

# THE EFFECTS OF INTELLECTUAL CAPITAL ON E-SERVICE INNOVATION

Shih-Wen Liao <sup>a, 1</sup>, Ja-Shen Chen <sup>b, \*</sup>

<sup>a, b</sup> College of Management, Yuan Ze University, 135 Yuan-Tung Rd, Chung-Li 32003, Taiwan ROC

<sup>\*</sup> Corresponding author. Tel.: +886 3 4638800x2633; e-mail address: jchen@saturn.yzu.edu.tw

<sup>1</sup> Tel.: +886 989274709; e-mail address: jolie0817@gmail.com

## ABSTRACT

With the emergence of knowledge-based economy, intellectual capital has been a critical factor to assist companies to obtain competitive advantage in this fierce environment. In addition, how to enhance the organizational capability to create service innovation has also been a top priority for most contemporary firms. This study adopted the knowledge-based theory to explore and propose the influences of intellectual capital on e-service innovation and further examines the mediating effects of internal cross-functional integration and external collaborative competency on intellectual capital and e-service innovation, as well as the moderating effects of technology orientation.

**Keywords:** intellectual capital; e-service innovation; cross-functional integration; collaborative competency; technology orientation

## INTRODUCTION

With the emergence of knowledge-based economy, there are many companies mainly depend on their own invisible knowledge and ability to build competitive advantage, create wealth, and become the leading company in industry. Drucker [19] also proposed that the competitive advantage of businesses is no more determined by tangible capital, intangible capital will substitute tangible capital, such as machines, funds and materials as the primary factor of production in business operations. Also, Knowledge-based theory (KBT) view knowledge as a critical resource within a company, it believes that a firm can create value and obtain competitive advantage through knowledge. Therefore, all enterprises have begun to pay attention to knowledge management, and develop innovative practice through knowledge to create competitive advantage.

The extent of knowledge that a business possess is so-called intellectual capital in this study. For a firm, the intellectual capital is becoming a critical factor to obtain profit and good performance in the knowledge-based economy. And more and more businesses believe that the core competency they have is invisible assets instead of visible assets [34]. Previous research also suggested that intellectual capital plays an important role that can lead a business success [5]. Development and management of intellectual capital is required within an organization, it is a method that assists a company to create something new and use knowledge to increase value [14].

It is also widely recognized that an organization's intellectual capital is closely related to its innovative capability [13] [66]. Most prior studies had discussed the intellectual capital and innovation practice in

manufacturing and high-tech industries, those papers focused on the relationship between intellectual capital and tangible product innovation. Yet, the studies examine the relationship between intellectual capital and service innovation (i.e. intangible product) is limited.

According to Froehle and Roth [22], there are two necessary factors to create successful innovation, which is process-oriented NSD (New Service Development) and resource-oriented NSD. In other words, service innovation can only be created by the organization with enough resources and the capabilities which guide and assure their developing is effective. However, according to resource-based theory, a company can't possess all resources and capability to develop e-service innovation. Some of businesses need to cooperate with other firms to design a new technology-based service. In addition, the collaboration among employees is important to new service development. Mishra and Shah [44] pointed out that a firm collaborates with suppliers, business partners and cross-functional team leads successful project development. Thence, this study considers cross-functional integration and external collaborative competency (i.e. collaborate with business partners) as two mediators in the research framework to investigate how cross-functional integration and external collaborative competency enhance the influence of intellectual capital on e-service innovation.

Nowadays, the service sector has gradually become the main force of economic development, the world's economy is attributed by service and in some advanced countries more than 70% of GDP is generated by service. However, the tangible products are poorly differentiated in some of service industries, for instance, retail sector and transport sector [47]. Hence, the service industry should emphasize on service. In other words, the major products provided by the service industry are intangible service instead of tangible products. According to Adegoke [47], the service sector is comprised of the transport, government, education, health care, social and personal services, retail and wholesale, hotels and restaurants, telecommunication and financial sectors. Definitely, financial sector is knowledge-intensive industry and intellectual capital plays a very important role in the financial industry, both individual knowledge of the employees working in financial institution and the organizational knowledge of financial institution (e.g. customers database, information system, business culture...etc.) are considered important elements for financial institution in such competitive environment today. Besides, this study also considers hotel industry as target industry. Even though hotels are not primarily considered knowledge-intensive industry, the major product they provide is service. Previous scholars suggested that hotel owners should pay more attention to intellectual capital since end-customers care more about intangible service [56].

However, service only based on human resources (i.e. service employees) is not enough today, more and more companies and industries apply technology into their service interface for better service delivery. Faced with evolving technology, information technology provides considerable opportunities for service innovation [53]. Technological advancement be believed can enhance the value of the service innovation to customers. There are more and more firms provide service through information technology today, we called this kind of service as e-service in the study.

In the past, when discussing the intellectual capital issues, most studies focused on manufactured products, relatively few studies pay attention to use theoretical and empirical methods to discuss the relationship between intellectual capital and service innovation in service industries. Moreover, research comparing the effect of intellectual capital on service innovation across different service sector seems limited. Hence, in this study, we

choose financial and hotel industries to discuss the relationship between intellectual capital and e-service innovation. The main purpose of this study is to examine mediating effects of internal cross-functional integration and external collaborative competency between intellectual capital and e-service innovation.

## **LITERATURE REVIEW AND PROPOSITIONS**

### **Knowledge-Based Theory**

Knowledge-based theory (KBT) considers knowledge as the most strategically significant resource of the firm [25], it believes that a firm can create value and obtain competitive advantage through knowledge. Knowledge can be divided into explicit knowledge and implicit knowledge [51], the former can be deliver via words, rule or language; the latter is exists in individuals. Most of knowledge is comes from tacit knowledge which is linked to the individual, and it is very difficult, or even impossible to imitate. Only through observation and doing is it possible to learn this type of knowledge.

The different problem is solved by different knowledge, yet, because knowledge is possessed by individuals instead of the organization, a critical element of sustained competitive advantage is the ability to integrate the specialized and tacit knowledge of individuals. Therefore, through the integration of knowledge from individual employees, teams or departments can increase a firm's capability and obtain the competitive advantage. Knowledge-based theory views the knowledge as the greatest resource in the enterprise, and the purpose of an enterprise should focus on to create and apply knowledge to create wealth and customer value.

According to the above discussion, we can realize that invisible knowledge plays a very important role within a company and suggested that company can create value and gain competitive advantage through knowledge. Therefore, this study will be developed based on this theory and focus on more the role of organizational knowledge, which is so-called intellectual capital in this study.

### **Intellectual Capital**

The concept of intellectual capital was first proposed in 1969 by economist Galbraith, it refers to difference in value between tangible assets (physical and financial) and market value. Intellectual capital refers to an aggregation of intangible assets encompassed by an organization [7]. Carmona-Lavado, Cuevas-Rodríguez, and Cabello-Medina [8] identified intellectual capital as the collective knowledge and knowing capability at the organizational level. Many researchers have come to see intellectual capital as a company's core competency to create competitive advantage [31]. Some studies also defined intellectual capital as the sum of all knowledge that firm use it to spur competitive advantage [4] [32] [55] [66]. Therefore, we can know that intellectual capital is a crucial factor to obtain competitive advantage for a company, and it is a way to create and use knowledge to improve business value.

There are three major components of intellectual capital, human capital, organizational capital and social capital, all of which have been frequently discussed in the previous literature [46][66][75]. Next, this study will discuss these three major components of intellectual capital more deeply.

#### Human capital:

Human capital is the primary dimension of intellectual capital, because the interaction among human is the crucial source of intangible value in intellectual generation [32]. Human capital has been defined as the knowledge, skills, and abilities (KSAs) embodied in people [15], and it refers to capabilities, knowledge, skills, and experiences within an individual that can stimulate good ideas and the innovativeness of a firm [40]. Previous study indicated that “the characteristics of human capital are creative, bright, and skilled employees, with expertise in their roles and functions, and who constitute the predominant sources for new ideas and knowledge in an organization” [60].

#### Organizational capital:

Organizational capital, including databases, organizational charts, process manuals, practices, routines etc., it is the infrastructure of a firm that can store knowledge and allow employees access to knowledge and necessary resources [40]. Organizational capital contains both organizational and technological elements that assist a firm to integrate resources and coordinate within an organization [54]. In addition, Subramaniam and Youndt [66] pointed out that organizational capital is the institutionalized knowledge and codified experience residing within and utilized through databases, patents, manuals, structures, systems, and processes.

#### Social capital:

Social capital has been defined as the resources accessible through the network of relationships possessed by an individual or a social unit [27], it can utilize the interaction among employee within a firm and firm's relationship with both its customers and collaborators, such as suppliers and alliance partners [31]. Some researchers regarded social capital as the sum of the assets or resources embedded in the networks of relationships between individuals, communities, networks, or societies [10].

### **E-Service Innovation**

Nowadays, innovation plays a key component that assists a firm obtains competitive advantage. Innovation refers to the adoption of new idea or behavior [35]. de Vries [17] regarded innovation as “any change affecting one or more terms of one or more of the vectors”, and he distinguished six modes or types of innovation are: radical, improvement, incremental, ad hoc, recombinative and formalisation innovation.

In addition, Schumpeter [59] proposed that there are five classifications of innovation as following : (1) the introduction of new product or new quality of product (the innovation of product), (2) the introduction of new way of handling a commodity commercially (process innovation), (3) the opening of a new market (market innovation), (4) the conquest of a new source of supply of raw material or intermediate input (input innovation) and (5) the carrying out of a new organization of industry. Moreover, Jong and Vermeulen [37] indicated that main focus on innovation studies was primarily concerned with innovation related to developing and implementing something new. Consequently, we can conclude that innovation is highly associated with develop different things or creating something new.

However, people were primarily focus on innovation in tangible products in the past decade, for example, innovation in technological artifacts. In recent years, yet, with the economic patterns transform manufacturing industry into service industry and customer needs change from goods-oriented into service oriented, people

more and more pay attention to innovation in service field. Service innovation is crucial in increasing a company's competitive advantage in recent years, especially in some of service sectors such as retail, hotel, transport and catering. The situation reflects that the similar portfolio products offered by these service sectors, so that they need to differentiate their service from other competitors via innovation. Service innovation can be viewed as develop new service processes and deliver core tangible products and intangible services to customers [47].

Gadrey, Gallouj, and Weinstein [23] defined service innovation as “in process and innovations in organization for existing service product”. And previous studies defined service innovation as “those service offerings and processes that are new-to-the company and/or new-to-the market (customer), where the intention is meant to create value for any of the service stakeholders” [29][68].

In existing literature, relatively few studies have empirically examined organizations' use of technology for e-service innovation. In this study, we used three sub-constructs to develop the model of e-service innovation, which included process innovation, technical capability and risk mitigation. Process innovation refers to a company improved organizational processes and service delivery [73]. Technical capability is defined as the capability of an organization to acquire new technologies and technical resources for e-innovation practices [73]. Risk mitigation refers to reducing the possibility of an innovation failing, resulting in undesired effects, or not functioning as originally conceived [28] to measure risk mitigation. Consequently, we borrow from Tsou and Chen [73] and Hinnant and O'Looney [28] to define the e-service innovation as: a service process innovation that responds to the needs of customers and is created by a service provider using technical capabilities involving interaction with partners through electronic technologies to reduce service production risk.

### **Intellectual Capital with E-Service Innovation**

Previous research indicated that intellectual capital can stimulate a company to develop new product because it can transforms knowledge into value [20]. Chen et al. [13] believed that when a company with more intellectual capital, it will has more innovative competency to enhance its new product development performance. Also, intellectual capital as knowledge resources that organizations use to attain a sustainable success and obvious related to firm's innovation capability [8][66][75]. Next, this study will discuss more deeply about the relationship between every component of intellectual capital and innovation.

First one is human capital, even though there are few studies discuss the relationship between human capital and service innovation directly, some existing literature viewed individual knowledge working in an organization (i.e. human capital) as the primary resource for innovation [1][3][67]. Furthermore, Dakhli and De Clercq [16] indicated that human capital has a positive effect on innovation, it means that the better the human capital within a firm, the higher the innovation performance.

Second, we discuss organizational capital with service innovation. Regarding innovation, there are few studies discuss the relationship between organizational capital and service innovation directly. However, still have some studies indicated that organizational capital has a positive effect on innovation, since it make a firm can store knowledge then greatly facilitate flows of relevant information among both employees and units [58][63].

Also, previous research investigated that organizational capital can reinforce the knowledge and influences an organization's incremental innovative capabilities [66].

Lastly, since innovation is considered an effort of collaboration basically, hence, social capital plays a critical factor in the process of innovation development [8]. Social capital has influence on firms' innovative capability, the better the social capital, the higher propensity to innovate within a firm [39]. Social capital represents an organization's abilities to interact among employees and with external collaborators; it exemplifies conduits for the sharing and exchange of knowledge [40]. When the relationship becomes more closely among people, people are more willing to support and stimulate to develop innovative ideas [8]. Furthermore, Carmona-Lavado et al. [8] pointed out that social capital is positively influence innovation practice.

According to above discussion, we can know that each sub-construct of intellectual capital (i.e. human capital, organizational capital and social capital) have positively effect on innovation practice for a firm. Therefore, we summarized and proposed that intellectual capital will affect e-service innovation significantly.

Proposition 1: Intellectual capital has a positive effect on e-service innovation

### **Cross-Functional Integration**

Cross-functional integration is defined as “the magnitude of interaction and communication, the level of information sharing, the degree of coordination, and the extent of joint involvement across functions in specific new product development tasks” [30][61]. Cross-functional integration is also considered as the communication, exchanged information and resources, and pursuit the collective goals among different departments [6].

Cross-functional integration including the situation of interaction and collaboration among departments [21], it is benefit to communicate, interact, share information and collaborate between functions when a company develop new product [61].

### **Intellectual Capital with Cross-Functional Integration**

The previous researches that discuss the relationship between intellectual capital and cross-functional integration are rare. Therefore, this study want to discuss the relationship between intellectual capital and cross-functional integration and investigate how the intellectual capital to influence the implementation of cross-functional integration within a company. Next, this study will discuss the relationship between three dimensions of intellectual capital and cross-functional integration, then to explore whether or not the intellectual capital effect on cross-functional integration.

First, human capital, as we mentioned before, it refers to employees' overall ability such as their individual professional knowledge, skill and creativity. Chien and Chao [14] indicated that individual professional knowledge is the starting point of cross-functional integration. When employee with professional skills and knowledge, it is believed can upgrade organizational productivity [60]. Hirunyawipada et al. [30] considered cross-functional integration as a knowledge transformation tool and indicated that cross-functional integration can enhance the integration of diverse functional knowledge; they also regarded knowledge as an important role in the process of cross-functional integration.

Second, organizational capital, it is the infrastructure of a firm that can store knowledge and allow employees access to knowledge and necessary resources. According to the definition of organizational capital in this study, we can know that organizational capital is kind of organizational memory (i.e. information system and database within an enterprise). When companies utilize information system well and through it to integrate individual intelligence and scattered information, it will help information and knowledge exchange more efficiency within organization [55]. Additional, manuals and routines also are included in organizational capital, manuals and routines can be regarded as a form of common language within an organization. Grant [25] pointed out that a common language can assist individual employee to integrate their information and knowledge more efficiency.

Lastly, social capital which is represents an organization's abilities to interact among employees [40]. A good social network in an organization can improve the efficiency of knowledge exchange among individual departments and can increase the integration of resources, it will stronger the organizational cohesion and the efficiency of work [76]. Moreover, the features of social capital is believed can facilitate coordination and collaboration within a company [52].

Even though those pervious researches above didn't pointed out that each dimension of intellectual capital affect cross-functional integration positively, we still can infer all of them will have influence on the implementation of cross-functional integration according to above discussion. Therefore, we suppose that the intellectual capital will positively affect cross-functional integration, and proposed the following:

Proposition 2: Intellectual capital has a positive effect on cross-functional integration

### **Cross-Functional Integration with E-Service Innovation**

Cross-functional integration is viewed as a key success factor in new product development [21]. Because each functional area owns specific information and resources, so the cross-functional integration plays an important role to assist a company to integrate different resources and information when company develop new product [26].

There are several empirical studies investigated that cross-functional integration positively effect on new product success [2][62][71]. Also, cross-functional team is considered as one of key internal organizational resources that can stimulate the design, development, and introduction of new services [48]. Moreover, Meltonl and Hartline [43] suggested that the importance of cross-functional teams with new service development project can maximize sales performance and process efficiency of new service.

In addition, previous study indicated that effective collaboration among employees will facilitate the new service development [36]. Ordanini and Parasuraman [48] pointed out that the collaboration among employees has positive influence on service innovation. From above discussion, cross-functional integration should be one critical factor that will affect service innovation and we proposed that cross-functional integration will positively affect e-service innovation.

Proposition 3: Cross-functional integration has a positive effect on e-service innovation

### **External Collaborative Competency**

Lusch, Vargo and O'Brien [41] defined collaborative competency as "the capability to bring customers and other external business partners into the process and use them as mechanisms to foster change". And Mishra and Shah [44] defined collaborative competency as "the ability to simultaneously involve key stakeholders in the new (tangible) product development process". According to the resource dependence theory (RDT) [50], a company has to establish a collaborative relationship with its partners to constitute a bridging strategy. Since organizations are rarely self-sufficient, they have to establish collaborative relationships with other organizations to acquire critical resources. Also, according to resource-based view (RBV) which assumes the business does not hold all the resources and capabilities. Hence, businesses (service provider) have to create value through combining and exchanging resources with their collaborators [49].

Based on above discussion, in this study, we define that external collaborative competency as a company with capability to collaborate with other organizations and through this capability to innovative. Next, this study will discuss the relationship between each dimension of intellectual capital and external collaborative competency, then to explore whether or not the intellectual capital effect on a company's external collaborative competency.

### **Intellectual Capital with External Collaborative Competency**

First, human capital refers to employees with professional knowledge, skill and ability. Professional means employee with expertise in their work field, and expertise can increase the degree of involvement in collaborative process [45]. Second, organization capital can increase operational efficiency and effectiveness of an organization and can help an organization to solve problem [42]. When a company with high operational efficiency and the internal problem is solved, we infer it can increase the collaborative ability with external partner. Lastly, social capital can utilize firm's relationship with its business collaborators, such as suppliers and alliance partners [31]. Social capital represents an organization's abilities to interact with external collaborators, we infer that the better the social capital within a firm, the higher the ability to collaborate with its partners [40].

Even though those previous researches above didn't pointed out that each dimension of intellectual capital affect external collaborative competency positively, we still can infer all of them will have influence on the external collaborative competency according to above discussion. Therefore, we suppose that the intellectual capital will positively effect on external collaborative competency, and proposed the following:

Proposition 4: Intellectual capital has a positive effect on external collaborative competency

### **External Collaborative Competency with E-Service Innovation**

Collaborative competency has been seeing as a very important factor that significant affects innovation practices of a firm [57]. Also, the previous research indicated that innovation practices are facilitated through inter-organizational collaboration behaviors [57]. Additional, the S-D logic believed that collaborate with business partners are necessary to innovation, which means businesses have exchange information, resource and combined capabilities with other organizations to provide innovation. There are several existing studies have involve the relationship between collaboration and innovation practices and revealed that collaboration can really advances innovation practices of a firm. [11][48][72]. Moreover, de Vries [17] mentioned that service innovation is not from single source; instead, the innovation comes from a collaborative network. Accordingly, we proposed that external collaborative competency will influence e-service innovation and proposed the



following:

Proposition 5: External collaborative competency has a positive effect on e-service innovation

### **Technology Orientation**

Technology orientation is a type of strategic orientation which can influence organizational innovation and encourage organization's openness to new technology. It is strategic which guide organization toward innovation through electronic technology. Technology orientation represents organization encourage employees in recognizing and utilizing to emerging technologies when develop products or services [24][77]. Prior studies defined technology orientation as "the ability and will to acquire a substantial technological background and use it in the development of new products" [24] [65]. A business with technology orientation will has higher willingness to invest more in R&D and ambitious to apply new technology within a firm [24]. Trainor, Rapp, Beitelspacher, and Schillewaert [70] proposed that technology orientation can be regarded as a philosophy of "technological push" favoring the application of new technologies.

### **The Moderating Role of Technology Orientation**

The prior study has investigated the positive relationship between technology orientation and technology-based innovation [77]. Also, previous study investigated that product ideation novelty is significantly enhanced by a technology orientation [65]. Moreover, science and technology can be recognized as a key factor that driver to innovation within a firm [18]. Therefore, we infer that an organization with high technology orientation will facilitate the ability in generating new ideas and enhance the firm's e-service innovation performance and proposed the following:

Proposition 6: Technology orientation has a positive moderating effect on the relationship between intellectual capital and e-service innovation

## **CONCLUSION**

This study addresses a central question in the e-service innovation field regarding intellectual capital. The goal of this study is to determine the effects of intellectual capital on e-service innovation, examine the effects of mediators and moderator on the relationship between intellectual capital and e-service innovation.

An empirical study based on a survey of IT managers and marketing managers from financial and hotel businesses in Taiwan will be conducted and discussed, and expects to compare the differences between the two industries. We are still at the stage to collect data from surveyed companies and expected to use PLS to validate the proposed model.

## **REFERENCES**

- [1] Alegre, J., Lapiedra, R., & Chiva, R. (2006). A measurement scale for product innovation performance. *European Journal of Innovation Management*, 9(4), 333-346.
- [2] Ashok K. Gupta, S. P. R., & Wilemon, D. (1986). A Model for Studying R&D. Marketing Interface in the Product Innovation Process. *Journal of Marketing*, 50(2), 7-17.

- [3] Barney, J.B., and Wright, P.M. (1998). On Becoming a Strategic Player: The Role of Human Resources in Gaining Competitive Advantage. *Human Resource Management*, 37, 31–46.
- [4] Bontis, N. (1998). Intellectual capital: an exploratory study that develops measures and models. *Management Decision*, 36(2), 63-76.
- [5] Brennan, N., & Connell, B. (2000). Intellectual capital: current issues and policy implications. *Journal of Intellectual Capital*, 1(3), 206-240.
- [6] Brettel, M., Heinemann, F., Engelen, A., & Neubauer, S. (2011). Cross-Functional Integration of R&D, Marketing, and Manufacturing in Radical and Incremental Product Innovations and Its Effects on Project Effectiveness and Efficiency. *Journal of Product Innovation Management*, 28(2), 251-269.
- [7] Bueno, E., Salmador, M. P., & Rodríguez, Ó. (2004). The role of social capital in today's economy: Empirical evidence and proposal of a new model of intellectual capital. *Journal of Intellectual Capital*, 5(4), 556-574.
- [8] Carmona-Lavado, A., Cuevas-Rodríguez, G., & Cabello-Medina, C. (2010). Social and organizational capital: Building the context for innovation. *Industrial Marketing Management*, 39(4), 681-690.
- [9] Chandy, R. K., & Tellis, G. J. (1998). Organizing for Radical Product Innovation: The Overlooked Role of Willingness to Cannibalize. *Journal of Marketing Research*, 35(4), 474-487.
- [10] Chang, H. H., & Chuang, S.-S. (2011). Social capital and individual motivations on knowledge sharing: Participant involvement as a moderator. *Information & Management*, 48(1), 9-18.
- [11] Chen, J.-S., Tsou, H. T., & Huang, A. Y.-H. (2009). Service Delivery Innovation: Antecedents and Impact on Firm Performance. *Journal of Service Research*, 12(1), 36-55.
- [12] Chen, J.-S., Tsou, H.-T., & Ching, R. K. H. (2011). Co-production and its effects on service innovation. *Industrial Marketing Management*, 40(8), 1331-1346.
- [13] Chen, Y.-S., James Lin, M.-J., & Chang, C.-H. (2006). The Influence of Intellectual Capital on New Product Development Performance – The Manufacturing Companies of Taiwan as an Example. *Total Quality Management & Business Excellence*, 17(10), 1323-1339.
- [14] Chien, S.-H., & Chao, M.-C. (2011). Intellectual capital and new product sale performance of the financial services industry in Taiwan. *The Service Industries Journal*, 31(16), 2641-2659.
- [15] Coff, R. W. (2002). Human Capital, Shared Expertise, and the Likelihood of Impasse in Corporate Acquisitions. *Journal of Management*, 28(1), 107-128.
- [16] Dakhli, M., & De Clercq, D. (2004). Human capital, social capital, and innovation: a multi-country study. *Entrepreneurship & Regional Development*, 16(2), 107-128.
- [17] de Vries, E. J. (2006). Innovation in services in networks of organizations and in the distribution of services. *Research Policy*, 35(7), 1037-1051.
- [18] Dosi, G. (1982). Technological paradigms and technological trajectories: A suggested interpretation of the determinants and directions of technical change. *Research Policy*, 11(3), 147-162.
- [19] Drucker, P.F. (1985). *Innovation and entrepreneurship: Practice and principles*. New York, NY: Harper and Row.
- [20] Edvinsson, L., & Sullivan, P. (1996). Developing a model for managing intellectual capital. *European Management Journal*, 14(4), 356-364.
- [21] Engelen, A., Brettel, M., & Wiest, G. (2012). Cross-functional Integration and New Product Performance — The Impact of National and Corporate Culture. *Journal of International Management*, 18(1), 52-65.
- [22] Froehle, C. M., & Roth, A. V. (2007). A Resource-Process Framework of New Service Development.

Production and Operations Management, 16(2), 169-188.

- [23] Gadrey, J., Gallouj, F., & Weinstein, O. (1995). New modes of innovation: How services benefit industry. *International Journal of Service Industry Management*, 6(3), 4-16.
- [24] Gatignon, H., & Xuereb, J.-M. (1997). Strategic Orientation of the Firm and New Product Performance. *Journal of Marketing Research*, 34(1), 77-90.
- [25] Grant, R. M. (1996). Toward A Knowledge-Based Theory of The Firm. *Strategic Management Journal*, 17(Winter Special), 109-122.
- [26] Griffin, A., & Hauser, J. R. (1996). Integrating R&D and Marketing: A Review and Analysis of the Literature. *Journal of Product Innovation Management*, 13(3), 191-215.
- [27] Hillman, A. J., & Dalziel, T. (2003). Boards of Directors And Firm Performance: Integrating Agency and Resource Dependence Perspectives. *Academy of Management Review*, 28(3), 383-396.
- [28] Hinnant, C. C., & O'Looney, J. A. (2003). Examining pre-adoption interest in online innovations: an exploratory study of e-service personalization in the public sector. *Engineering Management, IEEE Transactions on*, 50(4), 436-447.
- [29] Hipp, C., Tether, B. S., & Miles, I. (2000). The Incidence and Effects of Innovation in Services: Evidence from Germany. *International Journal of Innovation Management*, 04(04), 417-453.
- [30] Hirunyawipada, T., Beyerlein, M., & Blankson, C. (2010). Cross-functional integration as a knowledge transformation mechanism: Implications for new product development. *Industrial Marketing Management*, 39(4), 650-660.
- [31] Hsu, Y.-H., & Fang, W. (2009). Intellectual capital and new product development performance: The mediating role of organizational learning capability. *Technological Forecasting and Social Change*, 76(5), 664-677.
- [32] Huang, Y.-C., & Wu, Y.-C. J. (2010). Intellectual capital and knowledge productivity: the Taiwan biotech industry. *Management Decision*, 48(4), 580-599.
- [33] Huang, Y.-C., Ding, H.-B., & Kao, M.-R. (2009). Salient stakeholder voices: Family business and green innovation adoption. *Journal of Management & Organization*, 15(3), 309-326.
- [34] Itami H. (1987). *Mobilizing Invisible Assets*. Harvard University Press, Boston.
- [35] Jiménez-Jiménez, D., & Sanz-Valle, R. (2011). Innovation, organizational learning, and performance. *Journal of Business Research*, 64(4), 408-417.
- [36] Johne, A., & Storey, C. (1998). New service development: a review of the literature and annotated bibliography. *European Journal of Marketing*, 32(3/4), 184-251.
- [37] Jong, J. P. J. d., & Vermeulen, P. A. M. (2003). Organizing successful new service development: a literature review. *Management Decision*, 41(9), 844-858.
- [38] Kahn, K. B. (1996). Interdepartmental Integration: A Definition with Implications for Product Development Performance. *Journal of Product Innovation Management*, 13(2), 137-151.
- [39] Laursen, K., Masciarelli, F., & Prencipe, A. (2012). Regions Matter: How Localized Social Capital Affects Innovation and External Knowledge Acquisition. *Organization Science* 23(1), 177-193.
- [40] Lu, W.-M., & Hung, S.-W. (2011). Exploring the operating efficiency of Technology Development Programs by an intellectual capital perspective—A case study of Taiwan. *Technovation*, 31(8), 374-383.
- [41] Lusch, R. F., Vargo, S. L., & O'Brien, M. (2007). Competing through service: Insights from service-dominant logic. *Journal of Retailing*, 83(1), 5-18.
- [42] Lynn, B. E. (1999). Culture and intellectual capital management: a key factor in successful ICM implementation. *International Journal of Technology Management*, 18(5), 590-603.

- [43] Melton, H. L., & Hartline, M. D. (2012). Employee Collaboration, Learning Orientation, and New Service Development Performance. *Journal of Service Research*.
- [44] Mishra, A. A., & Shah, R. (2009). In union lies strength: Collaborative competence in new product development and its performance effects. *Journal of Operations Management*, 27(4), 324-338.
- [45] Moorthy, S., Ratchford, B. T., & Talukdar, D. (1997). Consumer Information Search Revisited: Theory and Empirical Analysis. *Journal of Consumer Research*, 23(4), 263-277.
- [46] Nahapiet, J., & Ghoshal, S. (1998). Social Capital, Intellectual Capital, and the Organizational Advantage. *Academy of Management Review*, 23(2), 242-266.
- [47] Oke, A. (2007). Innovation types and innovation management practices in service companies. *International Journal of Operations & Production Management*, 27(6), 564-587.
- [48] Ordanini, A., & Parasuraman, A. (2010). Service Innovation Viewed Through a Service-Dominant Logic Lens: A Conceptual Framework and Empirical Analysis. *Journal of Service Research*, 14(1), 3-23.
- [49] Penrose, E. T. (1959). *The theory of the growth of the firm*. John Wiley: New York.
- [50] Pfeffer, J. (1982). *Organizations and Organization Theory*, Pitman, Marshfield, MA.
- [51] Polanyi, M. (1962). *Personal Knowledge: Towards a Post-Critical Philosophy*. London, Routledge and Kegan Paul.
- [52] Putnam, R. (1993). *Making democracy work: Civic traditions in modern Italy*. Princeton, NJ: Princeton University.
- [53] Rai, A., & Sambamurthy, V. (2006). Editorial Notes--The Growth of Interest in Services Management: Opportunities for Information Systems Scholars. *Information Systems Research*, 17(4), 327-331.
- [54] Ramezan, M. (2011). Intellectual capital and organizational organic structure in knowledge society: How are these concepts related? *International Journal of Information Management*, 31(1), 88-95.
- [55] Roos, G., & Roos, J. (1997). Measuring your company's intellectual performance. *Long Range Planning*, 30(3), 413-426.
- [56] Rudež, H. N., & Mihalič, T. (2007). Intellectual capital in the hotel industry: A case study from Slovenia. *International Journal of Hospitality Management*, 26(1), 188-199.
- [57] Sarin, S., & Mahajan, V. (2001). The Effect of Reward Structures on the Performance of Cross-Functional Product Development Teams *Journal of Marketing*, 65(2), 35-53.
- [58] Schulz, M., & Jobe, L. A. (2001). Codification and tacitness as knowledge management strategies: an empirical exploration. *The Journal of High Technology Management Research*, 12(1), 139-165.
- [59] Schumpeter, J.A. (1934). *The Theory of Economic Development: An Inquiry into Profits, Capital, Credit, Interest and the Business Cycle*. Harvard University Press, Cambridge, MA.
- [60] Snell, S. A., & James W. Dean, J. (1992). Integrated Manufacturing and Human Resource Management: A Human Capital Perspective. *Academy of Management Journal*, 35(3), 467-504.
- [61] Song, M., & Montoya-Weiss, M. M. (2001). The Effect of Perceived Technological Uncertainty on Japanese New Product Development. *Academy of Management Journal*, 44(1), 61-80.
- [62] Song, X. M., & Parry, M. E. (1992). The R&D-marketing interface in Japanese high-technology firms. *Journal of Product Innovation Management*, 9(2), 91-112.
- [63] Sørensen, C., & Lundh-Snis, U. (2001). Innovation through knowledge codification. *Journal of Information Technology*, 16(2), 83-97.
- [64] Sorescu, A. B., Chandy, R. K., & Prabhu, J. C. (2003). Sources and Financial Consequences of Radical Innovation: Insights from Pharmaceuticals. *Journal of Marketing*, 67(4), 82-102.
- [65] Spanjol, J., Qualls, W. J., & Rosa, J. A. (2011). How Many and What Kind? The Role of Strategic

- Orientation in New Product Ideation\*. *Journal of Product Innovation Management*, 28(2), 236-250.
- [66] Subramaniam, M., & Youndt, M. A. (2005). The Influence of Intellectual Capital on the Types of Innovative Capabilities. *Academy of Management Journal*, 48(3), 450-463.
- [67] Teece, D.J., Pisano, G., and Shuen, A. (1997). Dynamic Capabilities and Strategic Management. *Strategic Management Journal*, 18, 509–533.
- [68] Thakur, R., & Hale, D. (2012). Service innovation: A comparative study of U.S. and Indian service firms. *Journal of Business Research*.
- [69] Tomlinson, P. R. (2010). Co-operative ties and innovation: Some new evidence for UK manufacturing. *Research Policy*, 39(6), 762-775.
- [70] Trainor, K. J., Rapp, A., Beitelspacher, L. S., & Schillewaert, N. (2011). Integrating information technology and marketing: An examination of the drivers and outcomes of e-Marketing capability. *Industrial Marketing Management*, 40(1), 162-174.
- [71] Troy, L. C., Hirunyawipada, T., & Paswan, A. K. (2008). Cross-Functional Integration and New Product Success: An Empirical Investigation of the Findings. *Journal of Marketing*, 72(6), 132-146.
- [72] Tsou, H. T. (2012). Collaboration competency and partner match for e-service product innovation through knowledge integration mechanisms. *Journal of Service Management*, 23(5), 640-663.
- [73] Tsou, H.-T., & Chen, J.-S. (2012). The influence of interfirm codevelopment competency on e-service innovation. *Information & Management*, 49(3-4), 177-189.
- [74] Turkulainen, V., & Ketokivi, M. (2012). Cross-functional integration and performance: what are the real benefits? *International Journal of Operations & Production Management*, 32(4), 447-467.
- [75] Youndt, M. A., Subramaniam, M., & Snell, S. A. (2004). Intellectual Capital Profiles: An Examination of Investments and Returns\*. *Journal of Management Studies*, 41(2), 335-361.
- [76] Zaheer, A., McEvily, B., & Perrone, V. (1998). Does Trust Matter? Exploring the Effects of Interorganizational and Interpersonal Trust on Performance. *Organization Science*, 9(2), 141-159.
- [77] Zhou, K. Z., Yim, C. K. B., & Tse, D. K. (2005). The Effects of Strategic Orientations on Technology- and Market-Based Breakthrough Innovations. *Journal of Marketing*, 69(2), 42-60.
- [78] Ziegler, A., & Seijas Nogareda, J. (2009). Environmental management systems and technological environmental innovations: Exploring the causal relationship. *Research Policy*, 38(5), 885-893.