Do We Mean Information Systems or Systems of Information?

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ABSTRACT

This article raises questions about the nature of information systems and the way they are designed and developed, and suggests areas where IS researchers may wish to investigate. I raise the issue whether the domain of information systems should be thought of in terms of systems of information rather than through the mnemonic IS which might help highlight wider considerations. In the article, four questions are raised, deemed as appropriate to information systems research. These questions are about the nature of IS, design methods, the underpinning philosophy, and IS failure. By raising these four areas of concern in this article, the intention is to stimulate debate rather than provide answers.

Keywords: action research; client centred design; client consultation relationship; information system design; measuring IS success; requirements definition; systems theory

INTRODUCTION

The launch of the International Journal of Information Technologies and the Systems Approach (IJITSA) is opportune. It provides a much-needed platform for information systems (IS) researchers and practitioners to explore ideas that focus upon topics that together make up the domain of information systems. My reason for making this statement is that, in many instances, papers are published elsewhere in which information systems (as a domain on knowledge) is rarely explored: the implication being that there is universality of understanding about the nature and composition of IS. IJITSA provides opportunities for researchers and practitioners to make a significant contribution to this complex domain of knowledge.

The range of knowledge and the variety of skills that IS embraces makes its definition, in terms familiar to the more traditional areas of expertise, difficult to achieve. The mnemonic IS has added to the difficulty and examples can be found in the literature where IS and IT are used as if they are the same thing. This apparent confusion may be seen, by some, as a weakness. What we can say is that information systems defines our branch of learning, our discipline. The practice, however, is concerned with gaining understanding about systems of information. The separation serves to emphasise our branch
of learning; that is, IS relates to the intellectual underpinning and associated learning about the domain, and systems of information refers to our area of interest, that is, the situation where we take action and from the lessons learnt contribute to the formation and reformation of knowledge about the domain.

To this end, rather than attempt to define information systems, I have chosen instead to raise four issues in the form of questions which I believe reflect important areas of research and practice, which will contribute to the body of knowledge. The first question is: What are information systems? The second question relate to methods: How do we set about designing information systems, and what approaches do we use that are distinctly IS? The third question relates to the philosophical ideas that underpin IS as a subject domain. Finally, what constitutes a failure?

**WHAT ARE INFORMATION SYSTEMS?**

The fact that computers are at the heart of most businesses should not lead us to assume that systems of information (our territory) is about computing any more than it is about marketing or stock control. It is about all of the components that together make up a system of information for the collective clients. There is a difference between data processing and information; people are interested in identifying and understanding what a data object means, but computers only need to identify data objects. Traditional Data Processing (DP) is not concerned with information because it produces data that are used to guide routine activities without being explicitly interpreted to the activity and the human actors informed by the data. It seems axiomatic that such methods are deficient when looking at the “system” as a whole and, at best, should be considered as a subset of tools that might be used within a study. The knowledge base of information systems (as a discipline) is concerned with information technology (IT), but it also requires an equal knowledge of other areas, including social and management science and of business practices. To this end, we should reflect upon our IS curriculum and ask if it reflects the distinctiveness of IS or is it here that the confusion between IS and IT begins? (see Work, 1997, for an interesting discussion on IS curriculum). IT systems development focuses upon the technology and the way that it might be used to assist the client (end user) undertake some tasks, whereas IS is more concerned with the knowledge and skills required first to gain understanding and then to improving the clients system of information as a whole.

The failure of commentators to differentiate between IT (data) and IS (information) has resulted in a profusion of what are effectively data processing systems that are often, unthinkingly, called information systems. My position here is that we should think of the “territory” as a system of information and, as such, consider the whole in the mereological sense—the relations of part to whole and the relations of parts within a whole (Varzi, 2004). The information systems professional should consider all parts, human and technical and the relationships between them (see Figure 1).

So where does this leave us? We can say that systems of information are formed from inter-related information units and the relations between them, and as a consequence, our primary task is to understand the purposeful actions of those that make up the system of interest and describe the systems of information that enable it. In other words, our first task is to consider what system is to be served (Checkland & Scholes, 1999; Winter, Brown, & Checkland, 1995) and then model the serving systems (systems of information)—that is, first “attempt to identify the whole relevant system and its components” (Checkland & Scholes, 1999).

The importance of understanding the relationship between information and associated connections within an enterprise cannot be overstressed. It is this distinction that makes IS practice different from that of IT, which is more concerned with the technological requirements of the situation of interest. Our first challenge is to ask ourselves if there is an over-reliance upon methods of design and development that come from computing and software engineering, and...
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