# Implementing open source software to conform to national policy

Lizette Weilbach

Lizette Weilbach, a senior lecturer in the Department of Informatics in the University of Pretoria's School for Information Technology, recently had the honour of receiving the Highly Commended Award of Emerald Group Publishing at the Group's Literati Network Awards for Excellence 2012. Weilbach's paper on implementing open source software was published in the Journal of Systems and Information Technology.

This paper reported on some of the findings of the case study research she completed for her PhD thesis, under the supervision of Dr Elaine Byrne. Her research interest is related to information technology (IT) change management and the social context of IT. The case study on which she reported in the article was executed in one of South Africa's government departments, and helped her to illuminate on how an imperative government policy, such as the new South African policy on open source software, which seems to compel all government departments to migrate from proprietary software (PS) to open source (OS) software, has impacted on the nature and implementation process of a new Open Source Enterprise Management System (EMS). The internal alignment of the divergent voices in government indicated that the organisational environment, change management strategies and technology need to be aligned.

Change management in the information and communication technology (ICT) environment presents a number of challenges. One of the effects of globalisation is that the new form of business operates in a networked economy, largely facilitated through ICT. It follows that ICT development, together with deployment and supporting policies, takes place in this fiercely contested globalised political economy. Furthermore, the rate at which change occurs rises with these globalising effects, and organisations are continually experiencing change processes, many of which are externally imposed.

This case study explored two main aspects of the change process. The first was the impact of the national open source policy on government departments, with the accompanying externally imposed change of mission, vision and values. The second was how the government department changed its internal work processes and information systems to comply with that policy. These two aspects are intertwined.

Alignment of the organisation's mission, values and objectives with the proposed technological innovation and change management models emerged as a necessary condition for managing change. However, what emerged as a more challenging issue was whether internal organisational changes could be aligned with contentious national policy imperatives.

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Several information change management models have been developed to gain a broader understanding of change management in a complex environment. As each change context is unique, process-oriented theories encourage an enabling rather than a controlling approach to managing change. One such model is the Improvisational Change Model of Orlikowski and Hofman, which was published in the *Sloan Management Review* of 1997. This model is based on two major assumptions: change is an ongoing
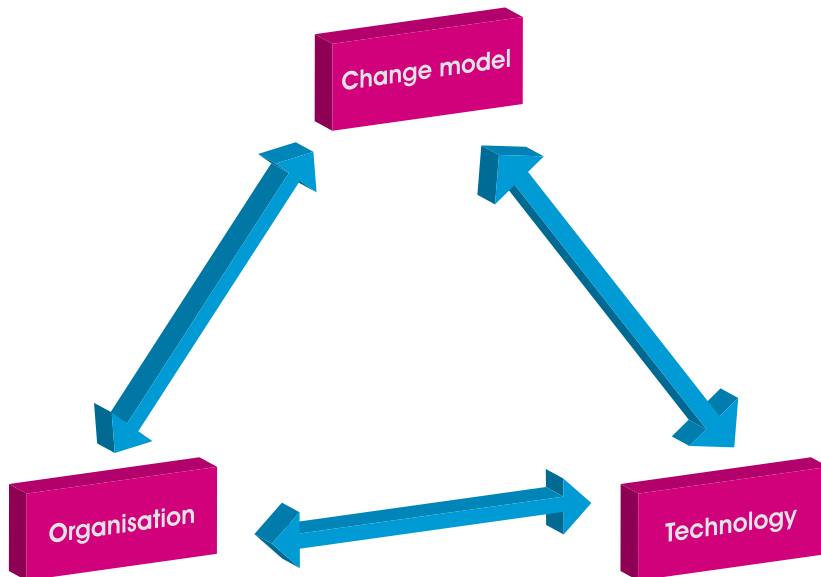
process; and not every technological and organisational change can be anticipated in advance. This model is ideal for situations where it is difficult to determine the exact changes that will occur when implementing new technology and where it is consequently difficult to determine the impact of these changes on the specific organisational context.

The key dimensions referred to in this model are technology, the organisational context and the change model (see Figure 1). It is important to note that the alignment of these three dimensions requires explicit and ongoing assessment and modification.

When trying to make sense of the complex environment in which IT change takes place, it is important to analyse the human and social environment in which the IT is implemented to facilitate its adoption, use and integration in a socially responsible manner. The social factors present in the human environment include people, organisations, groups,

tasks, environments and technology. These contexts should be viewed as a collective that is tied together by a human environment.

Based on the case study, the researcher found that in order to implement an open source ECM system in a government department, it was important to recognise that changing from a PS to an OS system was an ongoing process. It was also found that the allocation of specific resources to the change process (such as the PS ECM specialist) without the alignment of the three key change dimensions indicated in Orlikowski and Hofman's improvisational change model meant that the change was difficult to implement.

As users found it difficult to put the training into practice, the PS ECM specialist acted as a 'champion' for the project and one could deduce that his dedication and support contributed immensely to the achievement of the end result. When asked to compare the new system to the old one, and to

elaborate on the new system's ease of use, it was clear that the users had not worked with or even seen most of the new system's functionalities. This raised a concern, as one of the aims of the pilot project was to determine whether the new system would be considered a sufficient replacement of the old PS.

The technology (OS ECM) was therefore found to be aligned with government's Free and Open Source Software (FOSS) Policy, but there was a clear lack of internal alignment within the organisation in terms of attaining a shared vision. The technology and the change management strategy were also not aligned. The system was, however, implemented across the entire government department. The fact that the PS ECM specialist was a dedicated resource to provide ongoing support for the ongoing change process, could have contributed to this.

Many of the challenges raised in the case study were common oversights mentioned in change management literature. However, what made this case different was that one of the main challenges arose from the alignment of internal organisational change with a national policy that did not seem to have the full support of the agency that was tasked with implementing it.

Specifically, some of the recommendations for government practitioners emerging from this case study were as follows:

- Compose a formal change management strategy and plan before embarking on similar projects. This means ensuring alignment of the vision of the department, other participating government agencies or departments, and the users with the national vision.
- Be sure to have a project champion.
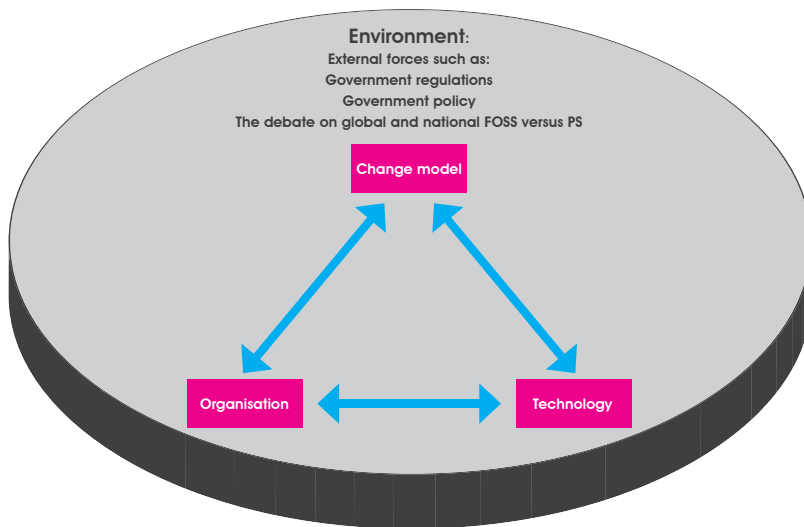
Figure 2: Adjusted improvisational change model. (Adapted from: Orlikowski and Hofman, 1997)

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• Study the organisational culture and politics of all participating institutions and agencies to gain an in-depth understanding in order to act wisely.

• Gain an understanding of the relevance of the new system to the users, users' knowledge and perceptions of IT and their attitude towards management before embarking on such a project. This understanding should inform the change management plan.

On a theoretical level, models can increase one's understanding and reveal how one can 'cultivate' the human environment in which technology is to be implemented. However, the process of developing an understanding of how national policy was developed and the rationale for it is important.

An addition to or expansion on Orlikowski and Hofman's model was to include a fourth element, indicating the external forces in the environment – such as government regulations, government policy, and the debate on global and national FOSS versus PS – may highlight the need for this external alignment, and also prevent the focus on internal alignment only.

What emerged from this case study was a caution that there is not a sole voice in government. The internal dynamics and differences of government departments are inadequately understood. Alignment of the different rationalities that exist in a multilevelled and multisectoral institution is necessary for the alignment of the organisation, the change management strategy and the technology.

An awareness of the social context of the organisation and the environment in which technology is to be implemented might at least provide an understanding of what the contention is about, if not the solution on how to address it. ◉