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## **Internal Markets for Knowledge-Intensive Human Resources: A New Frontier in Personalisation Strategy for Knowledge Management**

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## **Structured Abstract**

**Purpose** – This paper aims to develop a conceptual framework of an integrated knowledge management system, in which several knowledge management strategies are nested. Specifically, the paper focuses on possible strategies to localise and transfer different types of knowledge resources in project-based organisations, including expertise embedded in talented people, in order to pursue new emerging business opportunities and improve the whole organisation’s effectiveness.

**Design/methodology/approach** – This paper is theoretical in nature. Drawing on the literature on the management of tacit knowledge in project-based organisations and on internal knowledge markets we introduce the conceptual framework for an internal knowledge market which may suit the context of project-based organisations. We also briefly discuss some organisational and managerial issues potentially connected to internal knowledge market development.

**Originality/value** – The originality of the paper lies in assuming different motivational drivers, currencies and market structures for the different kinds of knowledge goods that can be exchanged in a complex organisational structure, such as a large project-based organisation. By focussing on the internal trade of knowledge-intensive human resources, i.e. a strategic knowledge good for project-based organisations, we aim to address a specific gap in the management literature. In fact, the literature, while recognising that managing knowledge-intensive resources is a critical issue in project-based organisations, largely neglects the market-based approach to deal with it.

**Practical implications** – Although this paper is theoretical in nature, it provides some guidelines for the development of internal markets for knowledge intensive resources, defining contexts of application, roles of the different actors, working mechanisms as well as organizational and managerial tools to mitigate possible risks and enhance benefits.

**Keywords** – Knowledge management, internal knowledge market, personalisation strategy, project-based organizations

**Paper type** – Academic Research Paper

## **1 Introduction**

Recently, project based organisations (PBOs) have received increasing attention as an emerging organisational form, in which projects tend to become the primary business mechanism for coordinating all the main business functions of the firm. Several authors recognize PBO effectiveness as coping well with the emerging properties of extremely complex products and systems by responding to client needs in real time due to their flexibility and focus. Nevertheless, they point out peculiar knowledge management (KM) and organizational learning issues (Pemsel et al., 2016; Whitley, 2006; Lundin et al., 2015) as well as strategic misalignment in PBO. In fact, it is generally recognised that PBOs struggle to integrate knowledge and structures when projects are viewed as “singular ventures” (Grabher, 2004) and that, taken individually, these typically do not reflect the organisation’s strategic intent (Thiry and Deguire, 2007).

Specifically, in these contexts, it seems that locating internal knowledge on a specialised topic and pursuing a centralised policy of knowledge resource (i.e. human experts) allocation, aimed at seizing emerging opportunities, is becoming a significant challenge. The larger and more segmented the company, the harder it is to find who knows what inside the organisation and to match its people to its problems (Benbya and van Alstyne, 2011). PBO form is more effective than functional form in integrating different types of knowledge, skill and learning within the project boundary, but it fails in finding the best knowledge resource allocation at the level of organization as a whole, with the consequent risk of losing development and growth opportunities. In order to discuss possible KM strategies used to face PBO weaknesses, particularly the problem of internal knowledge locating, mobilizing and integrating, we must first clarify what kind of knowledge resources are most relevant for PBOs. According to several scholars in most PBOs, a sustainable competitive advantage requires resources that are knowledge-based and intangible (Whitehill, 1997; Nonaka et al., 2000; Jugdev and Mathur, 2012). The implication is that PBOs must allow knowledge to remain tacit (Prencipe and Tell, 2001) and adopt a personalisation strategy (Hansen et al., 1999). In fact, in firms where “knowledge is closely tied to the person who developed it and is shared mainly through direct person-to-person contact” (Hansen et al., 1999, p. 107), personalisation strategy works best. This implies that effective dissemination of tacit knowledge within a PBO is largely reliant on human resource management and on the process of embedding employee knowledge within a firm’s generally accepted ways of operating or its organisational culture (Blackler, 1995; Müller, 1996; Swart and Kinnie, 2003; Tsoukas and Vladimirou, 2001).

This paper aims to develop a conceptual framework of an integrated knowledge management system (KMS), in which several KM strategies are nested. Specifically, the paper focuses on possible strategies to localise and transfer different types of knowledge resources in PBOs, including expertise embedded in talented people, in order to pursue new emerging business opportunities and improve the whole organisation’s effectiveness.

## **2 Theoretical Background**

### ***2.1 KM in PBOs***

A PBO performs most of its activities, including product development, customer deliveries, and change efforts, as projects (Söderlund, 2005; Söderlund and Tell, 2011). According to several scholars (DeFillippi and Arthur, 1998; Jugdev and Mathur, 2012), tacit knowledge

resources embedded in human capital are the main source of competitive advantage in PBOs. Thus, the most convenient organisational strategy that can be used to manage these knowledge resources is personalisation (Hansen et al., 1999; Venkitachalam and Willmott, 2015). The literature recognises that PBO's main strength, which lies in effectively coping with project risks and uncertainties and responding quickly to changing client needs, can also work against the wider interest of corporate strategy (Hobday, 2000; Thiry and Deguire, 2007). Furthermore, according to several scholars (Dubois and Gadde, 2002; Lindkvist, 2004; Whitley, 2006), the salient features of PBOs are such that the organisation tends to be loosely coupled and characterised by poor cooperation across units and suboptimal resource usage. This implies difficulties in defining and implementing a corporate strategy to manage knowledge intensive resources, which are strictly connected to a human resource area of expertise, in order to allow better internal resource allocation and pursue the interests at both project and organisational levels.

For the purpose of this paper, we will focus on mobilising the knowledge needed to meet project objectives within the organisational boundaries, i.e. the first of a series of key knowledge-related activities in PBOs (Lampel et al., 2008). This very first activity includes some crucial knowledge management processes, i.e. localising and acquiring, the first two knowledge processes in a concept of eight proposed by Probst et al. (2002). According to several scholars, the problem of locating internal knowledge on a specialised topic exists in any large organisation, and this problem is even harder the larger and more segmented the company is (Benbya and Van Alstyne, 2011). Moreover, the internal recruiting of knowledge intensive human resources on specific projects may be an awkward issue. Hobday (2000) introduces the concept of "internal markets" for good people, where the most persuasive and senior PMs tend to monopolize them, sometimes leading to skewed performance among projects. Notwithstanding the vast literature on human resource management in PBOs (see Huemann et al., 2007 for a review), which deals with many knowledge-related aspects (Pemsel et al., 2016; Kelly et al., 2013), and to the knowledge of the author, specific contributions on internal knowledge resources (i.e. people) locating and acquiring (i.e. recruiting on specific projects) are lacking.

## ***2.2 Internal Knowledge Markets***

Davenport and Prusak (1998) pioneered the concept of a knowledge market within an individual firm as a mechanism for enabling knowledge transfer among providers and users which requires IT support and incentives. Benbya and van Alstyne (2011, p. 66) define an internal knowledge market as: "a forum within an organization that matches knowledge seekers with knowledge sources— for example, branch offices and headquarters, novices and experts – and that includes material or social incentives to encourage information sharing". Access to intra-firm knowledge is obtained through knowledge-based exchanges within internal knowledge markets (Verbeke et al., 2011). Internal knowledge markets facilitate transactions among those who own and those who seek knowledge goods.

Some scholars (Müller et al., 2002) focus on the tradability of knowledge goods on the market, and identify two main kinds of knowledge goods that can be traded: digital documented knowledge and expert advice.

Several authors restrict themselves to the exchange on the market of digital documented knowledge, i.e. codified knowledge objects in a digitized format (Desouza and Awazu, 2003; Bryan, 2004; Matson et al., 2003; Hansen and Haas, 2001).

Concerning expert advice, Müller et al., (2002) refer to “online expert advice”, i.e. a digitally traded service, which is volatile and requires online synchronous interaction between expert and seeker.

Somewhere in between these two types of knowledge goods, we can identify a third kind of knowledge good of suggestions, tips, and answers that experts provide in response to specific questions, implying asynchronous online interaction. Some authors (Zhang and Sundaresan, 2010; Zhang and Jasimuddin, 2012) deal with these kinds of internal “question and answer” tools, which are usually regulated by a market mechanism, that recall popular online knowledge markets (see e.g. Zhang and Jasimuddin, 2008 on Google Answers).

Only a few authors take synchronous interactions between seekers and experts a step further, towards a sort of internal consulting service or teaming up with the expert (Verbeke et al., 2011), which should necessarily take place offline. Verbeke et al., (2011) propose an internal market perspective on knowledge sharing, where employees negotiate their expertise knowledge with the purpose of leveraging their internal reputation in the firm to achieve their own personal goals (Hornung et al., 2008; Rousseau, 2005). Another paper (Bryan et al., 2006) focuses on internal markets of expertise knowledge embedded in talented people. Bryan et al., (2006) claim that companies should recognize the competitive value of their talented internal people and strive to allocate them effectively in order to improve their performance, give them better opportunities to utilise and develop that talent and, ultimately, to retain them. According to these authors, companies should set up talent markets where top employees can negotiate job transfer, obtain development opportunities more easily, build networks and develop intangible assets.

This paper adds important perspectives to the current literature on knowledge markets, as it further develops the concept of internal talent markets, focusing on organisational and human resource management dimensions, which technical contributions tend to neglect. In addition, it proposes an integrated conceptual framework for internal knowledge markets that includes the different kinds of knowledge resources exchanged in a PBO.

### **3 Conceptual Framework**

This section introduces a conceptual framework for an internal knowledge market which may suit the context of PBOs. In developing such a framework, we consider the main KM issues in PBOs that emerge from the literature review, and we propose a single model that integrates the different perspectives and approaches in the literature on knowledge markets. Specifically, our contribution lies in an effort to provide a comprehensive framework that deals with the main KM issues in PBOs using different market logics, i.e. different currencies, incentive structures and organisational support, for the different knowledge goods to be traded. Given the strategic importance of tacit knowledge for PBOs and the opportunity to adopt a personalisation strategy to manage this knowledge (see introduction), we will focus mainly on the internal market for experts, i.e. knowledge-intensive human resources. By focussing on the internal trade of this strategic knowledge good, we aim to address a specific gap in the management literature. In fact, the literature, while recognising that managing knowledge-intensive resources is a critical issue in PBOs (see e.g. Dubois and Gadde, 2002; Lindkvist, 2004; Whitley, 2006), largely neglects the market-based approach to deal with it (see Verbeke et al., 2011 and Bryan et al., 2006 for some notable exceptions).

To construct a market for knowledge model, we must come back to the nature of knowledge goods and their characteristics. As already noted, Müller (2002) introduced a separation between goods of a material nature and those that can be traded but have no physical substance. The first are digital products, i.e. information that is already stored in a completely digital form and can be transferred over communication networks (Luxem, 2000). These products include documents, manuals, procedures, rules, and links to external resources, etc. The second category is “intangible goods”, such as advice, guidance, consulting, concepts and know-how. In the area of intangible goods, we introduce a further distinction of goods into those can be easily and conveniently made explicit in order to be transferred and those that cannot. To this purpose, the literature uses the term tacit knowledge to refer to knowledge that has not been formalised or made explicit (Zander and Zander, 1993), as well as to refer to knowledge that cannot be formalised (Popper, 1972; Nonaka and Takeuchi, 1995; Howells, 1996; Hansen et al., 1999). The first kind includes, for example, knowledge that can be easily translated in explicit answers that experts can provide online to colleagues (seekers) in order to help them to solve a specific issue, and thus potentially saving time and money. The second kind includes tacit knowledge that is at best difficult, and at worst impossible, to articulate, as it is highly situated in a context and abstracting it from its context of application results in losing much of its intrinsic meaning and value (Kakabadse et al., 2001). It is precisely this tacitness that makes this knowledge difficult to imitate or import from organisation to organisation and therefore makes it an important organisational resource in securing competitive advantage (Grant, 1996). As we claimed in the introduction, this kind of knowledge is the most relevant kind for PBOs and it requires direct interaction between expert and seeker in order to be shared. This fact has important implications for the design of a proper knowledge market. We must make a further distinction and distinguish between cases in which interaction can conveniently occur online, e.g. a Skype conference, and cases that require more time and a deeper sharing of ‘mental models’ (Johnson-Laird, 1983) as they are strongly context-specific and complex. As already noted, this is usually the case in PBOs. It is also worth noting that, in the context of knowledge markets, knowledge transfer does not necessarily imply knowledge sharing, as the goals of knowledge absorbing and learning are not paramount concerns. In this case, project managers are interested in temporarily acquiring talented knowledge resources to complete their project teams, in order to satisfy emerging customer needs and seize new opportunities in the market. For all these reasons, knowledge transfer through online interaction is usually infeasible, in the context of a PBO using a knowledge market.

In the following, we will analyse two different market models: a market for digital knowledge goods and expert advice (as asynchronous answers posted online in response to specific questions) and a market for talents (as expert-time or task execution).

### ***3.1 Market for Digital Knowledge Goods and Expert Advice***

Digital knowledge goods and expert advice, once made explicit as answers to specific questions, can be transferred online and stored in databases for further use. The difference between them lies in their creation: digital goods are already stored in digital form and are ready to be transferred, whereas expert advice is expressed in words and written as answers on demand. Thus, the second requires expert-time to be prepared, at least in its first instance. Nevertheless, it is worth noting that providing online digital knowledge goods also requires time to search for and possibly customise answers, perhaps removing sensitive

data. Since both activities require expert-time to be provided, and since expert-time is a scarce resource, we argue that they are “economic goods” until such a time that they are stored in a database for further use, thus becoming fully-fledged “public goods”. In fact, according to definition (Robbins, 1935), a good is “economic” when it is scarce and has alternative uses. This definition applies perfectly to the expert-time needed for reading and understanding the request, searching for the digital knowledge goods to satisfy it and possibly customising them, or preparing a proper answer, and, finally, posting them on the platform. On the contrary, once these knowledge resources are available to everyone, stored in databases, and the seeker is entirely charged for the cost of finding and customizing them, they become public goods, for which markets have proven to be a failing solution (see e.g. Kogut and Zander, 1993).

If we agree that knowledge goods and expert advice can be treated as economic goods the very first time they are provided, we know that their value can be easily and conveniently expressed by a price that represents the meeting point between supply and demand. In order to design a proper market for these kinds of knowledge goods in PBO, we must separate the individual level from the project level. In fact, while tacit knowledge translated in digital objects belongs to individual experts, expert-time belongs, to some extent, to the project manager that is in charge of using it for the project’s success. Thus, we can imagine two separate mechanisms working at individual and project levels. At the individual level, recognition and reputation deriving from a positive scoring of contributions can be powerful drivers for experts, yet at the project level a price-based mechanism is preferable. In fact, the costs, in terms of expert-time investment, and the advantages, in terms of problem solving support, of knowledge transfer have an impact mainly at the project level. Market price represents the correct value of a knowledge resource, which takes several aspects into consideration, including its strategic worth for the business, its scarcity (or even uniqueness), its current allocation, the demand for it, and so on. Market price not only guarantees a fair exchange between the parties but it also gives objective value measures to knowledge goods. Localising strategic knowledge resources in the company, following their paths in projects (who buys what and from whom), and being able to measure their value in a rather objective way are fundamental achievements, which must influence company strategy in various respects, first of all in human resource and knowledge management. However, designing a pricing system for this kind of knowledge resources is not an easy task. In fact, when it comes to the intra-company transfer of digital goods, a money exchange is hardly imaginable (e.g. for accounting reasons), although it cannot be excluded. Nonetheless, it is important to plan material rewards, which can include frequent flyer points or some type of virtual currencies, and it is mandatory to let prices float (Benbya and Van Alstyne, 2011). Indeed, price theory tells us that efficiency requires prices to float (Hirshleifer et al., 2005).

As already stated, at the individual level, social rewards, such as recognition, peer rankings and professional identity (Boudreau and Lakhani, 2009), usually work. Of course, motives vary by individual, and incentives must be culturally appropriate. In this paper, we imagine a voting mechanism that could positively or negatively influence expert reputation. Importantly, the voting mechanism must be properly designed, as it may lend itself to manipulation and misuse. Moreover, experts can spend the reputation gained in this market, including within the market for talents (detailed in the following section).

### ***3.2 Market for Talents***

Since expert-time is a limited resource that has alternative uses, it must be allocated and is therefore suitable for exchange through a traditional market mechanism. Thus, we imagine a market for expert-time in the context of PBO whereby project managers trade time slots of “their” experts, i.e. knowledge-intensive human resources currently allocated on specific projects. In fact, what usually happens in PBOs is that experts, even if they are not best allocated (or not full-time best allocated), risk remaining stuck within a project border for several reasons, including scarce visibility and a misleading concept of “property” that some managers develop over human resources. Sometimes, a project manager simply does not want to lend a valuable resource to a colleague in exchange for nothing. Thus, prices, as already observed in discussing digital knowledge goods, seem to be the best way to guarantee fair transactions and give fair value to a knowledge resource, in this case represented by expert-time. Moreover, charging the cost of an internal expert on a project budget is not such an awkward issue in a PBO. However, it is worth noting that the internal transfer of money from a project budget to another has nothing to do with the expert wage. In fact, as some scholars observe, the objective of a business is to maximise profits per worker rather than wages per worker (Bryan et al., 2006). If the internal market for experts allows for improved allocation in terms of value per hour and, especially, in seizing new market opportunities and expanding business, then it is clear that it also pursues the objective of maximising profits per worker.

As already noted in the previous section, recognition and reputation are powerful motivational drivers at the individual level, provided that the company implement synergic organisational and managerial policies. In fact, internal knowledge markets can bring evident advantages to companies that succeed in building them, yet, on the other hand, they require commitment and specific investments, which we will briefly discuss in the next section.

### ***3.3 Organizational and Managerial Issues in Internal Knowledge Market***

As noted in the previous sections, differences exist in how motivation systems and currencies act in markets and for agents. Basically, reputation works as a motivational driver for experts in both markets while a traditional pricing system regulates negotiations among project units. The price of knowledge resources is a fundamental piece of information that only a market system can provide, as it is a measure of its strategic value for business, its relative scarcity, or, otherwise, its obsolescence or marginality. This information should serve as input for the human resource department, which should then translate it into proper rewarding actions for the most important strategic human assets of the company in order to retain them. In fact, we think that, even though reputation is largely recognized as a powerful motivation driver, it should not be left alone. In this respect, it is worth noting that money’s traditional role as the dominant motivator is currently under debate. Numerous studies (Gibbons, 2006) have concluded that for people with satisfactory salaries, some nonfinancial motivators are more effective than extra income in building long-term employee engagement in most sectors, job functions, and business contexts. Specifically, a McKinsey Quarterly survey (Dewhurst et al., 2009) finds that three non-cash motivators — praise from immediate managers, leadership attention, and a chance to lead projects or task forces — as no less or even more effective motivators than the three highest-rated financial incentives: cash bonuses, increased base pay, and stock or stock options.



Moreover, high prices for specific knowledge resources or even the evidence of the impossibility to find them within the company in the face of a significant demand, denounce the lack of such resources inside the company and should influence consequent recruiting and/or training programs. In a similar way, excessively low prices or the lack of demand for specific competences or professional profiles may indicate that they are no longer strategic for the company's business and may need professional updating or outplacement. It should be evident that these internal knowledge markets are potentially powerful organisational tools, which require a strong commitment by top management, as well as the full support of project managers and a widespread culture of knowledge sharing. Companies should make specific investments to assure proper rewarding at the individual and project unit levels, and it should not be strictly, or at least not only, financial in nature. In addition, it is essential that companies allocate a specific budget of time for each person to be spent on the platform posting questions, answering colleague requests and updating profiles, among other activities.

#### **4 Conclusions**

This paper introduces a knowledge management system based on market mechanisms in the PBO context.

The originality of the paper lies in assuming different motivational drivers, currencies and market structures for the different kinds of knowledge goods that can be exchanged in a complex organisational structure, such as a large PBO. We also briefly discuss some organisational and managerial issues potentially connected to internal knowledge market development.

Future research will explore the concept of internal knowledge market by means of in-depth case studies in some PBOs. The idea is to analyse how they currently manage their strategic knowledge resources, by means of which kinds of internal markets (not necessarily clear and codified), and to explore the feasibility of the proposed conceptual framework in several respects, e.g. from technical, organizational, managerial, and cultural points of view.

#### **References**

- Benbya, H., & Van Alstyne, M., (2011). How to Find Answers within Your Company. *MIT Sloan Management Review*, 52(2), 65-76.
- Blacker, F., (1995). Knowledge, knowledge work and organizations: An overview and interpretation. *Organization Studies*, 16(6), 1021-1046.
- Boudreau, K., & Lakhani, K., (2009). How to Manage Outside Innovation, *MIT Sloan Management Review*, 50(4), 69-76.
- Bryan L. L., (2004). Making a market in knowledge. *The McKinsey Quarterly*, 3, 100-111.
- Bryan L. L., Joyce, C. I., & Weiss, L. M. (2006). Making a market in talent. *The McKinsey Quarterly*, 2, 98-109.

- Davenport, T. H., & Prusak, L., (1998). *Working knowledge: How organizations manage what they know*. Harvard Business School Press, Boston.
- DeFillippi, R. J., & Arthur, M.B., (1998), Paradox in project-based enterprise: the case of film making, *California Management Review*, 40(2), 125-39.
- Desouza, K.C., & Awazu, Y., (2003). Constructing internal knowledge markets: considerations from mini cases. *International Journal of Information Management*, 23(4), 345 – 353.
- Dewhurst, M., Guthridge, M., & Mohr, E. (2009). Motivating people: Getting beyond money. *McKinsey Quarterly*, 1(4), 12-15.
- Dubois, A., & Gadde, L.E., (2002). The construction industry as a loosely coupled system: implications for productivity and innovation. *Construction Management and Economics*, 20 (7), 621-631.
- Gibbons, J. (2006). *Employee engagement: A review of current research and its implications* [White Paper]. New York: The Conference Board, 1-21
- Grabher G., (2004). Temporary architectures of learning: knowledge governance in project ecologies. *Organization Studies*, 25(9), 1491–514.
- Grant, R.M., (1996). Toward a knowledge-based theory of the firm. *Strategic Management Journal*, 17, 109-122.
- Hansen, M.T., Nohria, N., & Tierney, T., (1999). What's your strategy for managing knowledge? *Harvard Business Review*, 106–116.
- Hansen, M. T., & Haas, M. R., (2001). Competing for Attention in Knowledge Markets: Electronic Document Dissemination in a Management Consulting Company. *Administrative Science Quarterly*, 46(1), 1-28.
- Hirshleifer, J., Glazer, A., & Hirshleifer, D. (2005). *Price theory and applications: decisions, markets, and information*. Cambridge University Press.
- Hobday, M., (2000). The project based organisation: an ideal form for managing complex products and systems? *Research Policy*, 29(78), 871-893.
- Hornung, S., Rousseau, D., & Glasser, J. (2008). Creating flexible work arrangements through idiosyncratic deals. *Journal of Applied Psychology*, 93, 655-664.
- Howells, J., (1996). Tacit knowledge, innovation & technology transfer. *Technology Analysis & Strategy Management*, 8, 91-106.
- Huemann, M., Keegan, A. J., & Turner, R., (2007). Human resource management in the project-oriented company: A review. *International Journal of Project Management*, 25, 315–323.

Johnson-Laird, P.N., (1983). *Mental Models: Towards a Cognitive Science of Language, Inference, and Consciousness*. Cambridge, MA: Harvard University Press.

Jugdev, K., & Mathur, G., (2012). Classifying project management resources by complexity and leverage. *International Journal of Managing Projects in Business*, 5(1), 105-124.

Kakabadse, N.K., Kouzmin, A., & Kakabadse, A., (2001). From Tacit Knowledge to Knowledge Management: Leveraging Invisible Assets. *Knowledge and Process Management*, 8(3), 137–154.

Kelly, N., Edkins, A. J., Smyth, H., & Konstantinou, E., (2013). Reinventing the role of the project manager in mobilising knowledge in construction. *International Journal of Managing Projects in Business*, 6(4), 654-673.

Kogut, B., & Zander, U., (1993). Knowledge of the firm and the evolutionary theory of the multinational corporation. *Journal of International Business Studies*, 24(4), 625-645.

Lampel, J., Scarbrough, H., & Macmillan, S., (2008). Managing through projects in knowledge-based environments: special issue introduction by the guest editors. *Long Range Planning*, 41 (1), 7-16.

Lindkvist, L., (2004). Governing project-based firms: promoting market-like processes within hierarchies. *Journal of Management and Governance* 8 (1), 3-25.

Lundin, R., Arvidsson, N., Brady, T., Ekstedt, E., & Sydow, J., (2015). *Managing and Working in Project Society*. Cambridge University Press, Cambridge.

Luxem, R., (2000). *Digital Commerce: Electronic Commerce mit digitalen Produkten*. Electronic Commerce, Lohmar, Josef Eul Verlag, Köln

Matson, E., Patiath, P., & Shavers T. (2003). Stimulating Knowledge Sharing: Strengthening Your Organization's Internal Knowledge Market. *Organizational Dynamics*, 32(3), 275–285.

Midler C., (1995). 'Projectification' of the firm: the Renault case. *Scandinavian Journal of Management*, 11(4), 363–75.

Müller, F., (1996). Human resources as strategic assets: An evolutionary resource-based theory. *Journal of Management Studies*, 33(6), 757-785.

Müller, R.M., Spiliopoulou, M., & Lenz, H.J. (2002). Electronic marketplaces of knowledge: characteristics and sharing of knowledge assets. In *Proceedings of the International Conference on Advances in Infrastructure for e-Business, e-Education, e-Science, and e-Medicine on the Internet (SSGRR 2002w)*

Nonaka, I., & Takeuchi, H., (1995). *The knowledge-creating company: How Japanese companies create the dynamics of innovation*. New York, NY: Oxford University Press.

- Nonaka, I., Toyama, R., & Nagata, A., (2000). A firm as a knowledge-creating entity: a new perspective on the theory of the firm. *Industrial and Corporate*, 9(1), 1-20.
- Pemsel, S., Müller, R., & Söderlund, J. (2016). Knowledge Governance Strategies in Project-based Organizations. *Long Range Planning*, 49(6), 648-660.
- Prencipe, A., & Tell, F. (2001). Inter-project learning: processes and outcomes of knowledge codification in project-based firms. *Research Policy*, 30(9), 1373-1394.
- Probst, G. J. B., Raub, S., & Romhardt, K., (2002). *Managing Knowledge: Building Blocks for Success*. Wiley, West Sussex, England.
- Popper, K., (1972). *Objective Knowledge*. Oxford, Clarendon Press.
- Rousseau, D. M., (2005). *I-deals: Idiosyncratic deals employees bargain for themselves*. New York: M. E. Sharpe.
- Robbins, L., (1935). *An Essay on the Nature and Significance of Economic Science*, London: Macmillan.
- Söderlund, J., (2005). Developing project competence: empirical regularities in competitive project operations. *International Journal of Innovation on Management*, 9 (4), 45-480.
- Söderlund, J., & Tell, F., (2011). *The P-form corporation: contingencies, characteristics, and challenges*. In: Morris, P.W.G., Pinto, J.K., Söderlund, J. (Eds.), *The Oxford Handbook of Project Management*. Oxford University Press, Oxford, 201-223.
- Swart, J., & Kinnie, N., (2003). Sharing knowledge in knowledge-intensive firms. *Human Resource Management Journal*, 13(2), 60-75.
- Thiry, M., & Deguire, M. (2007). Recent developments in project-based organisations. *International Journal of Project Management*, 25(7), 649-658.
- Tsoukas, H., & Vladimirou, E., (2001). What is organizational knowledge? *Journal of Management Studies*, 38(7), 973-993.
- Turner, R., Huemann, M., & Keegan, A. (2008). Human resource management in the project-oriented organization: employee well-being and ethical treatment. *International Journal of Project Management*, 26(5), 577-585.
- Venkitachalam, K., & Willmott, H., (2015). Factors shaping organizational dynamics in strategic knowledge management. *Knowledge Management Research & Practice*, 13(3), 344-359.
- Verbeke, W., Belschak, F.D., Bagozzi, R.P., & Wuyts, S. (2011). Gaining Access to Intrafirm Knowledge: An Internal Market Perspective on Knowledge Sharing. *Human Performance*, 24(3), 205-230.

Whitehill, M., (1997). Knowledge-based strategy to deliver sustained competitive advantage. *Long Range Planning*, 30(4), 621-627.

Whitley, R., (2006). Project-based firms: new organizational form or variation on a theme. *Industrial and Corporate Change*, 15 (1), 77-99.

Zander, U., & Zander, I., (1993). Innovation and Imitation in the Multinational Company: Preliminary Remarks on the Role of Tacitness. *European International Business Association (EIBA): Proceedings*, Lisboa.

Zhang, Z. J. & Jasimuddin, S. M. (2008). Pricing Strategy of online knowledge market: the analysis of Google answers. *International Journal of E-Business Research*, 4(1), 55-68.

Zhang, Z., & Sundaresan, S. (2010). Knowledge markets in firms: knowledge sharing with trust and signalling. *Knowledge Management Research & Practice*, 8, 322–339.

Zhang, Z. J. & Jasimuddin, S. M. (2012). Knowledge market in organizations: incentive alignment and IT support. *Industrial Management & Data Systems*, 112(7), 1101 – 1122.