



LINKING NETWORKS GOVERNANCE AND KNOWLEDGE MANAGEMENT AS SUPPORT TO KNOWLEDGE VALORIZATION

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Abstract

Our starting point is the idea that Network Governance and Knowledge Management can be aligned to maximize its benefits. We defend that it is possible design and govern formal research networks, looking at the various stakeholders objectives, with support of a robust Knowledge Management aligned with a strategic Network Knowledge Governance. In a context of networking spaces of cocreation knowledge, new forms of management and governance emerge. Sciences and Technology Parks can be seen as spaces of collaboration, spaces of dynamic networks where knowledge processes happens (knowledge access, knowledge creation, knowledge sharing and knowledge transfer). Based on those ideas, a literature review is in progress, in order to build a conceptual model of Knowledge Network Governance showing how positive impacts of Networks Governance and Knowledge Management can be used together to improve knowledge use or knowledge valorization. This model can be validated by academic scholars and also used by professionals that want value knowledge at Sciences and Technology Parks. Note that this article is related to first stage of literature review (Seminal review) where we study four background concepts. Results from this stage allow us to develop a review protocol that will support next stage (Systematic review).

Keywords: Governance. Networks Governance. Knowledge Management. Knowledge Valorization.

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1 INTRODUCTION

A large body of literature shows how knowledge is the main resource of Knowledge Society (Drucker, 1992; Nonaka e Takeuchi, 1995; Bueno, Ordonez e Sanchez, 2004; Rademakers, 2005). There is also a growing recognition that if knowledge is a resource there is a need to manage it in order to Knowledge Valorization (Davenport, De Long e Beers, 1998; Carlucci, Marr e Schiuma, 2004).

New knowledge is created from the combination and integration of existing knowledge (Gibbons *et al.*, 1994; Nonaka, Toyama e Konno, 2000; Hessels e Van Lente, 2008) and networks are social spaces where knowledge flows and knowledge processes happens (Castells, 2000; Watts, 2004; Hessels e Van Lente, 2008; Pinho, Rego e Cunha, 2012).

Sciences and Technology Parks are institutions, but they are also networks spaces of intensive knowledge use and networks of co-creation knowledge. From this perspective we can take a Network Governance approach to manage those social spaces. If we can join the benefits of a solid knowledge management implementation it is possible to increase Sciences and Technology Parks performance and impacts.

To achieve this goal we need starting by knowing state of art on Network Governance domain through a literature review. This literature review follows three main stages: seminal review, systematic review and integration review. This present article is related to first stage; the results from seminal review are four main backgrounds concepts: 1) Governance; 2) Networks Governance; 3) Knowledge Management and 4) Knowledge Valorization. They are our building blocks concepts or keywords to the next stages: systematic review and integration review.

This article is part of our global project that aims to build a conceptual framework showing how Network Governance and Knowledge Management can be used together to enhance Knowledge Valorization. This framework can be a tool to validate in specific networks, such as those embedded in Sciences and Technology Parks

This paper starts with methodology session, next we present results from seminal review and subsequently we present some considerations and future work.

2 METHODOLOGY

We perform a literature review that follows three main stages: seminal review, systematic review and integrative review (see Table 1). This article is related to the first stage of literature review that will support development of our review protocol.

Table 1: Literature review in three stages (Seminal, Systematic and Integrative)

I Stage	Seminal Review		
	Inputs <ul style="list-style-type: none"> • Seminal articles • Books • Conferences 	Processes <ul style="list-style-type: none"> • Selection, reading, analysing, integrating. 	Outputs <ul style="list-style-type: none"> • Background concepts: <ul style="list-style-type: none"> → Governance → Networks Governance → Knowledge Management → Knowledge Valorization
II Stage	Systematic Review		
	Planning Systematic Review <ul style="list-style-type: none"> • Why do a review? • Prepare a review proposal • Develop a review protocol Conducting the Systematic Review <ul style="list-style-type: none"> • Identify research • Select studies • Assess Quality • Extract data • Synthesize data 		
III Stage	Integrative Review		
	Integration, Reporting and dissemination <ul style="list-style-type: none"> • Developing report with: <ul style="list-style-type: none"> Descriptive analysis Relevant themes Conceptual model • Dissemination/publication (for using review results) 		

Source: Developed from Tranfield *et al.* (2003)

At this first stage we analyse seminal studies to better understanding the field and build a solid theoretical background to follow the systematic literature review, specifically on prepare review proposal, to better planning, conducting and reporting the review.

3 RESULTS: SOME BUILDING BLOCKS CONCEPTS

We identify some key areas based on four main concepts:

- Governance and networks governance
- Knowledge management and Knowledge Valorization

Those four concepts are the results of seminal review and they limited our research knowledge space or territorial scope. Next we present some issues about those concepts.

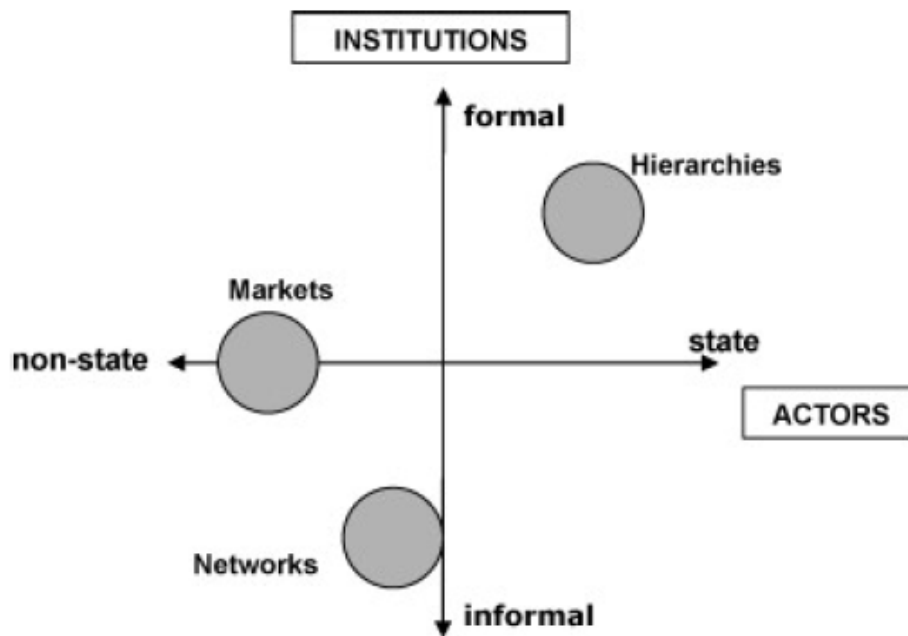
3.1. Governance and networks governance

The term “governance” has several meanings and diverse definitions of governance can be used, based on different narratives which can be divided in two: governance in corporate management and governance in political sciences (Windsor, 2009).

Roderick Rhodes defined governance as “the self-organizing inter-organizational networks characterized by interdependence, resource exchange, rules of the game and autonomy from the state” (Rhodes, 1996). According to the political scientist Rhodes, the concept of governance is currently used in contemporary social sciences with at least six different uses: the minimal State, corporate governance, new public management, good governance, social-cybernetic systems and self-organized networks (Rhodes, 1996; 2007). It originates from the need of one umbrella that covered diverse meanings not enclosed by the traditional term “government”; it is related to change, or to the need of changing, in our network society. Governance is linked to the need to address further the managerialism narratives (Ball, 2009; Santiago e Carvalho, 2012).

Claudia Pahl-Wostl (2009) developed a conceptual framework for analyzing adaptive capacity and multi-level learning processes in resource governance regimes, looking for difference of governance modes of bureaucratic hierarchies, markets and networks regarding the degree of formality of institutions and the importance of state and non-state actors (Figure 1).

Figure 1 - Governance modes (hierarchies, markets and networks)



Source: Pahl-Wostl (2009)

Networks Governance can be described as a "pluricentric governance system" in contrast to "unicentric system of state rule and the multicentric system of market competition" (Kersbergen e Waarden, 2004).

Networks Governance have been defined by Sorensen and Torfing (2005):

- "a relatively stable horizontal articulation of interdependent, but operationally
- autonomous actors;
- who interact through negotiations that involve bargaining, deliberation and intense
- power struggles;
- which take place within a relatively institutionalized framework of contingently
- articulated rules, norms, knowledge and social imaginations;
- that is self-regulating within limits set by external agencies and
- which contribute to the production of public purpose in the broad sense of visions,
- ideas, plans and regulations."

3.2. Knowledge management and knowledge valorization

Knowledge Management is intrinsically related with valorization of knowledge.

Taken a holistic approach we consider Knowledge Management as a system that must focus on Data, Information and Knowledge as the main resources. Knowledge Management Structure can be divided on five groups (see Table 2). We can consider that structure can be a DIKEM Systems Support (**D**ata Management Systems, **I**nformation Management Systems, **K**nowledge Management Systems, **E**valuation Systems and **M**onitoring Systems).

Table 2 - DIKEM Systems Support

Type of Systems	Issues
Data Management Systems	- Updated data in real time and available in open access
Information Management Systems	- Explicit knowledge
Knowledge Management Systems	- Explicit Knowledge + Tacit knowledge + Knowledge Processes
Evaluation Systems Monitoring Systems	- Alignment evaluating and Monitoring

If we look those systems as a network of systems, we defend that there is a need of governance of all those systems to reduces transaction costs and fosters a system's ability to help: a) access and use of data and information; b) make informed decisions; c) implement programs and; d) solve conflicts at all stakeholder's levels. Alignment of all those systems is needed to support Policy, Governance, Management and Evaluation of Science and Research.

All systems must have concerns on friendly usability (Pinho, Rego e Kastenholz, 2008) and security (Rubenstein-Montano, Buchwalter e Liebowitz, 2001). If all systems are building based on open access perspective they can also be seen as a service, as a support to individuals, projects, organizations, institutions and networks (Schroeder e Pauleen, 2007; Schroeder, Pauleen e Huf, 2012). This multilevel approach must be used to leading learning organizations and spaces of innovation like Sciences and Technology Parks, if we want value its knowledge.

To better understanding how knowledge management can be used to value knowledge we can select one type of networks at Academic context or at Science and Technologic Parks contexts: Research Networks.

From a Knowledge-based approach, we can look to Research Networks as Knowledge Networks (Johnson, 2005; Chirikov, 2013), where Knowledge processes happens (acquisition, creation, sharing and transfer knowledge processes) and where Knowledge is the main resource and the most value output (Pinho, Rego e Cunha, 2012). This approach lead to the Knowledge Governance concept (Grandori, 2001; Foss, 2007; Schroeder e Pauleen, 2007; Acworth, 2008; Grandori e Furnari, 2008; Foss, 2009). Knowledge governance refers to choosing structures and mechanisms that can influence the processes of knowledge (Miller, 2007; Foss e Mahoney, 2010; Karvalics, 2012).

In order to build a definition of Research Network Governance, some assumptions are followed:

- Collaborative research and collaborative writing is becoming a norm to do research (Katz e Martin, 1997; Lemarchand, 2012);
- Number of co-authored scientific publication and citation impact has increased in all subject field during last decades (Persson, Glänzel e Danell, 2004; Adler, Ewing e Taylor, 2009; Adams, 2012);
- Leading and manage scientists and researchers are challenging and important activities (Goffee e Jones, 2007; Jayasingam, Ansari e Jantan, 2010);
- Knowledge networking is based on common purpose, effective links that enable interaction at different levels, shared leadership, independence of members to act on various networks (Brannback, 2003);
- Effective research networks need a clear direction and objectives (Agranoff e McGuire, 2001).

We can define Research Network Governance as a set of instruments and mechanisms that coordinate participant elements to deliver research networks outcomes and impacts, by understanding and respecting different forms of knowledge production and policy contexts.

This position argues that governance of research networks aims to support the spaces of freedom where the balance between control and creativity is allowed. As Jeffrey Johnson and colleagues argue (2010) network science provides insights that not only document the evolution of research networks but also may be prescriptive of mechanisms to enhance this evolution, or in others words: how we can construct networks more effectively? They suggests certain steps that are need for learning to collaborate at a network : a) changing the mindset; b) characterizing new sites; c) building capacity; d) funding interstice work; e) planning the network; f) focusing research; g) communicating.

4 FINAL CONSIDERATIONS AND FUTURE WORK

Remembering, that this article is part of a global project final considerations are divide on two levels: a) considerations about importance of doing a robust seminal review and b) future work to develop a conceptual model.

Before taking a Systematic Review it is crucial to take time on selecting, reading and analyzing seminal articles and books on the topic. Interactions with experts at conferences, at research groups and at informal networks helps to operate the systematic review based on an informed background. Past knowledge and experience is need before searching on databases, because we must know what we are looking for. Databases have different policies and different modes of publishing and visualization. In sum, we need take decisions about our strategic searching: What is our research topic? What is our research goal, and Why is necessary to research it? What are the main concepts?

With present seminal review it is easier to answer to those questions for building protocol review.

Research topic is Network Governance. Our research goal is identify how Network Governance and Knowledge Management can be used in a synergistic manner to support valorization of knowledge. We aim to develop a conceptual framework to synthesize key dimensions of Network Governance who be used by academics scholars

and can assist professionals that lead spaces and networks of knowledge creation and innovation.

The main concepts of our seminal review are: Governance, Networks governance, Knowledge management and Knowledge Valorization. Those concepts will be our guide to the next stages and at operational level, our keywords.

From results of first stage (background concepts) we will prepare our Proposal Systematic Review that includes review protocol (Tranfield, Denyer and Smart, 2003).

Planning the review is important step to conducting the review in a robust way. We will rigorously apply the review protocol and inclusion/exclusion criteria. The output of the search will be the full list of relevant articles.

On Integrative Review we will present descriptive analysis and emergent relevant themes. The main goal of our project is the development of a conceptual model, showing how network governance and knowledge management can be used to improve knowledge valorization. This framework will be used at academic level and practical level.

Notice that there is no an optimal network structural design, because it is dependent on the context and the specific modes of knowledge production in the various areas of knowledge (Harvey, Pettigrew e Ferlie, 2002; Bonaccorsi, 2008; Hessels e Van Lente, 2008;

Heitor e Bravo, 2010; Jansen, Von Görtz e Heidler, 2010). Although this fact it is possible to search for behaviors patterns on Networks in order design and monitoring formal knowledge networks, looking at the various stakeholders objectives.

This governance approach must be used to leading learning organizations, spaces and networks of innovation like Sciences and Technology Parks, if we want value its knowledge.

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UNINDO REDES DE GOVERNANÇA E GESTÃO DO CONHECIMENTO COMO APOIO A VALORIZAÇÃO DO CONHECIMENTO

Resumo

Nosso ponto de partida é a ideia de que Governança de Rede e Gestão do Conhecimento podem ser alinhadas para maximizar seus benefícios. Defendemos que é possível projetar e governar redes formais de pesquisa, olhando para os vários objetivos das partes interessadas, com o apoio de uma robusta Gestão do Conhecimento alinhada com uma governança estratégica de uma Rede de Conhecimento. Em um contexto de espaços de redes de conhecimento permitindo co-criação, novas formas de gestão e governança irão emergir. Parques Científicos e Tecnológicos podem ser vistos como espaços de colaboração, espaços de redes dinâmicas, onde os processos de conhecimento acontece (o acesso ao conhecimento, a criação de conhecimento, partilha de conhecimentos e transferência de conhecimento). Com base nessas ideias, uma revisão da literatura está em andamento, a fim de construir um modelo conceitual de Governança de Redes de Conhecimento mostrando como impactos positivos de Redes de Governança e Gestão do Conhecimento pode ser usado em conjunto para melhorar o uso do conhecimento ou a valorização do conhecimento. Este modelo pode ser validado por acadêmicos e também usado por profissionais que querem valorizar o conhecimento gerado em Ciências e em Parques Tecnológicos. Note-se que este artigo está relacionada à primeira fase da revisão da literatura (revisão Seminal) onde estudamos quatro conceitos de fundo. Os resultados deste estágio permitem-nos desenvolver um protocolo de avaliação que irá apoiar a próxima fase (revisão sistemática).

Palavras-Chave: Governança. Redes de Governança. Gestão do Conhecimento. Valorização do Conhecimento.

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