

Competence-related challenges for micro-enterprises entering the field of servitization

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Abstract: The purpose of this study was to examine the competencies that micro-enterprises (micros) need in order to enter the field of servitization. Servitization is a great business opportunity for micros, but it is important to know what competencies a firm needs when targeting the longer and more profitable customer relationships that servitization may offer. Micros possess limited human resources and thus competencies, and it is crucial for them to understand competence-related challenges in order to operate successfully.

This empirical study was conducted by employing a qualitative research approach in order to enrich the collected data and the findings. The multiple case strategy used here allowed for an extensive examination of the phenomenon of interest. Data were collected by means of interviews in eight Finnish subcontracting micros in the fields of forestry and mining in order to produce new information about the competence-related challenges faced by micros entering the field of servitization.

The results show that micros face competence-related challenges in servitization in terms of entrepreneurship, functioning under change and financing. Entrepreneurial competencies are strongly linked to recognising opportunities and envisioning future business opportunities. There is also a need for change competencies, both for micros and customers, including the ability and willingness to change by renewing employees' skills and methods of working. Financial difficulties and a lack of understanding regarding future economic responsibilities were highlighted as challenges. This competence-based approach to studying micros in the context of limited human resources allowed us to identify the competence-related challenges that micros face in the industrial mega-trend of servitization. In addition, this study addressed academic and practical application gaps in the study of micros.

Keywords: micro-enterprises, competencies, servitization, case study, Finland

1. Introduction

This paper concerns the competence-related challenges that micro-enterprises (micros) face when entering the field of servitization. Servitization means enhancing the capabilities and renewing the processes of a company in order to create mutual value for the company and its customers. This process occurs by shaping a firm's offering from traditional products to product-service entities (Baines et al., 2009).

Micros employ 1–9 people and have a turnover \leq € 2 M€ or a balance sheet total \leq € 2 M€ (European Commission, 2018). Micros represent over 95% of European enterprises (Muller et al., 2016) and are considered a driver of the European Union's economy. There is a lack of academic research on micros (Kelliher & Reinl, 2009) and a considerable gap in the literature regarding micros (Samujh, 2011). It is widely acknowledged that micros experience resource scarcity, which forces them to operate under financial and expertise constraints (Kelliher & Reinl, 2009). Human resources are limited, and, therefore, competencies are limited as well.

Micros are largely influenced by their owners and managers (Burns, 2010). Predominantly, a micro's culture is an extension of the owner's personality, as the owner plays a pivotal role in an organisation's focus and success (Kelliher & Reinl, 2009; Burns, 2010). When a micro-entrepreneur faces challenges, unexpected changes or crises, he or she must usually solve them alone. Entering the field of servitization may challenge a micro's competencies, and it is crucial for micros to evaluate their limited competencies proactively before entering the servitization field. In addition, to acquire competitive advances in business with limited human resources, Barney, Wright & Kechen (2001) stated that, for small firms, '[. . .] much of the focus of RBV [resource-based view] research has been on larger firms, yet smaller firms also face the need to acquire critical resources to create a sustainable competitive advantage' (p. 634).

Servitization has a great impact on customer value in terms of co-operation and individualisation (Carsten Carsten, Müller-Stewens & Zimmermann, 2017). For micros, servitization is a great business opportunity, but it is important to know what competencies a firm needs when targeting the longer and more profitable customer relationships that servitization may offer.

To study competence-related challenges in micros, the research questions of this study were as follows:

1. What competence-related challenges do micros face when entering the field of servitization?
2. How do limited human resources influence micros entering the field of servitization?

The current paper, being qualitative in nature, examines competence-related challenges from various perspectives and focuses on defining the phenomenon in terms of micros with limited resources. Generally, competence literature concentrates on large business units (Barney et al., 2001) with people who have special competencies that enable them to perform different tasks in a company. However, in a small firm, everybody must perform several tasks (Taipale-Eräväla, 2015); thus, the current competence literature cannot be applied to micros. This study narrowed a discovered gap in qualitative case study research on management development and training in the context of micro-business entrepreneurship and micros (Devins et al., 2005). Qualitative research and face-to-face interviews are informative and may offer wider understanding of a phenomenon; thus, interviews were conducted. Furthermore, this study obtained new knowledge related to servitization. Although many academic studies have been conducted on this topic, research on servitization seems to concentrate on existing knowledge in the study of manufacturing industries (Kowalkowski, Gebauer & Oliva, 2017). Micros generally act as subcontractors in various industries and offer a rich platform for research as a result.

2. Previous Research

There are few competence-related studies on micros. Kelleher and Reindl (2009) studied the competencies and competitive advantages of micros, concluding that 'there is an assumption that knowledge must be used optimally within the micro-firm by developing the analytical and critical skills of individuals, groups and the entire organisation so as to sustain and grow these firms' competitive advantage'. Micros employ between one and nine people, so studying competence is partly individual and partly organisational.

Before diving into the previous literature, it is important to define *competence*, as it is a fuzzy concept (Delamare-LeDeist & Winterton, 2005) due to its similarity to *competencies* (van der Klink & Boon, 2003). Sanghi (2007) explained that competence is skill-based (i.e., what a person can do), while a competency is behaviour-based, (i.e., how to do it). Many definitions of *competence* and *competencies* exist in the literature (e.g., Biemans et al., 2004; Brockmann, Clarke & Winch, 2008; Spencer & Spencer, 1993). In this study, we define competencies as human features, abilities, attitudes, capabilities, skills, experiences and other traits that influence a firm's operations. According to Klemp (1980), a competency is 'an underlying characteristic of a person which results in effective and/or superior performance on the job' (p. 21).

A business begins when an individual discovers an opportunity, executes an idea into profitable innovation and establishes an enterprise, becoming an entrepreneur (Shane, 2003). The act of discovering an idea, exploiting it and executing it requires entrepreneurial competencies. Entrepreneurial competencies focus on scanning the future business environment, generating ideas and identifying new business opportunities (Mitchelmore & Rowley, 2010). Chandler and Jansen (1992) explained that entrepreneurial competencies include entrepreneurial skills, managerial skills and technical skills. Micros are small; thus, an entrepreneur who exploits and executes an idea often acts as a manager and requires managerial competencies.

Managerial competencies are crucial for firms to develop other competencies (Lado, Boyd & Wright, 1992), including financial and human resource management, marketing and commercial activities and leadership skills (Loué & Baronet, 2012). Thus, an entrepreneur orchestrates physical, human and monetary resources and business performance using managerial competencies. When starting a business, an entrepreneur focuses on physical and monetary resources and then on human resources. Human resources in micros are usually limited. In Europe, micro-, small- and medium-sized enterprises employ at least four people (Lukacs, 2005), forming an organisation with organisational competencies. According to Teece, Pisano & Shuen (1997), organisational competencies are firm-specific assets formed by individuals and groups to facilitate firms' performances. Similar to organisational competencies are network competencies (Ferrer et al., 2009), which focus on inter-

organisational networking and co-operation (Lambert & Cooper, 2000). Organisational competencies are built on top of individual competencies (Nurach, Thawesaengskulthai & Chandrachai, 2012).

Overall, individual competencies create a basis for a firm's expertise; therefore, the effect of employees' skills and competencies on any firm's performance is significant. Job competency (i.e., how an individual benefits a micro) is an underlying characteristic of an individual that results in superior and effective performance in a job (Boyatzis, 1982; Klemp, 1980). In order to achieve competitive advantages, both employee- and organisational-level competencies are important (Hitt, Ireland & Hoskisson, 2005). The business environment changes constantly; thus, individuals and organisations must be willing to change. Change competencies allow firms to survive through various business changes, such as renewing skills and work mannerisms and having a proactive attitude towards change (Taipale-Eräväla, 2015). When a business environment changes, change competencies are required. Servitization, as a modern trend, is a challenge to many companies, including micros.

Servitization is an action where a 'firm offers bundles of customer-focused combinations of products, services, support, self-service and knowledge' (Vandermerwe & Rada, 1988) to enhance competitive advantages (Wise & Baumgartner, 1999; Neely, 2007; Baines et al., 2009a). Over the years, product-service combinations have increasingly shifted from selling a product to customers to leasing, hiring, pooling and paying for availability or performance (Spring & Araujo, 2009). Thus, the boundary between products and services is now obscure (Ren & Gregory, 2007; Baines et al., 2009b).

3. Research methods, data collection methods and data analysis

This study is a cross-sectional multiple-case study (Saunders et al., 2009; Yin, 2009). Case study research produces detailed and holistic knowledge based on the analysis of multiple empirical, context-rich sources (Tellis, 1997). It is commonly used in business research as a method to improve the knowledge of individual, group-level, organisational and social phenomena (Yin, 2009). Case studies can produce rich descriptions of every-day life (Stake, 1995); in this study, this refers to the beliefs, opinions and views of micro-enterprise managers regarding the competence-related challenges of entering the field of servitization. A case may be a unique or special, operating according to a pattern (Stake, 1995). Micros and the competence-related challenges related to servitization are special cases because of their novelty in business.

The data collection used herein involved individual, focused interviews. In a focused interview, the aim is to collect data by interviewing a person or people for a short period of time (Yin, 2009). The data were collected from eight Finnish micros using semi-structured interviews to ensure that rich and focused information was collected (Merriam, 2009). A qualitative approach was selected for this study in order to obtain a better understanding of the context within which decisions are made and actions are performed (Myers, 2009). The researchers interviewed the representatives of the micros. In this study, the firms were chosen based on industry, size and location. The case companies represent Finnish micros functioning in process industry. The interviews were conducted between 24 April 2017 and 22 August 2017. Table 1 summarises the studied micros and interviews.

Table 1: Descriptions of the interviewees and their interviews

Case number	Industry in which the firm operates	Number of employees	Interviewee(s)	Length of interview
1.	Forestry	2–3	Managing director	1 h
2.	Mining and delivering comprehensive ICT services and solutions	5	Managing director, Marketing manager	1 h 18 min
3.	Machining, subcontracting	5	Managing director, Chief financial officer	1 h
4.	Supplying electrical devices and equipment for mining and community infrastructure building	2	Managing director	1 h 16 min
5.	Maintenance services in the mining industry	8	Managing director	59 min

6.	Manufacturing high-speed electronics for mining, the steel industry, pharmacies and bio-pharmacies	6	Managing director, Marketing manager	1 h 11 min
7.	Diving and underwater works for industries, municipalities and ports	1	Managing director	1 h 2 min
8.	Installing equipment for the forestry, mining, energy and steel industries, including maintenance and welding	4, temporary staff when needed	Managing director	1 h 8 min

Before the interviews, all interviewees received a semi-structured questionnaire to familiarise themselves with the topics. During each interview, the order of the topics varied. Interviewer allowed each interviewee to discuss the topics freely, as a relaxing atmosphere allows people to talk openly about their opinions, beliefs and experiences. The questions were clarified and repeated if necessary in order to ensure the interviewees' comprehension. The central themes covered by the interview were; (1) customer, (2) offerings, (3) value proposition, (4) sales structure, and (5) present and future challenges. Before each interview, the researcher explored the publicly available secondary data pertaining to each micro.

A modified grounded theory-based process (Easterby-Smith, Thorpe & Lowe, 1991) was used to conceptualise the framework through the classification of data related to the research questions (Merton & Kendal, 1957). The interviews were first coded based on the research questions, and after that the main coded items were grouped and categorised based of their similarities.

4. Findings

The findings are presented separately related to the research questions RQ1 and RQ2. First, the analysis of the data related to the first research question RQ1 revealed the following competence categories: entrepreneurial and managerial competencies, individual competencies related to an entrepreneur, individual competencies related to an employee, financial competencies and change competencies. Table 2 presents the competence categories classifying the first phase of the coding with examples taken directly from the interviews. Second, the analysis of the data related to the second research question RQ2 revealed that limited human resources are a major challenge for micros entering the field of servitization.

4.1 Competence-related challenges for micro-enterprises entering the field of servitization

The competence-related challenges are categorized in the Table 2 below divided in Entrepreneurial and managerial competencies, Individual competencies of an entrepreneur and an employee, Financial competencies and Change competencies.

Table 2: Competence-related challenges for micros entering the field of servitization

Competence category	Examples	Quotations
Entrepreneurial and managerial competence	A lack of entrepreneurial competencies (case 3) Not actively looking for new business opportunities (case 3) A lack of managerial competence needed to clarify business plans (case 4)	'We need to search for longer customerships and partnerships, but we have not achieved them, and this is our challenge in the field of marketing' (case 3) 'The [business plan] needs to be cleared up because our resources will not last long' (case 4)
Individual competence (entrepreneur)	A lack of language proficiency, which is an obstacle to increasing international trade (case 1) In a network, a single entrepreneur is able to conduct more work; however, in a network, not all possess network competencies (case 7)	'My language proficiency is limited. I had to choose either technology or language. I chose technology' (case 1) 'I could find a partner and get together a packet, but it has failed to happen' (case 7)

Individual competence (employee)	Availability of competent, permanent employees (case 1) Shortage of experienced, skilled, multi-tasking personnel (case 4)	'I have trained about 10 guys, and, when they are skilled, they put their papers [job applications] elsewhere' (case 1) 'We have to recruit, but it is terribly difficult to find employees. This is a special field; it takes time for a person to learn' (case 4)
Financial competence	No observations about cost effects (case 6) Understands variable costs, but not the influence of fixed expenses (case 7)	'It [servitization] may be a goal in the future, but it demands resources from the company and the organisation. We do not possess such resources at the moment' (case 6) 'Goodness, insurance is the greatest nuisance' (case 7)
Change competence	An entrepreneur understands the risk of one supplier shutting down a mine but clings to the past (case 5) Field-specific unwillingness of customers to develop new solutions (case 2) Do-it-yourself attitude prevents new sales (case 1)	'It is kind of difficult to experiment away from here, because the work there remains undone and work here remains undone' (case 5) 'The culture [in mining] is such that people want to do things that they have done before in the same way' (case 2) 'You [the customer] can get the best profit using new skills' (case 1)

4.1. Competence-related challenges for micro-enterprises entering the field of servitization

Herein, entrepreneurial and managerial competencies were treated together, because, in a micro, the entrepreneur acts as the manager as well. Entrepreneurial competencies include searching for new business possibilities by scanning the business environment and developing new business ideas. It is possible to exploit servitization in order to search for new business possibilities, for example, by increasing digitisation or increasing the number of services instead of delivering products. Passiveness is a competence-related challenge in searching for new businesses, as noted in case 3 with the following statement: *'We need to search for longer customerships and partnerships, but we have not achieved them, and this is our challenge in the field of marketing'*. Another challenge is clarifying scattered business plans, as noted in case 4: *'The [business plan] needs to be cleared up because our resources will not last long'*.

Individual competencies were treated from the point of views of entrepreneurs and employees, as micros with few employees may be competent and successful by networking or acquiring other competencies. This study revealed a lack of language proficiency to be a challenge, as noted in case 1: *'My language proficiency is limited. I had to choose either technology or language. I chose technology'*, as well as the need for networking, as noted in case 7: *'I could find a partner and get together a packet, but it has failed to happen'*. Micros have challenges in terms of the unavailability of professional and permanent personnel. As such, they must train employees to obtain the skills the micro needs, as noted in cases 1 and 4: *'I have trained about 10 guys, and, when they are skilled, they put their papers [job applications] elsewhere'* and *'We have to recruit, but it is terribly difficult to find employees'* (case 1) and *'This is a special field; it takes time for a person to learn'* (case 4).

Financial issues and competencies are important for micros to secure financial capital and ensure low turnover. Servitization is a novel issue, and observations on its financial effects on business operations are scarce. In a start-up, *'it [servitization] may be a goal in the future, but it demands resources from the company and the organisation. We do not possess such resources at the moment'* (case 6). In the interviews, insurance came up unexpectedly. When asked about the financial considerations when entering the field of servitization, the interviewee stated, *'Goodness, insurance is the greatest nuisance'* (case 7).

When entering the field of servitization, business operations change; thus, change competencies are required, including a proactive attitude towards change, the ability to tolerate uncertainty and the willingness to renew skills and work mannerisms (Taipale-Eräväla, 2015). Change is difficult to implement, as entrepreneurs may cling to the past, as seen in case 5: *'It is kind of difficult to experiment away from here, because the work there remains undone and work here remains undone'*. In addition, customers or industries may avoid novel business solutions and want to proceed as usual, which interferes with servitization, as seen in case 2: *'The culture [in mining] is such that people want to do things that they have done before in the same way'*. In addition, customers' do-it-

yourself attitude prevents new sales, as noted in case 1: *'You [the customer] can get the best profit from your forest using new skills'*.

4.2. Limitations of human resources for micros entering the field of servitization

Servitization requires planning. When a micro considers providing advanced services, it may face a lack of time, challenges in increasing business operations, challenges in changing employees' individual attitudes and challenges in recruiting skilled and motivated personnel. These challenges are presented in Table 3.

Table 3: Limitations of human resources for micros entering the field of servitization

Limitation	Quotations
Lack of time	'We do not have the time or human resources to acquire knowledge of the conditions of international business' (case 1) 'No time to invest in marketing and minor human resources in marketing' (case 3)
Challenges in increasing business operations	'We do not have any resources for servitization yet' (case 6) 'The servitization business in the industry is too big for a small firm, so small firms remain small' (case 8)
Employees' individual attitudes and conditions	'We have difficulties getting personnel to work long-distance jobs' (case 5) 'It is a challenge to recruit personnel to work long-distance jobs' (case 8)
Difficulties in recruiting skilled and motivated personnel	'You cannot operate in servitization at a large scale because of the unavailability of competent personnel' (case 1) 'Challenges in recruiting competent staff. Young people are not interested in the field [mining]' (case 5)

A lack of time is a common challenge for small firms, as confirmed in this study. The research question targeted the influences of limited human resources, which were manifested as slight actions in marketing (case 3) and a need for familiarisation with servitization (case 1). Based on the research, servitization seems to be connected to international business, which naturally depends on the industry of the micro.

Overall, micros lack resources for servitization (case 6), which may also mean limited physical or financial resources. In addition, servitization seems to be a big issue for micros (case 8). Servitization refers to certain actions, such as taking care of devices. Thus, employees must work outside of the micro's premises. The study revealed that employees are unwilling to work far away from their normal living areas (cases 5 and 8), which makes entering servitization challenging.

In addition, recruiting challenges hinder micros from entering the field of servitization. Although micros want to offer advanced services to their customers, the unavailability of competent personnel (cases 1 and 5) prevents this. Moreover, attractiveness varies by industry, in that young people are generally not interested in working in some industries (case 5).

5. Discussion and conclusion

The study focused on examining the competencies that micros need in order to enter the field of servitization using empirical and qualitative methods, specifically targeting the competence-related challenges that a micro may face, especially those caused by limited human resources. The findings highlight that servitization is quite novel and unfamiliar to micros. All the interviewed firms operate within large companies in the forestry and mining industries, where servitization has been used for years. Although some micros operate in industries where servitization is used, they might not recognise it as a new trend but rather through the lens of the status quo. However, micros will face servitization eventually; thus, the sooner that enterprises familiarise themselves with the basic issues of implementing servitization, the sooner these firms may benefit from the business obtained by providing advanced services.

A business begins when an individual discovers an opportunity, executes an idea into profitable innovation and establishes an enterprise, becoming an entrepreneur (Shane, 2003). Entrepreneurial competencies focus on scanning the future business environment, generating ideas and identifying new business opportunities (Mitchelmore & Rowley, 2010). This study indicated that micros desire long customerships in order to stabilise business fervency but do not see servitization as a solution. In addition, micros possess unclear business plans

due to their limited resources, which can be solved by achieving proper entrepreneurial and managerial competencies (Chandler & Jansen, 1992).

In terms of managerial competencies (Loué & Baronet, 2012), marketing and financial issues are challenges. Actions of marketing focus on acquiring more customers and orders but neglect financial issues, which can deeply harm small businesses. Thus, servitization seems to challenge the financial ability and economic knowledge of micros. Advanced services may produce high revenue for micros, which also means higher costs in terms of increased investments. According to this study, micros experience variable costs, especially insurance costs, to be the biggest challenge, although fixed costs may cause bigger challenges.

Individual competencies refer to all human features, including abilities, attitudes, capabilities, skills and experiences, all of which can affect job performance (Boyatzis, 1982; Klemp, 1980). Both employee- and organisational-level competencies are important (Hitt et al., 2005). This study indicated a lack of individual competencies (e.g., language proficiency and insufficiency to achieve the desired goal) and frustration surrounding the need to train competent employees and then losing them. The unavailability of skilled and competent personnel is a challenge that relates first to the individual competencies of employees and second to entrepreneurial and managerial competencies, as entrepreneurs are in charge of recruiting employees. Discovering the reasons for employee turnover will allow entrepreneurs to enhance their managerial and entrepreneurial competencies.

Servitization is a huge change in manufacturing industries that demands change competencies, such as a proactive attitude towards change, the ability to tolerate uncertainty and the willingness to renew skills and working mannerisms (Taipale-Eräväla, 2015). This study revealed that change competencies are required, and entrepreneurs cannot cling to the past. They must put effort towards looking for new customers or business ideas. Long customerships with only one customer endanger a micro's business continuity if the entrepreneur does not change his or her attitude towards change. The research highlighted that customers hinder change and want to operate in the same way as always. Thus, the progress of servitization depends both on micros and on their customers.

The study found that limited human resources are caused by a lack of time. Acquiring knowledge and familiarising oneself with servitization takes time from entrepreneurs and employees, but small firms can lower the threshold by networking. Sharing resources and building trust with partners in a network broadens human resources and enables efficient, flexible, high-quality and time-based operations (Ferrer et al., 2009). Using network co-operation had not been considered by micros but can be done to broaden human and other resources in the future.

In addition, the quality of personnel limits micros from entering the field of servitization. Employees' individual attitudes and conditions influence new business outputs. The unwillingness to work outside the premises and ambitiousness both indicate the personal valuation of work circumstances and institutional and social appreciations, all of which a micro may find difficult to change.

In conclusion, this study determined competence-related challenges for small enterprises, including a lack of time and the unavailability of personnel, both of which are connected to limited human resources. This may be eased by networking and co-operation with other small enterprises. This study also identified the importance of entrepreneurial competencies, focusing on discovering new businesses and exploiting possibilities for servitization. In addition, this study found that financial competencies challenge micros through the increased consciousness of investments and costs, which may fall on a supplier instead of a subcontractor. Finally, this study found that servitization changes the business environment. Overall, through change competencies, it is easy for a micro to enter the field of servitization.

First, this study is limited to competence-related challenges of micro-enterprises entering the field of servitization in manufacturing industries. In order to have broader view of competence-related challenges in micros, we encourage further research in other industries. Second, the data is collected in Finnish context. To study attitudinal and other competence-related challenges, we recommend opening the phenomenon in other contexts (different countries, regions, cultures, business ecosystems etc.). It may open new perspectives; e.g. if cultural items influence willingness to work outside the local business ecosystem, and other personal valuations of work circumstances. Moreover, in addition to studying the phenomenon in the context of micro-sized

enterprises opened in this study, we encourage opening the competence-related challenges of small and medium-sized as well as large enterprises entering the field of servitization.

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References

- Barney, J., Wright, M. and Ketchen, D.J. (2001) "The resource-based view of the firm: ten years after 1991", *Journal of Management*, Vol 27, pp 625-41.
- Baines, T.S., Lightfoot, H.W., Benedettini, O. and Kay, J.M. (2009a) "The servitization of manufacturing: A review of literature and reflection on future challenges", *Journal of Manufacturing Technology Management*, Vol 20, No. 5, pp 547–567.
- Baines, T.S., Lightfoot, H., Peppard, J., Johnson, M., Tiwari, A., Shehab, E. and Swink, M. (2009b) "Towards an operation strategy for product-service servitization", *International Journal of Operations & Production Management*, Vol 29, No. 5, pp 494-519.
- Biemans, H., Nieuwenhuis, L., Poell, R., Mulder, M., and Wesselink, R., 2004 "Competence-based VET in the Netherlands: background and pitfalls", *Journal of Vocational Education & Training*, Vol 56, No. 4, pp 523-538.
- Boyatzis, R. E. (1982) *The competence manager: A model for effective performance*, John Wiley & Sons, New York.
- Brockmann, M., Clarke, L., and Winch, C., (2008) "Knowledge, skills, competence: European divergences in vocational education and training (VET)—the English, German and Dutch cases", *Oxford Review of Education*, Vol 34, No. 5, pp 547-567.
- Burns, P. (2010) *Entrepreneurship and small business: Start-up. Growth and maturity*, 3rd ed., Palgrave Macmillan, Basingstoke.
- Carsten, C., Müller-Stewens, G. and Zimmermann, A. (2017) *Radical Business Model Transformation: Gaining the Competitive Edge in a Disruptive World*, 1st ed., Kogan Page Publishers, London.
- Chandler, G.N. and Jansen, E., 1992. "The founder's self-assessed competence and venture performance", *Journal of Business Venturing*, Vol 7, No. 3, pp 223-36.
- Delamare-Le Deist, F. and Winterton, J., (2005) "What Is Competence?", *Human Resource Development International*, Vol 8, No. 1, pp 27-46.
- Devins, D., Gold, J., Johnson, S. and Holden, R. (2005) "Conceptual model of management learning in micro businesses – implications for research and policy", *Education & Training*, Vol. 47, Nos, 8/9, pp 540-51.
- Easterby-Smith, M., Thorpe, R., and Lowe, A. (1991) *Management Research*, SAGE Publications Ltd, London.
- European Commission (EC), What is an SME?, webpages http://ec.europa.eu/growth/smes/business-friendly-environment/sme-definition_fi.
- Ferrer M., Santa R., Soosay, C., and Hyland, P. (2009) "The Critical Competences needed for Innovative Organisational Inter-Firm and Intra- Firm Integration", [Online], available from CINet http://eprints.qut.edu.au/27156/1/CINet_09_-_Ferrer.pdf.
- Hitt, M. A., Ireland, R. D., and Hoskisson, R. E. (2005) *Strategic management: Competitiveness and globalization*, 6th ed., KY7 South-Western, Versailles.
- Kelliher, F. and Reinl, L. (2009) "A resource-based view of micro-firm management practice", *Journal of Small Business and Enterprise Development*, Vol 16, No. 3, pp 521-532.
- Klemp, G. O. (1980) *The assessment of occupational competence*, Report to the National Institute of Education, Washington, DC:
- van der Klink, M. and Boon, J. (2003) "Competencies: the triumph of a fuzzy concept", *International Journal of Human Resources Development and Management*, Vol 3, No. 2, pp 125-137.
- Kowalkowski, C.; Gebauer, H. and Oliva, R. (2017) "Service growth in product firms: Past, Present, and Future", *Industrial Marketing Management*, Vol 60, pp 80-88.
- Lado, A.A., Boyd, N.G., and Wright, P. (1992) "A competency-based model of sustainable competitive advantage", *Journal of Management*, Vol 18, No. 1, pp 77-91.
- Lambert D. and Cooper, M. (2000) "Issues in Supply Chain Management", *International Marketing Management*, Vol 29, No. 1, pp 65-83.
- Loue, C. and Baronet, J. (2012) "Toward a new entrepreneurial skills and competencies framework: A qualitative and quantitative study", *International Journal of Entrepreneurship and Small Business*, Vol 17, No. 4, pp 455-477.
- Lukacs, E. (2005) "The Economic Role of SMEs in World Economy, Especially in Europe", *European Integration Studies*, Vol 1, No. 4, pp 3-12.
- Merriam, S. (2009) *Qualitative Research, A Guide to Design and Implementation*, Jossey-Bass, John Wiley & Sons, Inc., San Francisco.
- Merton, R.K. and Kendal, P. C. (1957) *The Student Physician*, Harvard University Press., Cambridge.

- Mitchelmore, S. and Rowley, J. (2010) "Entrepreneurial competencies: A literature review and development agenda", *International Journal of Entrepreneurial Behaviour & Research*, Vol 16, No. 2, pp 92-111.
- Muller, P., Devnani, S., Julius, J., Gagliardi, D., and Marzocchi, C. (2016). *Annual Report on European SMEs 2015/2016—SME recovery continues*, Contract number: EASME/COSME/2015/012, European Union.
- Myers, M. (2009) *Qualitative Research in Business and Management*, Sage Publications, London.
- Nurach, P., Thawesaengskulthai D., and Chandrachai, A. (2012) "Developing an Organization Competencies Framework for SME(s) in Thailand" *Chinese Business Review*, Vol 11, No. 2, pp 233-241.
- Neely, A. (2007) "The servitization of manufacturing: an analysis of global trends", *European Operations Management Conference Proceedings*, Ankara.
- Ren, G. and Gregory, M. (2007) *Servitization in manufacturing companies: A conceptualization, critical review and research agenda*, University of Cambridge, San Francisco.
- Samujh, H. R. (2011) "Micro-businesses need support: Survival precedes sustainability, corporate governance", *The International Journal of Business in Society*, Vol 11, No. 1, pp 15–28.
- Saunders, M., Lewis, P. and Thornhill, A. (2012) *Research Methods for Business Students* (6th ed.), Pearson, Essex, U.K.
- Spencer. L.M. Jr and Spencer, S.M. (1993) *Competence at Work*, John Wiley & Sons, New York.
- Sanghi, S. (2007) *The handbook of competency mapping: Understanding, designing and implementing competency models in organizations*, Response Books, New Delhi.
- Shane, S. (2003) *A General Theory of Entrepreneurship. The Individual-Opportunity Nexus*, Edward Elgar, Cheltenham.
- Spring, M. and Araujo, L. (2009) "Service, services and products: rethinking operations strategy", *International Journal of Operations & Production Management*, Vol 29, No. 5, pp 444-467.
- Stake, R. (1995) *The Art of Case Study Research*, SAGE Publications Ltd, California.
- Taipale-Eräväla, K. (2015) *Survival competencies in SMEs in changing business environments*, Thesis, Åbo Akademi University, <http://urn.fi/URN:ISBN:978-952-12-3296-1>.
- Teece D., Pisano, G., and Shuen, A. (1997) "Dynamic Capabilities and Strategic Management", *Strategic Management Journal*, Vol 18, Iss. 7, pp. 509-533.
- Tellis, W. (1997) *Introduction to case study*, *The Qualitative Report* 3(2), available <https://nsuworks.nova.edu/tqr/vol3/iss2/4/>.
- Vandermerwe, S. and Rada, J. (1988) "Servitization Of Business: Adding Value B Adding Services", *European Management Journal*, Vol 6, No. 4, pp 314-324.
- Wise, R. and Baumgartner, P. (1999) "Go Downstream: The Profit Imperative in Manufacturing", *Harvard Business Review*, Vol. 77, No. 5, pp 133-41.
- Yin, R. (2009) *Case Study Research, Design and Methods*, Sage Publications Inc, California.