

# The Effects of Enterprise Portals on Knowledge Management Projects

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## INTRODUCTION

In an attempt to consolidate various departmental intranets, organizations are constructing corporate intranets or portals (Choo, Detlor, & Turnbull, 2000). They are becoming single points of entry through which users and communities can perform their business tasks, and also evolving into virtual places where people can get in touch with other people who share common interests. Due to this evolution from intranets towards portals, many organizations are using them as the major technological infrastructure of their knowledge management (KM) initiatives. KM studies analyze people, organizations, processes and technology. Although technology is not the main component of KM, it would be naive to implement KM without considering any technological support. KM is of particular relevance to information science and information system research because technologies play a critical role in shaping organizational efforts for knowledge creation, acquisition, integration, valuation, and use (Sambarmurthy & Subramani, 2005).

The purpose of this article is to present a model which may be useful to help organizations in understanding the impacts of portal initiatives on KM initiatives. The research model, that is presented a little later, was based on TAM (technology acceptance model), TTF (task technology fit) and knowing organization model (Choo, 1998), and was tested in 98 Brazilian and 70 Portuguese organizations.

## BACKGROUND

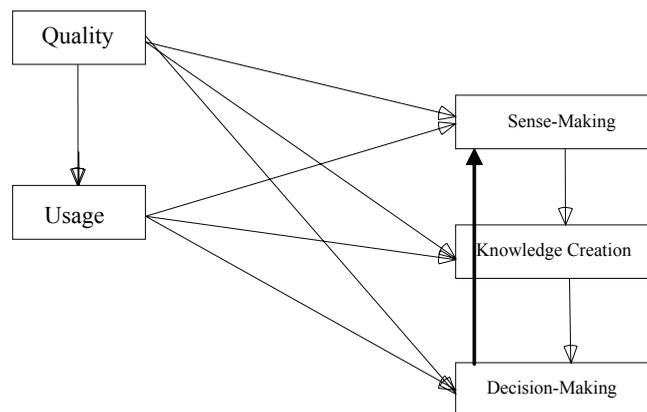
Many of the existing proposals for portal evaluation (Delphi Group, 2000; Firestone, 2003; Terra & Gordon, 2002) place more emphasis on the technological aspects rather than on

organizational issues. Indeed, most of the mentioned proposals do not leverage classical studies that exist on information science and information systems literature. Perceiving the portal as a specific type of information system is a way of exploiting previous studies related to user behavior, technology acceptance and its organizational impact.

The TAM model was developed to explain and predict computer usage behaviour (Davis, 1989). The TAM has received substantial theoretical and empirical support from hundreds of studies, becoming a generally accepted cognitive model for predicting user IT acceptance (Detlor, 2004). The TAM has two variables influencing attitudes and use: perceived usefulness and perceived ease of use. *Perceived usefulness* is defined as the degree to which a person believes that using a particular system would enhance his or her job performance. In contrast, *perceived ease of use* refers to the degree to which a person believes that using a particular system would be free of effort (Davis, 1989).

According to the TTF model (Goodhue & Thompson, 1995), a technology has a positive impact on individual performance when it is utilized and has a good fit with the tasks it supports. A combination of TTF and TAM into one extended model has proven to be a superior model to either the TAM or the TTF model alone (Dishaw & Strong, 1999). Therefore, the portal quality construct presented in this article will use concepts from both models, adapting them to the portal's context. For different reasons, the following TTF factors have not been taken into account for the development of the quality construct: TTF3 (Authorization), TTF6 (Production timeliness), TTF7 (Reliability), and TTF8 (Relationship with users). TTF3 is not a critical issue for portals, which are usually accessible to all the users within the organization. TTF6 and TTF8 are beyond the scope of this research in that portal managers will be

Figure 1. Research model



involved. Finally, TTF7 was eliminated due to the high predictability of portal environment. As the amount of users is usually known by the organization, it is quite easy to scale the system to support the demand in a reliable manner. On the other hand, the factors TTF1(accuracy, novelty), TTF2(Locatability), TTF4(Compatibility), and TTF5(Ease of use) were incorporated into the quality construct. The quality dimensions comprised by TTF1 are fundamental because information retrieval is the most basic motivation for portals. Analogously, TTF2 is also critical, because it will be worthless to have high quality information if users are not able to find or understand its meaning. TTF4 was kept in construct because one of the greatest portal challenges is to integrate heterogeneous IS. TTF5 was chosen for being a TTF factor and a TAM variable.

As the research objective is to analyze the effects of portals on KM initiatives, it is necessary to provide some background concerning KM. In fact, KM intends to be an area of research and practice that deepens the understanding of knowledge processes in organizations, and develops procedures and instruments to support the transformation of knowledge into economic and social progress (Carvalho & Ferreira, 2001). In order to establish a more consistent link between information and knowledge processes, the knowing organization model (Choo, 1998) will be adopted as a theoretical background. This framework describes organizations as systems where the processes of sense-making, knowledge creating and decision-making are continuously interacting.

Sense-making is related to how the organization interprets and makes sense of its changing environment which leads to shared meanings and intent. Knowledge creation is accomplished through the conversion and sharing of different forms of organizational knowledge, resulting in new capabilities and innovation. Finally, the organization processes and

analyses information through the use of rules and routines that reduce complexity and uncertainty (Choo, 1998).

## THE RESEARCH MODEL

The following research model has been designed to analyze the relationships between portal quality and portal usage with the three dimensions of the knowing organization model. Figure 1 provides a graphical representation of the research model.

The research model has five constructs: portal quality, portal usage, sense-making, knowledge creation and decision-making. The research model's variables were translated into a Web-based questionnaire using Likert-type scales (0-10) with the extremes "totally disagree" and "totally agree". None of the questions were written in a negative manner, therefore the value 10 always means the most advanced level of the practice being evaluated. The quality construct was based on TAM and TTF models, and its variables are described in Table 1.

The usage construct was conceived to evaluate how frequently users access portal features, and its variables are described in Table 2.

The questions related to usage construct allow respondents to answer "not available" if the feature was not present on the intranet. This procedure was used to distinguish between inexistence of features and very low usage of existing features. The 11-point Likert-type scale was presented with the extremes "(0)—very rare usage (once a month or less)" and "(10)—very frequent usage (more than 5 hours per day)" in order to guide respondents. Additionally, the middle of the scale (value 5) had a label "between one half and 1 hour per day".

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