

## Call for papers:

The Australasian Journal of Information Systems - AJIS calls for papers to be published in a special issue: *Design Research for Decision Support Systems Development*.

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Section\*  Design Research for Decision Support Systems Development

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## Special Issue Summary:

- **Problem area**

Studies of decision support systems (DSS) development have had a long history of utilising design research paradigms (Arnott and Pervan, 2012 and 2008). In a recent study, Arnott and Pervan (2012) reported that of 1167 DSS research papers, 362 were classified as being concerned with DSS design research. This implies that the issue of design research within DSS is well-developed and mature, but the approach is still emergent and we consider that there is a requirement to explore it at a broader level in order to achieve innovations applicable to all stages of DSS development. For instance, Carlsson and Turban (2002) suggested four areas of DSS design innovations: designing methods and instruments; designing useful computer-based applications for improved decision support; designing

decision-maker oriented processes; and designing flexibility in separating data and models in DSS applications are areas worthy of further investigation.

Prior DSS development projects within the areas of unstructured, semi-structured and well-structured problems have been explored using technological developments such as ontologies, user-centred design (UCD), simulations, data mining and business intelligence approaches. These approaches are designed to enhance the elicitation of decision problems and for designing support strategies (Haghighi, Burstein, Zaslavsky and Arbon, 2013; Keen and Gambino, 1983; Meensel, Lauwers, Kempen, Dessein and Huylenbroeck, 2012; Mackrell, Kerr, and von Helens, 2009; Miah, Kerr and Gammack, 2009). However, when implementing innovative IT systems (e.g. a DSS artefact) design research methods have not been explored to a level allowing a mature understanding and, in particular, presenting useful guidelines addressing the combined requirements of technologies, people and organisations. This concern was raised in a recent study by Gregor and Hevner (2013) where it was argued that design research has yet to attain its full potential with respect to the effective development of information systems (IS) applications. This is because there are gaps in the understanding and application of design methods and relevant concepts. We think this concern needs to be explored within the domain of DSS development

- **Background of DSS**

DSS has long been a major research area within the IS discipline. It focuses on system development activities that help identify, develop, innovate, implement, support and improve organisational, managerial, operational and other decision-making practices. The application of DSS development techniques can be viewed everywhere in every aspect of organisations and businesses; including e.g. hospitals (Walczak, Pofahl and Scorpio, 2002) and agriculture (Walker, 2002). Hosack, Hall, Paradice and Courtney (2012) suggest that DSS development research needs to shift its focus to the delivery of more customer-centric solutions. This implies that a significant research challenge still remains for DSS design, especially with DSS artefact design, to ensure appropriate decision support features are available to all stakeholders. The diversity of DSS artefact design has been defined in four dimensions: construct, model, method and instantiation (Arnott and Pervan, 2012). The analytical study by Arnott and Pervan (2012) called for immediate research attention to be directed towards DSS research design and its relevance to theory development.

- **Background of the target gap**

DSS development research has indicated the need to develop and employ more rigorous methods for DSS development (Arnott and Pervan, 2005, 2008; 2012; Miah, Kerr and von Helens, 2014). This need can be addressed through a substantial exploration and improvement in design research that may ensure DSS development quality and relevance, by accommodating the system and its users and acknowledging the context of its use (such as the key components of technologies, people and organisations). We consider that it is of paramount importance that we explore the full impact of design research for DSS development and identify if there is a lack of proper utilisation, understanding of legitimate design research frameworks and artefact design concepts when we attempt to capture relevant organisational needs (Hevner, March, Park, and Ram, 2004).

- **Objective of the special issue**

The aim of the special issue is to elicit design studies that will help improve, reposition and accelerate our current knowledge of design research for DSS development and research. We are looking for complete research papers, literature analysis and commentary essays that may introduce and promote contemporary techniques to develop various purpose-specific DSS artefact development and evaluation in any problem area. The targeted studies may propose a new or personalised design research framework for DSS development research. Possible topics for the special issue include, but are not limited to:

- DSS design studies in the health or medical and/or healthcare domains
- DSS development methodologies for decision support in sustainable industries
- Business intelligence/business analytics applications for businesses
- DSS design using techniques such as ontologies, business analytics, web of things, RFID and various AI tools
- DSS development histories capturing design research details
- DSS development research by any other methods that may contribute to design research.

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