



HUMANITIES-ENRICHED INFORMATION SYSTEMS

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Abstract

The audience will be stimulated to think about the relationship between the humanities and information systems in a way opposite to the usual. A lot of research has been conducted on the application of computing in the humanities, but this panel will explore the reverse process of enrichment that takes place. The purpose is to give recognition to work that has already been done in this regard by means of identifying a substantial sub-discipline, but also to stimulate more and deliberate research that explores ways to enhance information systems by interweaving insights and methods from the humanities. The panel believes that such an endeavour may enhance ICT to empower the communities using these technologies.

Keywords: Humanities, Information Systems, Ontology, Philosophy

1 BROADER THEME

- IT in non-commercial contexts

2 FOCUS OF THE PANEL

- The theme of the panel is: "Humanities-enriched information systems"
- The target audience is all informaticians and humanities-computing scholars, especially researchers using approaches and insights borrowed from the humanities in the analysis and design of information systems, for example:
 - Linguistic approaches (syntax, semantics or pragmatics) in systems analysis
 - Philosophical wisdom that is deeply embedded in systems, for example in information systems ontologies
 - The use of principles from the visual arts
 - The interaction between Social Psychology and Information Systems
 - The ACM curriculum design from a humanities-enriched perspective
- Value adding for the audience: The audience will be stimulated to think about the relationship between the humanities and information systems in a way opposite to the usual. A lot of research has been conducted on the application of computing in the humanities, but this panel will explore the reverse process of enrichment that takes place. The purpose is to give recognition to work that has already been done in this regard by means of identifying a substantial sub-discipline, but also to stimulate more and deliberate research that explores ways to enhance information systems by interweaving insights and methods from the humanities. The panel believes that such an endeavour may enhance ICT to empower the communities using these technologies.

3 MEMBERS OF THE PANEL

- The panel will be chaired by Jan Kroeze (North-West University), who will start the discussion with an introduction and overview
- Hugo Lotriet (University of Pretoria)
- Nehemiah Mavetera (North-West University/University of Pretoria)
- Mark Pfaff (Indiana University)
- Dirk Postma (University of Johannesburg)
- Kosheek Sewchurran (University of Cape Town)
- Heikki Topi (Bentley University)

4 STRUCTURE OF THE PANEL

The panel will be structured as follows: Jan Kroeze will chair the panel, while other members will each give a seven-minute introduction on a sub-theme of the topic. This will be followed by a discussion between panel members and the audience.

5 INVOLVEMENT OF THE AUDIENCE

The audience will be encouraged to ask questions, give criticisms and suggest ideas that may be used in further research on the theme.

6 SHORT INTRODUCTION

Information Systems (IS) is regarded as an interdisciplinary science. Although it mainly focuses on social aspects regarding the development and use of software in organisations, it also deals with programming and algorithms and, therefore, contains elements of mathematical and physical sciences. In addition, insights from the humanities are as important for this discipline, although this is not always recognised or valued. Many papers, books and articles have been written on humanities computing, i.e. the computer-based study of various humanities disciplines. However, not that much is available on, what may be called, “humanities-enriched computing”, meaning a humanities approach towards various aspects of computing and IS.

Jan Kroeze will start the discussion with an introduction and overview. Some ICT disciplines, like Information Science, may be regarded as the humanities branch of ICT, because they developed out of humanities disciplines like library science. However, humanities approaches are also present and embedded in other branches of ICT. One outstanding example is the current upsurge in the study and use of “ontologies” in information systems. Ontology has traditionally been (and still is) a philosophical discipline that has studied the nature of existence. It has fitted into a bigger meta-narrative, such as rationalism. In a certain time and philosophical era, there usually was, therefore, only one correct or current Ontology. The plural of this word did not exist, which explains the fact that the plural form, ontologies, is not even recognised by the spell checker of a word processor such as MS Word. The shift from ontology to ontologies was probably prompted by the postmodern era that we live in. The IS use of the term ontologies was coined in 1967 by Mealy (Buchholz, 2006:695), and, maybe, this is not by chance only five years after the publication of Kuhn’s “The structure of scientific revolutions” (Tarnas, 1991:397, 465), which may be regarded as one of the milestones in postmodern thinking. According to Tarnas (1991:395), it is typical of the postmodern era that there is “a constant change of reality and knowledge”. When one is confronted with various IS ontologies addressing the same subject area, one is actually dealing with the typical postmodern condition in which “[a] chaos of valuable but seemingly incompatible interpretations prevails, with no resolution in sight”, but which also creates new challenges for scientists to clarify and reconcile these (Tarnas, 1991:409). According to Tummarello et al. (2008:468), “[a]greeing on an encoding scheme is an obvious step for interoperability...”.

Three panellists will explore IS ontologies in more depth. In his discussion, “An ontology driven software development framework”, **Nehemiah Mavetera** looks at the mechanistic nature of organizational information systems and attributes this trait to the way software products that run in these systems are developed. The principles of reductionism, systematicity and system formation that are adopted during the software development stages overlook the importance of capturing the softer elements of organizational systems. He also notes that organizational elements, such as semantics, pragmatics, culture and the social context, are not captured in the software product. In the discussion, he will introduce ontologies to aid in the capturing of these humanistic elements. At the end, an ontology driven framework, an ontology driven software development approach together with a software development methodology are proposed that should be used in development of software products to bridge the gap between the mechanistic and romantic organizational systems. This discussion proposes to move the software development paradigm and approach for organizational systems from the functionalist to the humanist paradigm. The discussion takes into account that as social constructions, organizational systems should be people centric and they must not negate the human element in these systems.

Dirk Postma reflects on ontology too, but more from a philosophical side. His topic is “Information systems and philosophy: a reflection on ontology”. The design of information system ontologies is mainly motivated by a pragmatic concern about the most effective engineering processes. This pragmatic concern leads towards a relatively weak development of its own theories and strong dependence on theoretical insights from other fields, among which philosophy. The way in which

these theories are used is, however, a matter of concern because of the tendency to draw on complex theories in an eclectic way. In order for philosophy to enrich information systems, close attention must be given to the complex and contested nature of its theories. This reflection wants to illustrate how a more responsible approach to a philosophical theory could be of value to the development of ontologies in information systems (Smith, 2003). The conception of ontology in actor-network theory is used to show that information systems ontology does not only represent reality, but that it contributes in important ways to the construction of realities (Mol, 2002). These constructions of realities are problematically based on systems of classification (Bowker & Star, 1994). The speaker cautions against both the unreflective proliferation of ontologies and the attempts to create a meta-ontology. Designers of ontologies should be critically aware of the politics of ontology (Verran, 2007) and of the real effects of their work that may not benefit everyone equally.

Heikki Topi will also discuss the use of the conceptual foundation and language related to ontologies in computing in general and information systems in specific. He will anchor his remarks around a long-term NSF and ACM funded project that is developing an ontology for computing. The purpose of this project is to improve our understanding of the field of computing and the relationships between subdisciplines of computing. It is intended to support curriculum development projects in computing, with a specific focus on the development of bodies of knowledge in computing disciplines. The lessons from this project highlight the importance of building any scholarly and pedagogical work related to concept structures on a strong foundation that relies on work in philosophy, cognitive science, artificial intelligence and computer science. The project also suggests a connection between humanities and the key areas in which information systems provides unique value within computing.

Other panellists will look at other humanities issues in IS. **Kosheek Sewchurran** contributes by exploring the ACM curriculum design using principles from the embodied cognition (enaction) and phenomenology. There are a number of established ways of accessing curriculum design in information systems such as the ACM 9002, etc. These have been the primary means by which universities assess the adequacy of their undergraduate programs. At post-graduate level significant effort goes into making epistemological assumptions known and this has resulted in a number of humanities-enriched efforts. This panel presentation will explore the ACM curriculum design from a humanities-enriched perspective using the work of existentialist phenomenologists Martin Heidegger, Merlou-Ponty and Maturana and Varela. The presentation will attempt to do a principled assessment using principles from the embodied cognition (enaction) and phenomenology.

Mark Pfaff changes the focus towards the arts. C.P. Snow's "The Two Cultures" lecture published in 1959 argued that there is a "gulf of mutual incomprehension" between the culture of arts and humanities and the culture of science. Snow's complaint was that artists had no understanding of science, nor did scientists understand anything about the arts. However, a convergence is suggested by the fairly recent appearance of the concept of aesthetics in the IS literature. It is often applied in unskilful ways, ranging from a catchall term for the sensory aspects of user experience, to simply a lofty synonym for "pretty." Fortunately, some researchers have done ample justice to the rich philosophical contribution of aesthetics in information systems. A discussion of some of the more thoughtful approaches to aesthetics in information systems will explore whether we are seeing a movement toward unification, or only an asymptotic approach in which the two sides never quite meet.

Some of these introductions have already touched on aspects in the social sciences too. **Hugo Lotriet** will take this idea further and examine the interaction between Social Psychology and Information Systems in the context of change-focused research. The panellist will discuss briefly the impacts of the following social psychologists: (1) The Americans Kurt Lewin and James Dewey on Action Research (Baskerville and Wood-Harper, 1996); and (2) The Russians Lev Vygotsky and Alexei Leont'ev on Activity Research in Information Systems (Korpela *et al.*, 2002). The panellist will argue that a large part of IS research is simply applied social psychology and that productive focus areas for future IS research could be identified through identifying current discourses amongst researchers in social psychology.

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