between both these two 'poles'. The screen, as part of the digital technology artefact, is the point of hyper-modulation of flesh (as techno-flesh). The techno-flesh allows passage between the embodied individual and digital technology artefacts in a unique manner that cannot but be described by means of embodied concepts, due to the embodied though reversible character of the individual in this relationship. Conceptually, the Embodied Screen is suggested as novel and crucial point of access to the contemporary phenomenon of digital technology by allowing deeper insight into the modern individual's lived experience and behaviour in her relation to this phenomenon. On the other hand, the Embodied Screen also allows a re-evaluation of the digital technology artefact, suggesting that the digital technology artefact functions to facilitate the opening of transpersonal, communal imaginative spaces through its storytelling-enabling potentialities.

In this conclusion of the study, a recapitulation of the main line of argument is presented first. This is followed by a critical evaluation of the limitations of this study. Next, the contributions made in this study are highlighted, and lastly avenues for further research

are suggested. The thesis concludes with a final reflection on the Embodied Screen, as developed in this study, highlighting its significance for gaining insights into the phenomenon of digital technology.

Main argument overview

Chapter One: Digital technology – Disembodiment and other methodological challenges

Digital technology, as a modern development in technological advancement, was described via its artefactual characteristics. However, it was immediately noted that digital technology may become hidden from the individual's estimation through its continued use, and that it may also develop very rapidly (making it difficult to reflect philosophically thereupon), problematizing a purely artefactual account of digital technology. Furthermore, it was postulated that digital technology has emergent characteristics that cannot be described through traditional approaches toward technology, and that naïve thought directs reflection towards apparent contradictions (regarding the question of individual presence, or the presence of others, via digital technology) through its use of concepts such as the 'virtual'.

The contemporary field of Philosophy of Technology presents a space for philosophical reflection on technology (beyond what may be gained from artefactual descriptions thereof). However, while the empirical turn in the field has led to both a greater systematization in the field, it has also led to a delimitation of the field's investigative potential. This delimitation is reflected in the prominence of pragmatism and SCOT, which focus on micro-analyses of specific artefacts and social epistemological approaches (as knowledge system) towards technology in general (and digital technology in particular). There is an inherent natural scientific methodological prejudice in these two approaches.[412]

[412] The high regard of rationalism in theories of Philosophy of Technology after the empirical turn is motivated by the ostensible fact that technology is designed through rational calculative thinking, and should be described philosophically using the same methods. While engineers and inventors design technology artefacts by utilizing such techniques, it does not imply that empiricism- and rationalism-based accounts of technology are the only (or should be the principle) means of philosophical investigating into the phenomenon of (digital) technology.

Posthumanism, as alternative, is limited through its focus on empiricism, its speculative thought, and the implicit disembodiment in its methodological starting points.

These aforementioned approaches render the lived, embodied experience of the individual inconsequential in technology theorizing. It was suggested that an account of the phenomenon of digital technology, as corrective to the methodological shortcomings of pragmatism, SCOT and posthumanism, should be based in the individual's lived embodiment. The underlying challenge of this study, therefore, was to find a description of digital technology that overcomes the disembodied instrumental rationality inherent in pragmatism, SCOT and posthumanism (to various degrees). In contrast, a foundational, encompassing and multimodal account is required that can make sense of digital technology in the lived experience of the individual. It was postulated that it is necessary to view digital technology as a 'phenomenon' as a means to gain further insight.

Chapter Two – Towards the phenomenon of digital technology

Phenomenology was presented as a methodological approach that could describe digital technology as phenomenon, that could describe the lived experience of this phenomenon by the individual, and that could overcome disembodied instrumental rationality in approaches towards the phenomenon of digital technology. Two classic approaches towards technology in the field were described: The Husserlian and the Heideggerian.

The Husserlian approach towards technology is similar to the anti-essentialist approaches found in SCOT. Husserl describes how rational calculative thinking infiltrates the broader cultural mindset through scientific ways of conceptualizing (including, in the view of Ihde, praxis and technological materiality), but in contrast to Heidegger does not merely view this form of thinking as destructive. Rather, such thinking may be pragmatically useful. In either case, a focus on social epistemology as system of knowledge with regard to technology renders little potential to focus on the specific challenges of the phenomenon of (specifically for this study) digital technology with regard to the individual.

Postphenomenology, as prominent development of phenomenological thought in the realm of Philosophy of Technology, also cannot adequately describe the phenomenon of digital technology due to the incorporation of empiricism and pragmatism into the classic phenomenological methodology (both pragmatism – in Chapter One – and empiricism – in Chapter Three – were deemed insufficient methodological bases for tracing the lived experience of the phenomenon in question, specifically through Merleau-Ponty's criticism of rationalism – as presented in Chapter Three). However, it was suggested that postphenomenology presents only one possible avenue of development of Merleau-Ponty's phenomenology of embodiment in the realm of Philosophy of Technology.

Although each of these insights allows particular reflection on technology, they fail to estimate the embodiment of the individual decidedly enough. In this study, the lived experience of the embodied individual has been presumed as central point of access to the phenomenon of digital technology, which should be reflected in descriptions of the phenomenon of digital technology.

Chapter Three: Merleau-Ponty's phenomenology of embodiment and the phenomenon of digital technology

Merleau-Ponty's phenomenology of embodiment was suggested as the starting point in creating a description of the phenomenon of digital technology that overcomes the limitations described in Chapter One. It was argued that his phenomenology of embodiment is a potential starting point for the development of a description of the phenomenon of digital technology from the basis of the body as the foundation for encountering and describing phenomena. Merleau-Ponty's theory of embodiment, which presents the embodied facticity as the zero degree through which one approaches any phenomenon, was consequently used in this study as a starting point for the description of the phenomenon of digital technology. A further inquiry into related concepts of Merleau-Ponty's phenomenology of embodiment (perceptual faith, flesh, imagination and language) suggested that the challenge of the phenomenon of digital technology necessitates a creative re-deployment and development of these concepts with specific reference to contemporary digital technology artefacts.

Merleau-Ponty's proto-account of technology suggests that technology functions merely as an extension of one's bodily abilities and through the habitual (and skilled) engagement of the body with technological artefacts. The phenomenon of digital technology has, however, characteristically emergent and immersive characteristics that cannot be adequately accounted for by Merleau-Ponty's early account of technology. An embodied account of the phenomenon of digital technology does not refer to mere extension of embodiment (as was discussed in Chapter Three, with Merleau-Ponty's proto-theory of technology example of the blind man and his cane, and the integration of skills into the body schema), but rather to the fully lived experience of the phenomenon of digital technology via the circuit that the Embodied Screen describes by the embodied individual.

Chapter Four – The Embodied Screen and the embodied individual

The above methodological considerations led to the concept of the Embodied Screen, developed as a creative expansion and re-deployment of Merleau-Pontian concepts. The Embodied Screen functions, methodologically and conceptually, as a corrective to both rationalist and disembodied accounts of technology, and a re-deployment (through the development) of Merleau-Pontian concepts that had been left largely unexcavated with regard to the phenomenon of digital technology – concepts such as perception, imagination and language. Further developing and creatively re-articulating inherent concepts from Merleau-Ponty's later work, such as the flesh (recapitulated as techno-flesh) and perceptual faith are in fact necessary to describe the phenomenon of digital technology.

It was argued that the emergent characteristics of the phenomenon of digital technology that arise in the unique, richly mutable and intertwined relationship between the embodied individual and digital technology artefacts are crucially part of the phenomenon of digital technology: challenged perceptual faith, increased imaginative signification, and altered use of language.[413] Through the Embodied Screen the phenomenon of digital

[413] The 'screen' in this concept is a play on words, which at once presents information for sense-making to the individual while also (at the same time) screening off information necessary for sense-making from the individual in the phenomenon of digital technology.

technology is described from the basis of lived experience, from the individual's embodied engagement with digital technology artefacts through specific modulations of the flesh that are caused by digital technology artefacts that lead to specific and unique emergent characteristics in the phenomenon of digital technology (this is conceptually what the Embodied Screen describes).

The Embodied Screen is not an isolated 'incident' or an isolated artefact's 'screen', but arises rather at a certain tipping point of encompassing immersion of the individual within digital technology artefacts (spatially and temporally). The point of encompassing immersion, over an extended period of time and across a multitude of digital technology artefacts, necessitates increasing imaginative signification to make sense of the self, the world and the other.

The Embodied Screen thus signifies the space from where a description of the phenomenon of digital technology – from the basis of embodiment; to develop a foundational description of the phenomenon – can be made from a foundational, encompassing and multimodal manner.

Chapter Five – Seeing the digital technology artefact anew through the Embodied Screen

Through the Embodied Screen the nature of the embodied individual in the phenomenon of digital technology may be explicated. However, the focus of the Embodied Screen may also be turned to the other end of this intertwined relationship, towards the digital technology artefact. Understood via the Embodied Screen, it becomes clear that digital technology artefacts challenge one's perceptual faith. This means the world as presented via the digital technology artefact, and the sense of oneself, of the world, and of others, is altered by the digital technology artefact. This challenge to perception necessitates imaginative signification for sense-making.[414] In this process of sense-making of oneself, the world and the other, language plays an important role (as the means, built upon the

[414] A text-to-text conversation with one's friend requires the construction of the entirety of one's friend through the imagination, for this is how one's friend would be encountered in non-digital interactions and from where sense-making may be extrapolated.

lattice of the digital technology artefact, whereby one imaginatively (re)constructs oneself, the world and the other).

The rainbow box is a metaphorical description of how the digital technology artefact functions via the Embodied Screen, as point of embodiment modulation through its techno-flesh engagement with the individual. This techno-flesh modulation suggests an increase in the embodied and perceptual horizon of the individual, which in turn affects how one could interpret questions of presence, of oneself and the other, and the individual's relation to the natural world in the phenomenon of digital technology.

The Embodied Screen does not merely encapsulate, however, the techno-flesh stimulation of a single digital technology artefact as the entirety of the phenomenon of digital technology. Rather, to return to the metaphor of the rainbow box, digital technology artefacts interconnect and interact. 'Colours'[415] 'intermix' between one rainbow box and another, and also 'bleed out' from the artefact haphazardly to shape the individual's broader engagement with the world and the other. This 'intermixing' and 'bleeding out' leads to the opening of shared, transpersonal and communal imaginative spaces.[416]

In this role via the Embodied Screen, the digital technology artefact functions as a conduit for language and storytelling to concretize worlds constructed by means of imaginative signification. These worlds arise from the individual's embodied facticity and shape how the individual relates with the world and with others. The complexity and far-reaching influence of the phenomenon of digital technology is acknowledged in this way.

Critical reflection on study limitations

[415] These metaphorical 'colours' denote the process described by the Embodied Screen: the challenge of perceptual faith by the digital technology artefact, and the human capacity for sense-making (or the striving for maximal grip) necessitating imaginative signification of a world which is then concretized by language as ontologically concretizing force via the lattice provided by the digital technology artefact.

[416] Compare the use of the term space in the context of the Embodied Screen with the use of the term by Merleau-Ponty. He describes space as consisting "of different regions and [having] certain privileged directions … closely related to our distinctive bodily features and our situation as beings thrown into the world" (WOP 43). The re-appropriation and re-deployment of Merleau-Pontian concepts by means of the neologism of the Embodied Screen is underlined hereby, showing this study's expansion of Merleau-Ponty's original terminological use through its application to the phenomenon of digital technology highlights the imaginative and shared character of such spaces.

Does the Embodied Screen allow for a satisfactory foundational, encompassing and multimodal description of the phenomenon of digital technology? I have argued in the affirmative, but the limitations of the Embodied Screen should be mentioned here. By taking its starting point from the basis of the lived experience of the embodied individual, factors such as the societal and political are reflected to a lesser degree. While the Embodied Screen may contribute to these discussions through its suggestion of how the individual relates to the phenomenon of digital technology, the limitations of the methodological route followed in the study suggest that the insights from other disciplines may also be needed (such as from, for example, Critical Theory). However, a major point in the development of the concept of the Embodied Screen is that it should allow multimodal engagement and be open to multi-disciplinary insights. Thus, while insights into, for example, the political are not primarily reflected in the concept of the Embodied Screen, the concept does allow a space of engagement for other disciplinary insights regarding these themes due to the basis of the study in phenomenology as multi-disciplinary school of thought.[417]

A second limitation may come from a posthuman critique. Posthumanism may question the choice made in the study to describe the body as a solid point of inquiry, though the said body is described phenomenologically as dynamic. Centrally in this study it is suggested that an embodied account need not move beyond inherent conceptualizations of embodied facticity, of the body as here and now without recourse to technological and philosophical speculation. The move towards the posthuman presents a move towards 'objective', 'view from nowhere' speculations, that contrast with the intention of this study to trace the lived experience of the embodied individual with regard to the phenomenon of digital technology. It was a methodological choice to focus on embodied facticity, rather than on embodied and philosophical speculation.

Thirdly, the methodology inherent in Merleau-Ponty's approach and broader phenomenology, which forms the basis of this study's postulation of the Embodied Screen, may be criticized.[418] On the one hand, the Embodied Screen may be described as idealist

[417] Refer to Section 4.4., where the multi-disciplinary character of the Embodied Screen is discussed.
[418] Refer to Section 2.4.1, where perceived limitations of the phenomenological methodology are presented and addressed.

and disengaged from the practical side of digital technology. However, the insights that were gained from the application of the Embodied Screen to the digital technology artefact highlight that the concepts developed in this study are not merely related to abstract conceptualization, but do reflect the practical character of digital technology – through a phenomenological description of embodiment.[419] Furthermore, the embodied nature of the individual in the circuit described by the Embodied Screen also relates specifically, practically, to digital technology.

Finally, it may be argued that the phenomenological approach utilized in this study is not open to normative engagement of digital technology and that it is merely descriptive of individual lived experience. However, the Embodied Screen as framework has distinct normative implications that may be traced through the engagement of other methodological approaches. While a brief overview of some normative questions regarding the Embodied Screen is given in Section 5.5., a focused normative inquiry would further enhance the phenomenological arguments of this study – particularly with regards to the implications of the Embodied Screen with regard to how individuals engage with the world and with others via the phenomenon of digital technology.

Main contributions

It was vital for this study to engage with and add to the current academic and philosophical debate. This study suggests five central contributions for philosophizing on the phenomenon of digital technology. The first is its methodological contribution to Philosophy of Technology, the second its suggestion for the development of Merleau-Pontian thought on technology, and the third its suggestion for the neologism of the Embodied Screen as the basis for a new way of viewing the phenomenon of digital technology. This study also presents an avenue for further insight into the phenomenon of digital technology through a reformulation of the nature and function of the digital technology artefact, and through a reformulation of the individual's being with others and with the natural world via the Embodied Screen.

[419] Refer to Chapter Five for an encompassing discussion of the digital technology artefact as seen through the Embodied Screen.

Philosophy of Technology (methodological)

This study suggests that the central approach towards the phenomenon of digital technology should be taken not from a purely social or pragmatic perspective (such as found in SCOT or pragmatism), but rather from the perspective of embodiment in the individual's lived, everyday experience. Describing the phenomenon of digital technology from this perspective allows one to trace the lived experience inherent in such technological encounters, and to discern how such technological encounters alter human perception and behaviour.[420]

This contribution links directly to methodological debates in Philosophy of Technology, particularly with regard to the empirical turn and to debates concerning broader conceptualizations of the phenomenon of technology (essentialist perspectives on technology, particularly as relating to earlier commentators on technology in contrast to contemporary, systemized analysis of the subject).

Phenomenology (novel re-deployment and development of Merleau-Pontian concepts)

This study suggests a route for the re-deployment and development of Merleau-Ponty's embodiment for the contemporary digital technology age. In particular, this study suggests the potential for a re-deployment and development of concepts such as 'perceptual faith' (by framing it as challenged by digital technology artefacts), 'flesh' (as techno-flesh through modulation by the digital technology artefact), 'imagination' (as foundationally embodied and for sense-making in the phenomenon of digital technology), and 'language' (which becomes a concretizing ontological act through the specific functioning of the digital technology artefact). Herewith, particularly through the postulation of the Embodied

[420] Implicit in this assertion is that the embodied facticity itself does not disappear. Furthermore, the embodied individual may 'disconnect' from the phenomenon of digital technology for periods at a time, which suggests that though these embodied horizons are expanded, the individual's foundational embodiment is not changed to the extent described in posthumanism (as becoming a 'cyborg' in the parlance of Haraway). Compare, for example, her lack of distinction between individual and device: "Late twentieth-century machines have made thoroughly ambiguous the difference between natural and artificial, mind and body, self-developing and externally designed, and many other distinctions that used to apply to organisms and machines" (Haraway, 1991: 152).

Screen and the digital technology as rainbow box, is suggested a foundational expansion of Merleau-Ponty's proto-theory of technology.

These suggestions imply that postphenomenology, through its methodological turn towards pragmatism and empiricism (reflecting the empirical turn in Philosophy of Technology), presents only one avenue for embodied reflection on technology. Inherent in Merleau-Ponty's thought is also the capacity to trace the lived experience of the embodied individual via the phenomenon of digital technology in a different manner (as described in this study).

The phenomenon of digital technology (conceptual)

This study reconceptualizes the phenomenon of digital technology through the neologism of the Embodied Screen – as the intertwined relation between embodied individual and digital technology artefact which leads to specific emergent characteristics. A primary contribution of the Embodied Screen is the delineation of how digital technology artefacts alter the individual's perceptual faith, which necessitates increasing imaginative signification and alteration of how language use as storytelling takes place in this milieu.[421]

The Embodied Screen describes, through reflection on how language is used via the lattice provided by the digital technology artefact, the creation of a communal and transpersonal imaginative spaces. The methodological contribution made in this study through the Embodied Screen suggests a move beyond micro-studies of the digital technology artefact, allowing an avenue for reflection on the specific digital technological artefact through the encompassing framework of the embodied individual that engages with these artefacts.

Reformulation of the digital technology artefact

Insights from the concept of the Embodied Screen allow a re-conceptualization of the digital technology artefact. Functioning within the circuit circumscribed by the Embodied

[421] Language is used in this context not merely as linguistic or hermeneutic, but as phenomenologically embodied in a unique manner in the Embodied Screen. Language becomes an ontologically concretizing force, a new way of telling stories through an alteration of the function of storytelling, in the Embodied Screen.

Screen, the digital technology artefact acts as a specific point of embodiment modulation to expand the embodied and perceptual horizons of the individual. Questions of presence (of the individual and the other) and experience of the world are answered in suggestive new ways to show that the digital technology artefact may be primarily described as a latticed conduit for the construction of a world (via language use) in light of the necessitated imaginative signification by the perceptual faith challenge of the digital technology artefact. The digital technology artefact functions to allow storytelling, for example, to take place in an altered and ontologically constructive manner.

Reformulation of the individual being with others and with the natural world via the phenomenon of digital technology

The Embodied Screen also challenges traditional conceptualizations about the ways in which the individual relates to the other and to the world through the phenomenon of digital technology. Instead of the phenomenon of digital technology separating individuals, the Embodied Screen allows a reconceptualization of individuals entering into bodily communion through digital technology artefacts with each other and with the world. The phenomenon of digital technology thus no longer acts as a separating phenomenon (separating the individual from others and from the world), but as a latticed conduit through which the individual may engage in an embodied manner with the other and the world.

Avenues for further research

Throughout this study, several aspects to be considered for future research have been highlighted, which will be recapitulated here. The first links directly to the final point identified as a limitation of this study.

Normative aspects

The Embodied Screen as concept is founded in phenomenology, but its description of the relation of the embodied individual to the world and to the other has definite normative

implications – some of which were mentioned in Section 5.5. These normative implications include the question of environmental damage and how the individual relates to the natural world. The Embodied Screen suggests a much closer relation between individuals and the natural world, and through the functioning of the digital technology artefact may call the individual to an ecological responsibility.

Narrative aspects

While this study focused only on how the use of language is altered in the Embodied Screen (as storytelling and ontologically concretizing force), further research may be conducted into the ways in which narratives (as structured and constant forms of storytelling) are constructed via the Embodied Screen from the level of human subjectivity, and how hermeneutics function in the phenomenon of digital technology. A formalized analysis of the processes described by the Embodied Screen, particularly with regard to the individual's choice in how to construct and engage with the stories of others, may be conducted from this point.

Sociological implications

The intensified imaginative signification and narrative construction of the Embodied Screen also encompasses societal levels, when a multitude of individuals engage in communal, constructed imaginative space to tell stories. These spaces, and the stories and constructed narratives that arise therein on societal levels, may be traced sociologically in future research. Especially interesting in this regard would be the presence of socio-political biases that arise in these spaces, and how these biases may be open to political manipulation (think of the promulgation of post-truth rhetoric in contemporary news media and political discourse). How the stories and constructed narratives that arise in these spaces influence societal change may also be investigated by means of the concept of the Embodied Screen.

Southern African connections

Finally, the relation between African concepts of Ubuntu and communality presents a means for the Embodied Screen as concept to engage with the contemporary southern African debate. The phenomenon of digital technology, storytelling (as prominent tradition in the southern African context, especially as related to oral traditions) and the body as universal means of engagement with the world are linked via the concept of the Embodied Screen. Fruitful insights may thus be gained from the Embodied Screen as concept that links these seemingly disparate concepts, and provides the means to engage in a responsible manner with technological imperialism.

Final reflection: The Embodied Screen as crucial access point to the phenomenon of digital technology

This study has shown the necessity of moving from disembodied descriptions of the phenomenon of digital technology towards a description that is based in the embodied, lived experience of the individual. The aim was to develop a Merleau-Pontian account of the phenomenon of digital technology: from disembodiment to the Embodied Screen. The unique relation between the embodied individual and the digital technology artefact, which leads to specific emergent characteristics (such as the challenging of perceptual faith by the digital technology artefact, the need for increased imaginative signification and the altered use of language as ontologically concretizing agent), suggests that the neologism Embodied Screen is crucial to describe the phenomenon of digital technology in a foundational, encompassing and multimodal manner. The Embodied Screen presents a description of the phenomenon of digital technology that allows one to trace the ways in which one's embodied being is stimulated, shielded, channelled, amplified, and mediated by digital technology artefacts. Such a description shows how sense-making takes place and investigates how one constructs and re-constructs the self, the world, and the other, through a storytelling that is latticed through the digital technology artefact and through this artefact's engagement with a web of other digital technology artefacts. Sense-making here describes how, through the Embodied Screen, the individual labels, categorizes and creates stories that make the world and the other understandable from the basis of the

individual's embodiment before theorizing and rational analysis through the creation of shared imaginative spaces and meanings.[422]

The Embodied Screen allows a novel perspective on both the embodied individual and the digital technology artefact in this intertwined, dynamic relation through the flesh (as techno-flesh). Merleau-Ponty describes the flesh being "at the intersection of my views and at the intersection of my views with those of others" (VI 83-84); thus, being in those intermundane spaces (*intermondes*) or interworlds that render an objective account of reality impossible (Moran, 2013: 360). Between the individual and other individuals there are gaps that can only be filled with God's eye view. However, the Embodied Screen describes how, through the functioning of a 'symphony' of digital technology artefacts, these intermundane spaces recede as the ocean at low tide. New spaces of imagination are created, latticed upon the digital technology artefact and the individual's embodiment, and these spaces are shared, communal. In these spaces is found a form of communion, a shaking of hands that forms one's being in the phenomenon of digital technology through a mutual crossing over.

The encompassing and immersive nature of the Embodied Screen means that one is rarely disengaged from the process of imaginative signification and from the construction and re-construction of the self, the world and the other through altered language use and storytelling that begins in the digital technology artefact. The Embodied Screen is a critical concept in the modern era, for one carries it around like a skin. Such a recognition implies that the Embodied Screen entails a call to reflect responsibly on how one engages with the world and the other through the phenomenon of digital technology, an engagement that is neither of oneself nor of the artefact. Such an engagement can never be inert, simple.

[422] One possible suggestion of the Embodied Screen is that, because self and world are mutually constitutive in phenomenological description, one may plausibly understand dispersed digital technology artefacts to fragment the 'world', or sense of 'self', of the embodied person who uses such immersive and enveloping technologies.

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