

Using Network Analysis to Improve Decision Making for Partner Selection in Inter-Organizational Networks

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ABSTRACT

Professionals in decision making roles are often faced with the problem of choosing partners for closer cooperation, for instance, to start new joint IT development projects or for harvesting best practices. The large amounts of information involved in these decision processes obscure possibilities, and therefore choices are made ad hoc. In this article, the authors present an approach that uses concrete data and network analysis to support decision makers in processing and understanding this information. Central in the authors' approach are questionnaires capturing aspired and current development levels of the processes of the cooperating organizations and graphs generated using network analysis techniques. The advantage of the authors' approach, which they validated via expert interviews, is that results are semi-automatically translated to visualizations; which in turn offer an overall view of the current and aspired situation in the network without losing the ability to pinpoint particular, individual processes of interest. This, in turn, enables IT professionals to make better decisions.

Keywords: Concrete Data, Decision Making, Network Analysis, Partner Selection, Questionnaires

INTRODUCTION

Efficient utilization of an organization's human capital resources demands that organizations cooperate closely. Close cooperation, in turn, demands that participating organizations invest in the development of supporting systems.

These investments are usually specific for the cooperation relation for which they are made, and they carry considerable risk. Therefore, most organizations cannot afford to enter into very many close cooperation relations with very many partners at the same time. Thus, partners for closer cooperation need to be selected carefully.

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The complexity of the partner selection problem is perhaps best illustrated by the well-documented case of the failure of Covisint. Covisint was a very prominent online auction set up by the Big Three USA car manufacturers. Gerst and Bunduchi (2005) has shown that in this particular network (of car manufacturers and their suppliers), the introduction of this particular form of cooperation generated a shift in power that was too much for the network to accept. Overlooking one aspect of cooperation (in this case: power distribution) resulted in a loss that may be as high as 250 million US dollars and committed IT development resources for several years without reaching the desired outcome (Supply Chain Digest, 2009).

Understanding how closer cooperation can be fostered is a prerequisite for making correct investment decisions. But, in order to understand how closer cooperation can be fostered, decision makers must first find a way to reason about the characteristics of potential partners and the opportunities and difficulties prevailing for closer cooperation.

In practice, decision makers currently choose key partners in their inter-organizational network relying mostly on their *imago*. Even when the choice can be justified by general reasons such as strategic alignment, fit to enterprise architecture, and competitive advantage, stakeholders mostly use the image they have of the potential partner, supporting their reasoning with ad hoc methods and tools available to the stakeholders such as text documents, tables and graphs. Thus, choosing a good partner depends more on the discipline and experience of the stakeholders involved than on the use of a supporting reasoning framework. In addition to this, current results in the academic study of alliance formation generally take the form of correlations of quantities aggregated for a particular industry or market segment. For example, Eisenhardt and Schoonhoven (1996) found that the rate of alliance formation increases with the number of competitors in a market. Aggregated correlations help to understand how the phenomenon of alliance

formation is related to other phenomena, such as competition. However, for managerial decision making, this is not enough: a manager needs to decide precisely which members of the network are suitable partners for closer cooperation. In spite of the existence of a large body of research on inter-organizational networks, there is (to the best of our knowledge) no solution to the partner selection problem that covers all the challenges and all the perspectives involved.

A systematic, objective, data-centered approach would empower decision makers with better command of the most important issues and the hidden ones. Better understanding of characteristics of potential partners, their similarities and differences would help decision makers to detect potential problems and opportunities for cooperation; which in turn would provide more intelligent choices in partnership. For instance, if we could reveal concrete discrepancies that affect the cooperation process (such as mismatching IT capabilities, incompatible goals or different needs), we could rule out the potential partners for which cooperation is not likely to succeed due to differences in power and opposite interests.

In this article, we present a network-analysis based approach to help decision makers to identify prospective partners for closer cooperation in joint IT development. This article continues our study of the eCustoms case (Ponisio, van Eck, Riemens & Matsuda, 2013; Ponisio, Sikkel, Riemens & van Eck, 2008; Ponisio, van Eck & Riemens, 2010) in which customs organizations of the European Union cooperate to jointly develop customs processes and supporting IT systems. Our results indicate that our approach has the potential to help eCustoms decision makers to find prospective alliances between customs organizations of EU member states. In fact, our network analysis method has, in the domain of eCustoms, the potential to build a workable solution to the problem of finding a partner. Having our results confirmed by expert interviews, we conclude that network analysis could be a useful instrument for revealing partners for closer cooperation.

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