Towards a Method Family Supporting Information Services Co-Creation in the Transdisciplinary Context

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ABSTRACT

Increasing popularity of the notion of service in the enterprise business and information systems development facilitates the creation of new types of inter-organizational and multidisciplinary collaboration and value co-creation. Simple exchange of services between organizations evolves into the co-creation of transdisciplinary services shared by all involved partners. In this paper the authors introduce the notion of transdisciplinarity and discuss how to support information services co-creation in this new context. For this purpose, they identify and explore four main principles (communication, collaboration, co-innovation, and agility) to be implemented in the transdisciplinary information services co-creation – the challenges that their implementation entails and the existing approaches and techniques that support their implementation. Finally, the authors propose a method family approach as a means to create new methods including a large variability of techniques and providing configuration mechanisms. In particular, this paper demonstrates how to create a method family providing a flexible and agile process model based on the transdisciplinarity principles and allowing to combine techniques and approaches from different disciplines in order to support collaborative creativity, modeling and development of transdisciplinary services.

Keywords: Co-Creation, Co-Innovation, Collaboration, Information Service, Method Family Transdisciplinarity

INTRODUCTION

The continuous progress towards a networked, globalized and service-driven economy emphasizes the need of designing new organizational forms and business models supporting multidisciplinary collaboration and value co-creation. In this context, the notion of service plays a major role in the enterprise development, innovation and prosperity. Different types of services can be mentioned: services to the customers and/or citizens, services supporting inter-organizational collaborations and value exchanges between business partners, as well as services enabling intra-organizational activities.

Enabling these new organizational models and activities inevitably leads to a deep transformation of enterprise Information Systems (IS).
The adoption of service-oriented paradigm in the IS development and evolution seems to be a promising approach to cope with the constantly increasing IS complexity and fragmentation, information duplication and inconsistency. There is a clear need for a well-defined modularity and flexibility in the IS development in order to facilitate IS evolution and to guarantee their alignment with the new business and organizational requirements.

The concept of “information service” appears as a new building block to design service-oriented IS (Arni-Bloch et al., 2009; Arni-Bloch & Ralyté, 2008). Design and development of information services and information service-driven architectures become key to the success of organizations and their business.

Chesbrough and Spohrer (2006) argue that there is still a lack of a strong foundation for designing and managing service systems and service value creation networks. As a response to this argument, new approaches are emerging. For example, Le Dinh and Nguyen-Ngoc (2010) present a conceptual framework for designing service-oriented inter-organizational information systems. In Le Dinh and Léonard (2009) a conceptual framework based on information overlap analysis is provided as a foundation for a thorough understanding of services systems and modeling service value creation networks. A conceptual framework for service modeling in a network of service systems is proposed in (Le Dinh & Pham-Thi, 2010). Last but not least, Regev et al. (2011) discuss service systems and value modeling from an appreciative system perspective.

However, all these approaches consider services systems, networks and their architectures rather than the definition of the service itself. The design of information services and services systems in the new multidisciplinary and collaborative context is only very slightly investigated in the literature. In our previous work (Ralyté & Léonard, 2011) we have explored the potentiality that the notion of information service offers to the enterprise in terms of innovation and value co-creation. In that paper we have also revealed the challenges of this emerging transformation of the IS world into the information services systems world.

In this paper we extend our work presented in (Ralyté, 2012) where we explore how the inter-organizational collaboration context affects and extends the engineering process of new information services. In particular, we consider information services dedicated to support the collaboration of several partners from different business and/or public sectors. We name these services – transdisciplinary information services. The theory of the transdisciplinarity and the fundamentals in communication, collaboration, innovation and agility are the main drivers of our research in the field of transdisciplinary information services co-creation. In particular, we investigate the challenges of applying the transdisciplinarity principles in the new information services design and the approaches, techniques and methods from different disciplines that could be pertinent in their engineering process. The diversity of engineering situations and the multiplicity of suitable design techniques demonstrate that the formalization of the information service engineering process by one global methodology is not possible. A family of methods seems to be a better approach to deal with this diversity.

The notion of method family (Rolland, 2007; Asadi et al., 2011) was introduced as a new approach for situation-specific method engineering allowing to capture the variability of system engineering situations and corresponding techniques into one model that could be easily configured into a particular method line according to the situation at hand. In our case, the concept of method family allows us to cope with the multiplicity of service engineering situations and to offer the possibility to define a particular and configurable method line for each well-defined situation. Therefore, the aim of this work is to define a method family supporting the co-creation of transdisciplinary information services taking into account the transdisciplinarity principles and following situational method engineering approach. Our
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