

Evaluating Interorganizational Innovation Teams in the Health-Care Technology Sector

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Summary:

This developmental paper focuses on a particular form of interorganizational (IO) relationship, involving NHS procurement and SME medical device innovation and supply. NHS personnel often work with SMEs on medical device innovation. By collaborating with NHS employees prior to and during product manufacture and development respectively, SMEs can ensure the success of their innovations and resulting products. This paper is part of a wider project to explore the influence of teams, as the vehicle for this IO relationship, and the factors affecting the success or failure of IO innovation projects within the medical health-care technology sector. This paper presents the development of a quantitative research instrument for assessing team attributes and performance, drawing on literature on teams within organizations, and on interorganizational collaboration for innovation.

(125 words)

Extended Abstract:

Innovation is vital for all organizations in reaching their organizational and strategic goals (Martins & Terblanche, 2003). Traditionally, innovation and being innovative have both been considered as vital to organizational survival and differentiation in the economy or marketplace (Smith, 2006), particularly given the amplified competition in the increasingly global marketplace. However, this is not only true to the private business arena and those organizations interested in profits and sales. In the public health-care sector, innovation is vital to fulfilling different organizational goals. Here the emphasis tends to be more on budget and spending and less on profit. Moreover there is more of a stress on patient satisfaction with service, service efficiency and quality of patient care and less on customer satisfaction with a product.

Regardless of what the end result of the innovation is (or is intended to be) for the organization, innovation often requires outside involvement which can take place in many forms (Powell, Koput & Smith-Doerr, 1996). Only large multi-national organizations are able to innovate without any external resources, and often will still seek outside knowledge or resources to enrich innovation (Cohen & Levinthal, 1990). A key feature of much of the innovation literature in recent years has been 'networks of innovation' (Powell, Koput & Smith-Doerr, 1996). The networks involve organizations working together on innovative solutions to problems or new innovations in products.

This developmental paper focuses on the interorganizational team, formed as a product of the innovation network between NHS and SME staff; the team is regarded as the vehicle through which innovation occurs. This paper is part of a wider research project which aims to shed light on the vehicle facilitating this interorganizational innovation and in doing so to describe and assess interorganizational team effectiveness by measuring team innovative performance and the factors associated with this outcome. This paper will explore how to assess performance and will critically review instruments from prior research for their relevance and applicability to the interorganizational innovation team setting..

The Context of Interorganizational Teams

The Chief Executive of the NHS (National Innovation and Procurement Plan, 2009) and the Darzi Report (2008) have both suggested that innovation is a key focus for the NHS and that there may be severe consequences if procurement of innovative products is not carried out more effectively. Stimulating innovation and improving procurement are local and national priorities. As such the procurement process occurring between the NHS and its associated suppliers must be investigated in order to understand how best to foster innovation. Indeed the procurement function of the NHS sits as the central feature within a network. It is linked with multiple SMEs which produce medical devices and/or technologies for the health-care sector. Clinical and commercial staff from the NHS form teams with SME technical and commercial personnel to design, develop and adopt innovative products. These innovation project teams are the primary focus of this research project, in particular their functioning and

performance and how this affects the overall innovation project on which they are working together. Inevitably the performance of the team and the innovation for which they are responsible has direct consequences for the SME and the NHS procurement function.

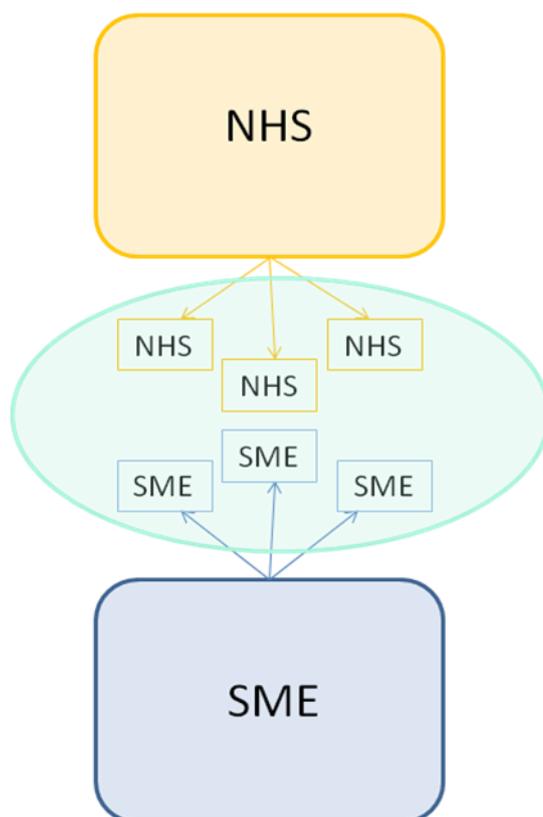


Figure 1: A conceptual model of the interorganizational team. Employees from the SME and the NHS form the team, which spans the organizational boundaries.

The team literature is predominantly associated with teams that operate within the boundaries of the organization i.e. intraorganizational teams. Tjosvold, Tang & West (2004) explore innovation in teams operating within organizational boundaries, while Richardson & West (2010) define these work teams. Our practical context of interorganizational teams has seen little research at present and is as yet an undefined form of relationship through which organizations interact. There has been some work on ‘open innovation’ teams (Chatenier et al., 2009) which has moved research towards considering innovation teams, however in this paper we are interested in singular innovation projects rather than an ongoing exploration of internal and external resources (West & Gallagher, 2006). The teams here span organizational boundaries; bridging two separate organizations (see Figure One). Inevitably two organizational cultures (including management practices and drivers) and two areas of knowledge and expertise are involved in the team’s functioning. The interorganizational

teams in question bring together individuals from very different organizational contexts (NHS and SMEs) with very different priorities (sales & profits vs. Patient care, efficient service and effective use of procurement budget) to see through an innovation project together. These innovation project teams have a different remit compared to teams within organizational boundaries responsible for the ongoing delivery of a service. As a result their aim of generating creative ideas to resolve complex technological and medical challenges comes with the added challenge of working effectively with a highly diverse team with a finite life.

Critically Reviewing Existing Measures

Many authors from the team literature have attempted to define what constitutes an intraorganizational team (Hackman, 2002) and specific team types have also been generated (Katzenback & Smith, 1998). However, a common theme in these attempts to define intraorganizational teams is that the author specifies a precise type of team that their research applies to rather than creating a generalised team definition. Wageman, Hackman, & Lehman (2005) suggest that intraorganizational teams are defined by the following characteristics: shared objectives, interdependence, autonomy, boundedness, and specified roles. It has recently been found that reflexivity, the practice of reflecting on previous team functioning in order to modify this later (Schippers, den Hartog & Koopman, 2005), is a further defining characteristic which is shared by many different types of organizational team (Richardson & West, 2010).

It is sensible to start with a measure that has been tested on several types of team to create a broader based definition. There are however, aspects which will need to be reconsidered for the interorganizational setting, most obviously: boundedness. The idea of a team having a clear boundary and clear membership when considering an interorganizational team could have different meanings than when applied to intraorganizational teams. For the members of interorganizational teams these boundaries could be much weaker or much stronger. While it may be very clear which personnel belong to the team, the idea of membership and boundedness will have to be made extremely clear to participants when creating items for this subscale. It could be that for the members of the interorganizational team, the boundary may not in fact be clear and the team boundary may also not feel as strong to them as if the team were made up of individuals from a single organization. It is possible for the six further defining characteristics to occur within the interorganizational team.

In assessing the performance of these interorganizational innovation teams we must consider measures of innovation/innovative behaviour and overall team performance. Anderson & West (1998) use an adapted and lengthened scale originally developed for organizational climate for innovation (Siegel & Kaemmerer, 1978). This works well when applying to their team context and requires each team member to use the scale to rate team climate for innovation, however this has never been applied to a setting that crosses organizational boundaries. Although the items could translate to the interorganizational team, extensive pre-testing would be needed in order to ensure its construct validity and also to ensure its applicability to the context.

Team innovation has been measured as a separate factor from support for team innovation (West, Borrill, Dawson, Brodbeck, Shapiro & Aavard, 2003). Independent raters were asked to rate descriptions by managers of their team's innovation projects using a 5-point Likert, 4 dimensional scale including; magnitude, radicalness, novelty and impact of innovation. This

method and scale is very applicable to the interorganizational team as West et al., (2003) use a range of health care teams which by their nature encompass individuals from a range of jobs and areas. However, these teams are solely in the public sector and when a mixed team from two sectors and organizations comes together, some important organizational and culture differences may affect performance. Moreover this presents a potential problem in defining a 'manager' for the interorganizational team. The team is made up of employees from two different organisations, and as such the perceptions of outcomes are anticipated to be different for the two organisations. So solely using manager interpretations of the interorganizational team could provide a limited interpretation of the interorganizational performance. A more comprehensive measure of interorganizational team performance is necessary to capture the full performance and outcome, mirroring the extensive impact that this type of innovation will have on the individuals, the two organisations and the product.

Ramstad (2009) develops an evaluation framework for innovation networks which is underpinned by complementarity theory and the principle that there are several elements to innovation networks and also several actors involved. The measurement allows the identification of innovation networks with the most diverse outcomes for the range of actors involved, capitalising on the breadth of the impact innovation can have for organisations. The framework assesses the structure of the network, the transparency and diversity of learning processes and the outcomes for the many actors in the network using data obtained from the project reports, the self-assessments by the project co-ordinator and the team itself. This is an evaluation framework which can be adapted for use in the context of this research.

Developing a Quantitative Measure

Generally those researching teams focus on intra-organizational teams, and those researching interorganizational working do not frame their analysis around teams, and tend to adopt qualitative methods. Traditionally innovation research focuses on interorganizational networks, but not on the team or group interactions occurring as a result of the network and the practices of these teams or the factors affecting their performance. There is a need to develop a tool which is suitable for measuring this interorganizational team and which takes into account the nature of these boundary spanning innovation teams and their context, as well as the multi-disciplinary nature of the research.

In developing and adapting these instruments, two salient issues arise. Reliability must be re-tested. In changing the wording, and how the item applies to the context in which it is being used, the reliability of the scale can be disrupted and this must be extensively examined in order to ensure the scales being used are of the acceptable level of reliability. The scale reliability co-efficient must remain at or above 0.70.

Moreover, a further challenge to address is how to deal with possible lack of agreement within teams over items and scales of the instrument (for example, divergent views of the novelty of the innovation) , before then examining the differences between teams' performances and outcomes. This can be resolved statistically, but is important in ascertaining the strength of the assertions made. Furthermore, particularly when using the developmental evaluation framework for measuring the performance of the innovation team (Ramstad, 2009), a quantitative measure must be developed and used during this evaluation. Once these measures have been developed, they will form a survey administered to 50 to 60 NHS and SME interorganizational teams involved in innovation projects.

The paper will offer new insights on teams in the interorganizational context, and in the context of innovation. Furthermore, this research will help those involved in interorganizational innovation teams to better understand team practices, structures and performance. In doing so, they will also gain an understanding of how to maximise the positive outcomes of their interactions. There will therefore be more clarity for managers trying to adopt an approach to manage these teams, by creating awareness of the factors that are needed to improve innovation and teamwork. An end result for the NHS would be improved innovative procurement, patient and clinician satisfaction as well as a reduced budget shortfall. For the SMEs involved, there are economic benefits such as improving customer satisfaction, differentiation in the market and ultimately increasing sales and improving their partnership with the NHS.

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