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## Inter-organisational information sharing in the public sector: A longitudinal case study on the reshaping of success factors

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## ABSTRACT

Today, public organisations need to share information in order to complete their tasks. Over the years, scholars have mapped out the social and organisational factors that affect the success or failure of these kinds of endeavours. However, few of the suggested models have sought to address the temporal aspect of inter-organisational information sharing. The aim of this paper is to investigate the reshaping of social and organisational factors of inter-organisational information sharing in the public sector over time. We analysed four years' worth of information sharing in an inter-organisational reference group on copper corrosion in the context of nuclear waste management. We could trace how factors in the model proposed by Yang and Maxwell (2011) were reshaped over time. Two factors in the model – concerns of information misuse and trust – are frequently assessed by organisations and are the most likely to change. In the long run we also found that legislation and policies can change.

## 1. Introduction

Today, public organisations face business tasks of ever-increasing complexity (Zhang, Dawes, & Sarkis, 2005). Such complexity means that these tasks span public organisational boundaries (Luna-Reyes, Gil-Garcia, & Cruz, 2007; Ryan & Walsh, 2004). Consequently, public organisations need to engage with other organisations in a networked fashion. Gil-Garcia, Chengalur-Smith, and Duchessi (2007) have argued that inter-organisational information sharing has increased in importance in these settings, offering important benefits such as higher information quality, improved decision-making, increased productivity, and more integrated services (Caffrey, 1998; Gil-Garcia & Helbig, 2006; Landsbergen & Wolken, 2001). As a consequence, many public organisations have shifted from favouring a “silos” model (Gil-Garcia, Chun, & Janssen, 2009) that emphasizes information protection towards one that focuses on inter-organisational information sharing (Yang & Maxwell, 2011).

In principle, such a shift does seem sound, given the tasks at hand. However, an easy transition from one model to the other is not necessarily guaranteed. Sharing information between organisations often involves complex interactions, during which a myriad of challenges is faced. Even though management in public organisations increasingly recognises the importance of inter-organisational information sharing

(Pardo, Cresswell, Dawes, & Burke, 2004) and noting that it has been on the agenda for quite some time (Dawes, 1996; Gil-Garcia, Schneider, Pardo, & Cresswell, 2005; Gil-Garcia, Chun, & Janssen, 2009; Klischewski & Scholl, 2006; Yang, Zheng, & Pardo, 2012), existing research has shown that such initiatives often fail (Dawes, 1996; Landsbergen & Wolken, 2001; Scholl & Klischewski, 2007; Schooley & Horan, 2007).

With the advancement of information technology, it is close at hand to attribute these failures to a lack of interoperability between technical frameworks and platforms. Although inter-organisational information sharing is dependent on technological interoperability to different degrees, scholars (Atabakhsh, Larson, Petersen, Violette, & Chen, 2004; Brazelton & Gorry, 2003; Landsbergen & Wolken, 2001) have shown that social and organisational challenges are just as complex as technological ones. Thus, the former have attracted increased attention in recent years (Drake, Steckler, & Koch, 2004; Gil-Garcia et al., 2009; Luna-Reyes, Gil-Garcia, & Cruz, 2007; Pardo, Cresswell, Dawes, & Burke, 2004; Scholl, Kubicek, Cimander, & Klischewski, 2012). Valuable work has been carried out to increase our knowledge of the social and organisational factors that impact on the success or failure of this kind of endeavour (e.g., Akbulut, Kelle, Pawlowski, Schneider, & Looney, 2009; Dahlan, Dahan, & Saman, 2013; Lam, 2005; Yang, 2012; Zhang, Dawes, & Sarkis, 2005).

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Yang and Maxwell (2011) made an attempt to summarise existing research on these factors in a combined model “for practitioners to use when assessing or implementing information sharing projects”; they showed that, over the years, the wisdom concerning these kind of factors has increased. However, their model and many other studies do not address the temporal aspect of information sharing, despite the fact that several scholars acknowledged that inter-organisational information sharing results in lessons learned for the organisations involved (Dawes, 1996; Gil-Garcia et al., 2007; Scholl, Kubicek, Cimander, & Klischewski, 2012; Zhang & Dawes, 2006). Temporal aspects of information sharing are important to understand because inter-organisational collaborations tend to develop over time. Thus, our understanding of inter-organisational information sharing, and any models proposed, are at risk of becoming static unless temporality is given analytical weight. Whilst less attention has been paid to this particular aspect, this does not mean that researchers who have investigated social and organisational factors have not undertaken the pertinent research. Indeed, the converse may be true. Still, there exists an asymmetry with regard to what is known when it comes to the temporal aspect. It limits the guidance provided to practitioners as well as researchers when assessing information sharing projects.

Thus, the aim of this paper is to investigate the reshaping of social and organisational factors of inter-organisational information sharing in the public sector over time. To this end, we analysed information sharing in an inter-organisational reference group, using the factors found in the model put forward by Yang and Maxwell (2011). Based on our findings, we contribute to the development of this theoretical model by adding a complementary reciprocal perspective that emphasizes an active and on-going reshaping of the factors in the model. Furthermore, we elaborate on the temporal aspect in existing models, such as those presented by Dawes (1996) and Scholl et al. (2012).

The remaining part of the paper is structured as follows. In the next section we address existing research on information sharing in public organisations. The third section presents the research method adopted. In the fourth section, we carry out the analysis. In the fifth section, we propose an extension of the model put forward by Yang and Maxwell (2011) and discuss the implications for research and practice. In addition, we discuss the limitations of the present study and avenues for future research. Finally, the paper ends with a short conclusion.

## 2. Related research

As stated earlier, most studies on the social and organisational factors of inter-organisational information sharing have not sought to address the temporal aspect. Below, we discuss the factors that have been identified in state-of-the-art research. Second, we address the less commonly found research that acknowledges the reshaping of these kind of factors.

### 2.1. Research on inter-organisational information sharing factors

Various attempts have been made to summarise the factors that affect information sharing between public organisations (Bigdeli, Kamal, & de Cesare, 2013; Fan, Zhang, & Yen, 2014; Janssen & Praditya, 2016; Landsbergen & Wolken, 2001; Yang & Maxwell, 2011). Of these, the study by Yang and Maxwell (2011), which is based on an extensive literature review, aimed to synthesise existing wisdom in the field into one model. Fig. 1 shows the model they proposed. It includes a number of indirect and direct effects that these factors have on inter-organisational information sharing in the public sector, i.e. a public sector organisation's adoption and use of information sharing with other organisations. In total the model includes six factors: “legislations and policies”; “organizational boundaries of bureaucracy”; “different operation procedures, control mechanisms, and work flows”; “concerns of information misuse by other organisations”; “trust”; and “lack of resources”. Below, this model is used to structure the discussion of factors

that have been identified by scholars in the field.

Legislations and policies correspond to regulatory frameworks, such as the laws and formal policies that define the scale, content, and standards of information sharing among public organisations (Bigdeli, Kamal, & de Cesare, 2013). According to Pardo and Tayi (2007), these frameworks constitute the backbone of public information sharing, yet these factors are seen as the most difficult to manage in the public sector context (Gil-Garcia et al., 2007; Gil-Garcia et al., 2009; Lam, 2005; Scholl et al., 2012). Yang and Maxwell (2011) stated that, legislations and policies could have a direct negative impact on information sharing where organisations are prohibited from sharing sensitive and confidential information (Dawes, 1996; Gil-Garcia et al., 2007; Gil-García & Pardo, 2005; Scholl et al., 2012; Zhang et al., 2005). However, these factors can also have an indirect positive impact on information sharing by increasing trust among participants and mitigating any concerns (Gil-Garcia et al., 2007; Gil-García & Pardo, 2005; Lam, 2005; Perri, Bellamy, Raab, Warren, & Henney, 2008). In addition, they can be the means for providing funding and resources.

Organisational boundaries of bureaucracy address organisations' awareness of “what information can be shared with and retrieved from other agencies” (Yang & Maxwell, 2011). In order for information sharing to take place, other organisations need to be made aware that information exists, and can be shared. Scholars (Lam, 2005; Landsbergen & Wolken, 2001) have pointed out that this awareness, or lack thereof, impacts on information-sharing initiatives taken. The more knowledgeable an organisation is about these patterns or potential patterns, the more likely it is that they will see the benefits of inter-organisational information sharing.

Concerns of information misuse by other organisations relate to differences in goals, where information can be used to achieve different ends. Even when organisations collaborate, they can still have different interests in exchanging information. Indeed, what is considered to be legitimate use of information by the receiving organisation might be viewed as misuse by the sharing organisation. It has been shown in earlier findings (Bellamy, Raab, & Perri, 2005; Chau, Atabakhsh, Zeng, & Chen, 2001; Zhang et al., 2005), that concerns over misuse affect the willingness to share information between organisations.

Trust means that the information-sharing organisation is willing to rely on the actions of another organisation. This factor is directed to the future; in this case, to another organisation's future use of the information. Zaheer, McEvily, and Perrone (1998) found “that the performance of interfirm exchange is in fact associated with the level of interorganizational trust”, indicating that information sharing between organisations is affected. A number of scholars (Chau, Atabakhsh, Zeng, & Chen, 2001; Chen, Lin, & Yen, 2014; Dawes, 1996; Landsbergen & Wolken, 2001; Luna-Reyes et al., 2007; Pardo et al., 2004) have agreed that in order to make inter-organisational information sharing work in practice, trust is an important factor.

A lack of resources refers to the priorities that organisations need to make. Given limited resources, organisations may give priority to their own urgent issues over the long-term benefits of sharing information (Bigdeli et al., 2013; Fan, Zhang, & Yen, 2014; Landsbergen & Wolken, 2001; Zhang & Dawes, 2006), because these benefits may not apply to them. In addition, organisations that have invested resources in collecting and structuring information may be unwilling to share information without being compensated.

Differences in operation procedures, control mechanisms, and workflows refer to how and to what extent working processes support the exchange of information. Canestraro, Pardo, Raup-Kounovsky, and Taratus (2009) and Pardo et al. (2004) have discussed how the incompatibility of working processes can make it more difficult to share information between organisations. Consequently, collaborating organisations may need to adopt new working processes (Lam, 2005).

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