OPERATIONS INTERNATIONALIZATION: REVIEW AND MODEL PROPOSAL

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Bachelor´s Thesis
May 2012

Degree Programme in Logistics Engineering
Technology, communication and transport

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OPINNÄYTETYÖN
KUVAILULEHTI

Tekijä(t) PELKONEN, Joel	Julkaisun laji Opinnäytetyö	Päivämäärä 25.05.2012
	Sivumäärä 46	Julkaisun kieli Englanti
	Luottamuksellisuus ( ) saakka	Verkkojulkaisulupa myönnetty (X)

Työn nimi
OPERATIONS INTERNATIONALIZATION: REVIEW AND MODEL PROPOSAL

Koulutusohjelma
Degree Programme in Logistics Engineering

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Toimeksiantaja(t)
Universitat Politècnica de València, Campus d´Alcoy

Tiivistelmä

Opinnäytetyö oli osa tutkimusprojektia, jossa tutkittiin tuotannon laajentamista ulkomaille ja siitä aiheutuvia kustannuksia. Research Center on Production Management and Engineering (CIGIP) oli alun perin opinnäytetyön aiheen esittäjä ja sen lisäksi Johnson & Controls – yritys oli mukana tutkimusprojektissa.

Opinnäytetyön tavoitteena oli kerätä ulkomaille laajentamiseen liittyvät mielenkiintoisimmat ja oleellisimmat tutkimukset yhteen ja tiivistää niistä tärkeimmät kohdat luokitellusti. Tarkoituksena oli myös määritellä ulkomaille laajentamisesta aiheutuvat kustannukset ja koota niistä yhteenvetävä kaaviokuva. Selkeiden kustannuksien lisäksi tutkimuksessa huomioitiin epäsuoria kustannuksia, kuten vieraassa ympäristössä ilmeneviä hankaluuksia, jotka vaikeuttavat ja hidastavat yrityksen sopeutumista sekä operointia.

Tavoitteiden lisäksi opinnäytetyö tarkasteli ja käsitteli yrityksille helpottavia tekijöitä ulkomaille laajentaessa ja monia erilaisia tuotantoketjujen suunnittelumalleja. Lähdemateriaaleista löytyi myös syitä siihen, miksi yritykset haluavat laajentaa tuotantoaan ja erilaisia teorioita sekä laajentamisen kohdemaalle tärkeitä ominaisuuksia ja piirteitä myös tarkasteltiin paljon.

Kustannussäästöt palkoissa todettiin tärkeimmäksi syyksi ja myös tärkeimmäksi kustannukseksi ulkomaille laajennettaessa. Myös monet epäsuorat kustannukset, kuten hyötysuhteiden tipahtaminen, laatukustannukset ja kulttuurilliset erot huomioitiin useissa lähteissä olevan merkittäviä. Jokatapauksessa kokemuksen ja oikean tiedon puute mainittiin johtavan odottamattomiin kustannuksiin ja hankaluuksiin kotimaan rajoja ylitettäessä yritysmaailmassa. Siksi paikalliset suhteet uudessa ympäristössä todettiin helpottavan tätä laajaa operaatiota. Toisaalta yhteenvetona esimerkiksi monimutkainen rahaliikenne tuo lisää kustannuksia ja kotimaassa työntekijät saattavat menettää työpaikkoja halvemmille ulkomaan kollegoilleen.

Avainsanat (asiasanat)
Cost of doing business abroad, cost of international expansion, global operations and supply chain, international facility location, offshoring and costs, offshoring and cost estimation, operations internationalization, supply chain redesign

Muut tiedot

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DESCRIPTION

Author(s)	Type of publication	Date
PELKONEN, Joel	Bachelor´s Thesis	25.05.2012
	Pages 46	Language English
	Confidential ( ) Until	Permission for web publication (X)

Title
OPERATIONS INTERNATIONALIZATION: REVIEW AND MODEL PROPOSAL

Degree Programme
Degree Programme in Logistics Engineering

Tutor(s)
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Assigned by
Universitat Politècnica de València, Campus d´Alcoy

Abstract

The thesis was part of a national research project about the costs of globalization of operations and the assignment was originally from Research Center on Production Management and Engineering (CIGIP). Another participant for this project with CIGIP was a company Johnson & Controls.

The specific goal of the thesis was to review the state of the art regarding international expansion, regarding mainly production, and propose taxonomy of the literature main points. Also the aim was to identify the costs of internationalization and clarify the findings on a conceptual model. Besides the costs, other relevant points of consideration were the difficulties in a host country environment and other indirect costs.

Besides the objectives, facilitating aspects in cross border operations and different types of international supply chain designs were considered. Also the resource papers shed bright light on many motives and theories related to internationalization and important host country criteria so they were also thoroughly discussed.

The wages were found as the most important cost in globalization before transportation costs. The thesis also found many indirect costs to be significant, such as losing advantages, quality costs and cultural differences. Lack of experience and knowledge were found to be the main reasons for difficulties and unexpected costs in international expansion.

In addition, local roots and relationships were concluded to be important to facilitate the entry to a new host environment. From the other perspective, complex transacting through a global supply chain causes more costs for the company and finally some domestic workers might lose their jobs within the globalization concept.

Keywords
Cost of doing business abroad, cost of international expansion, global operations and supply chain, international facility location, offshoring and costs, offshoring and cost estimation, operations internationalization, supply chain redesign

Miscellaneous

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1 Introduction

The internationalization concept is a popular target of examination within different researches. There are many theories supporting this concept and in the operational level redesigning supply chains has been increasing due to its profitability for the firms. The concept is very large and the existing papers provide different perspectives and solutions to facilitate the decision making process in this area. Nevertheless due to the lack of experience or knowledge, firms expanding abroad often face unexpected costs and perhaps possible, surprising phenomenon, barriers or resistance that make the beginning more difficult or the operations in a foreign environment different than planned. In this research these aspects are studied using a large data base and related, published papers as information resources.

The main findings of this research conclude that the reductions in labor costs are the main reason for majority of the firms to move operations abroad but it is not the only reason indeed. Nevertheless it is one of the biggest costs of a company and due to low level of wages countries in the developing East Asia are destinations of many internationalization operations.

A review of the relevant resource papers is presented regarding the international expansion concept. First of all the taxonomy considers the aims and contexts of the resource papers and the research approaches and tools used in them. Also the case studies presented in each paper are described shortly, following the benefits and disadvantages identified by them. In the discussion section the most relevant points of the papers are identified and ideas for further research are identified. Also a critical perspective is included on what has been learned from this work. Finally a conceptual model is presented concerning the cost structure of international expansion and the thesis ends up finishing with the conclusions and a summary from this study.

1.1 Objectives of the thesis

By relating the multinational point of view and liabilities of foreignness the main aim of this thesis is to find out the total costs of offshoring and globalization of operations contemplated in manufacturing supply chains. The previous studies have considered these topics earlier, but here different ideas and costs are gathered together and a comprehensive taxonomy and review of them is proposed and created. Also the differences between the relevant aspects of small and large companies in international expansion problem are separated. Among these aspects, other objectives are to identify difficulties of offshoring and doing business abroad including the problems in the new environment, social issues and border-crossing, just to name a few. Finally, the purpose is to sum up the main points of this study on a conceptual model to present them graphically and clarify the findings.

1.2 Research methodology

Journals are the source of the information used in this study. Articles related to the problem were searched by keywords from an online data base Web of Knowledge (WoK), which is a library of published journals related to sciences and business. The user account and access rights to WoK were provided by Universitat Politècnica de València –Campus d'Alcoy. To limit the area of the information and to help to find interesting articles the keywords were defined in the beginning of the research and year 2000 was set as another limit to reject articles published earlier than that. This was also to ensure newer information for the research. The keywords used in this study are listed below as follows:

- Cost of doing business abroad
- Cost of international expansion
- Global operations and supply chain
- International facility location
- Offshoring and costs
- Offshoring and cost estimation

- Operations internationalization
- Supply chain redesign

The articles selected and reviewed in this thesis are from many different sources, in this case basically journals. Maximum three articles are chosen from the same journal and there are multiple journals that richen this work by a single article. The paper selection is done by the contents of the articles and thereby is not related to the origin or characteristics of the journals. The table below presents the journals and number of articles chosen from them in order to describe the popularity of the journals used in this research.

TABLE 1. Number of articles presented by each journal

Journal name	**Number of articles**	**Total %**
European journal of operational research	3	8,11
International journal of production economics	3	8,11
Journal of operations management	3	8,11
Journal of World Business	3	8,11
Expert Systems with Applications	2	5,41
Journal of International Business Studies	2	5,41
Journal of International Management	2	5,41
Omega – International journal of management science	2	5,41
African journal of business management	1	2,70
Economic Inquiry	1	2,70
International Business Review	1	2,70
International Journal of Production Research	1	2,70
Journal of Business Research	1	2,70
Journal of cleaner production	1	2,70
Journal of industrial and management optimization	1	2,70
Journal of Management Studies	1	2,70
Journal of Urban Economics	1	2,70
Management Science	1	2,70
Mis Quarterly	1	2,70
NBER working paper series	1	2,70
Networks & Spatial Economics	1	2,70
Operations research	1	2,70
Production planning & control	1	2,70
Strategic management journal	1	2,70
Tijdschrift Voor Economische En Sociale Geografie	1	2,70

Also three books were used as a source. Their origin is also the WoK and they were chosen by the same manner as the journals. Not the whole contents of the books are included in this work, but the most interesting and the most related chapters. These sources by name, author(s) and chapters respectively are the following: Software Engineering Approaches for Offshore and Outsourced Development (Sommer et al. 2007): Outsourcing and offshoring: The consultancies' estimates; 2009 7th Ieee International Conference on Industrial Informatics, Vols 1 and 2 (Xia et al. 2009): Re-Designing A Distribution Network in A Supply Chain: - A Case Study; and Software Business (Ojala and Kontinen 2010): Distance Factors in the Foreign Market Entry of Software SMEs.

Altogether forty articles from journals or chapters from books were selected to be reviewed for this research. The main focus on the papers chosen is on internationalizing manufacturing operations but there are also some articles or book chapters related to internationalization of services or software to get support and comparison from that field of business, since they both share some problems when they are moved abroad.

2 Taxonomy

The literature used for this study is different all over but the general conclusions are compromising. In this section the source papers are described chronologically by identifying the characteristics of contexts and the objectives, modeling approaches, different tools used, the case studies and benefits and disadvantages of the papers. Since this is a reviewing paper, a conclusive table is presented concerning the resource papers in this thesis work in each section regarding the before mentioned

topics. Also a summarizing table of the most relevant findings and aspects from the resource papers is presented in the discussion section

2.1 Context of the papers

The focus of the resource papers in general is on internationalization difficulties, relocating of facilities, redesigning supply chains and costs and benefits of offshoring and international expansion. Majority of the papers refer to manufacturing operations, however some of them are related to information systems or services. Besides arguing with the earlier literature and proposing new aspects to the existing theories, some of the resources differ from them bringing mathematical and numerical perspectives and facts into this study.

Luo and Shenkar (2011), for example, apply offshoring aspects to an idea where the difficulties are reflected to friction studies and identify what causes more cultural friction in internationalization. Also difficulties and their root causes in internationalization are examined by Cuervo et al. (2007) by using advantage and disadvantage point of view when transferring resources to another country. The study proposes that the difficulties differ depending on the motive of offshoring. As an example, a will to access new resources in the host country causes complexity since it might require more cooperation with the foreign government. On the other hand, Hutzschenreuter et al. (2011) propose that strong international expansion in one period of time may have a negative impact on the subsequent growths due to large adaptation costs and Fuchs and Kirchain (2010) present the changes in manufacturing technology competitiveness when processes are transferred to another country.

Invisible costs of service offshoring are identified by Stringfellow et al. (2008) through examination regarding the causes of interaction intensity and distance. The paper concludes that the firms with effective organizational culture may experience fewer invisible costs regarding cultural distance and interaction intensity. Costs and also benefits of cross-border operations are studied by Sethi and Judge (2009) as

well and they argue that liability of foreignness and liability of multi-nationality make together the two parts of costs of doing business abroad.

Regarding internationalization, the firm size matters and furthermore big and smaller companies have different needs, weaknesses, strengths and strategies. Prater and Gosh (2006) research the effects of experience and coordinating capability of using information technology in global operations and therefore highlights differences between big companies and SMEs. There it is stated that SMEs should increase leveraging information technologies to gain more experience and facilitate international expansion. Moreover the experiences of big companies begin to impact more on the firms' supply chain structure. In addition, the big companies could concentrate on own insights and analysis. The paper of Aspelund and Butsko (2010) also reviews specifically SMEs with the focus of investigating offshoring decisions. Nevertheless, majority of the resource papers consider multinational enterprises (MNEs). Other very typical expressions and their shortened letter combinations used in this area of studies are Liabilities of Foreignness (LOF), Costs of Doing Business Abroad (CODBA), Emerging-Market Multinationals (EMMs), Foreign Direct Investment (FDI) and Liability of Multi-nationality (LOM). They will be used in this paper as well. The table below sums up shortly the contexts of the resource papers used in this paper in yearly order.

TABLE 2. Contents of the resource papers

Year of publish	Author(s)	Context
2000	Rudberg and West	Focus is on coordinating manufacturing networks and operations management advices are also revealed. Includes an example of a company applying these to their global operations strategy.
	Sabri and Beamon	The objective is to integrate strategic and operational aspects into a supply chain model which reveals its efficiency and effectiveness.
2003	Krikke et al.	The paper links supply chain to the environmental chain and measures the environmental effects of the closed-loop supply chain considering product and network design.

2005	Wu and O´Grady	Problems of integrated supply chain management are discussed followed by a related model removing its complexities and identifying the most important characteristics.
2006	Grossman and Rossi-Hansberg	Concentration is on how falling costs of offshoring affect factor prices in a source-country and "trade in task" - conceptualization is discovered including identification of productivity considering task trade.
	Prater and Ghosh	How global experience and global coordination capability with information technology shapes company's global operating strategy is analyzed and also how they affect the global supply chain structure of the company. Differences in company sizes are taken into account.
	Tsoulfas and Pappis	Systematically environmental principles are identified for the design and operation of supply chain. There is also discussion about sharing the environmental responsibility of a product with all partners of the life cycle chain.
2007	Bunyaratavej et al.	An investigation method to examine location decisions for international offshoring of services is presented with help of the CODBA and LOF and the variables affecting the decision are revealed.
	Cuervo et al.	The difficulties and their root causes in internationalization are examined using advantage and disadvantage point of view.
	Shen	The paper presents a survey of developments in facility location problem in integrated supply chain design, which considers inventory and distribution costs.
	Sommer and Troxler	Concluding paper of interviews and assessments of consultants from different companies considering many different aspects of offshoring and outsourcing.
2008	Azaron et al.	The paper formulates a supply chain design problem concerning minimizing the total costs and financial risks.
	Bock	Thinking about a mass customization production, the paper proposes a new approach comprising a detailed assembly line with balancing planning and considering the worker skills and wage levels.
	Bunyaratavej et al.	The objective of this paper is to find out the countries using their resources most efficiently to become more attractive for services offshoring. Manufacturing and services offshoring location drivers are compared.

	Chung and Yeaple	The paper takes a closer look to knowledge-sourcing and investigates motives and manners of it between country-industry-years.
	Hamad and Fares-Gualda	A model is proposed to solve an international facility location problem minimizing the total logistics costs. It considers factors such as exchange rates, regional operational difficulties and many others.
	Hammami et al.	The paper determines the important characteristics (cost factors, decisions and constraints, etc.) of delocalization problem that should be included in a supply chain design model.
	Robert-Nicoud	The aim of the paper is to create a 2-country, 2-sector model which reduces costs of offshoring considering routine tasks and so that it goes equivalently with technological progress.
	Stringfellow et al.	The research identifies the challenges and invisible costs of services offshoring and aims to find how to maximize benefits of it while minimizing the drawbacks.
	Vivek et al.	The aim of this paper is to study how the emphasis of offshoring clients changes by time to represent relationships between investments in core, relationship and transaction -specific assets. The interrelationships of tangible and intangible assets are presented in a framework.
	Aybar and Ficici	The research is about what are the value implications concerning cross-border acquisitions of EMMs.
2009	Hahn et al.	Firm- and environment-level factors are studied in this paper, which make firms accept higher levels of host country risk in the location of information systems-services in offshoring projects.
	Kedia and Mukherjee	Analytical framework concerning the reasons of companies' offshoring business functions is presented in the paper proposing the following advantages: disintegration, location-specific resources and externalization.
	Schütz et al.	A model for a stochastic multi-commodity supply chain design problem is presented in the paper with splitting and combining processes and strategic and operational decisions.
	Sethi and Judge	The paper studies costs and benefits of an MNE subsidiary's cross-border operations, and it also proposes that CDBA consists of two parts: LOF and LOM.

	Xia et al.	Models for distribution network design and different types of distribution networks are reviewed. The aims of the paper are to response to the related problems and identify the steps of the designing.
2010	Aryanezhad et al.	A supply chain design problem is investigated and modeled mathematically with random disruptions in the facilities causing e.g. failures in customer service.
	Aspelund and Butsko	Manufacturing offshoring decisions to low-cost countries of SMEs are investigated in this paper including motivation, location, entry mode etc. The relations between the decision and subsequent international market expansion are also studied.
	Bashiri and Tabrizi	The "theory of constraints" is incorporated to new distribution center location problem with an aim to minimize costs. A model with numerical example is also created in the paper.
	Cui et al.	Facility location models are presented in the paper, which considers hedging of disruptions and minimizing construction and transportations costs.
	Elango	The paper tests if there are differences in relationship of internalization and risk across global and multi-domestic industries of firms alluded to international strategy literature.
	Fuchs and Kirchain	The paper presents how process variables change with manufacturing location and the impact of manufacturing offshore on technology competitiveness is studied too.
	Hijzsen et al.	The impact of offshoring on productivity using firm-level data is explored in the paper. Intra-firm and arm's-length offshoring are considered.
	Lee and Wilhelm	The theories of comparative advantage, competitive advantage and competitiveness are studied and their interrelationships are described. Also two annual competitiveness reports are clarified and explained in the paper.
	Ojala and Kontinen	The impact of distance-creating factors of software SMEs in foreign market entry are researched as well as the facilitating distance-bridging factors are identified.
	Salema et al.	The paper proposes a forward and reverse flow supply chain model including tactical plan for acquisition, production, storage and distribution in defined time-horizon.

2011	Cuervo-Cazurra	The decision of the country in which to start internationalization is studied referring to the knowledge available to the firm. Knowledge to manage complexity, to manage differences in competitive conditions and institutional environments are discussed.
	Hutzschenreuter et al.	Potential negative impact of strong MNE international expansion in one period on subsequent growth is examined regarding the number of discrete investment moves by the company.
	Luo and Shenkar	Cultural friction aspect is discussed to the explanation of international expansion activities. Testable propositions are developed of how, when and why certain international business activities face greater cultural friction than others.
2012	Dogan	A problem of selecting a global manufacturing location is analyzed under uncertain conditions. Theories of Bayesian Networks and Total Cost of Ownership are combined.

2.2 Modeling approaches and theories

In this research a reviewing approach is adopted which is followed by a discussion section and a conclusive conceptual model. Besides, the approaches used in the resource papers differ a lot and there is a numerous variety of them. In redesigning or developing new supply chains or investigating them the mixed integer linear programming (MILP) model approaches are often used (Sabri and Beamon (2000), Krikke et al. (2003), Hamad and Fares-Gualda (2008), Cui et al. (2010) and Salema et al. (2010)). Meanwhile the mixed integer non-linear programming approaches are used, for example in the two following problems: in creating a supply chain model that calculates total costs with risks and in a problem of relocating a distribution center minimizing costs at the same time (Azaron et al. (2008) and Bashiri and Tabrizi (2010) respectively).

Partially Bunyaratavej et al. (2007) is also a mathematical paper but the research approach is related to theories of costs of doing business abroad (CODBA) and liabilities of foreignness (LOF) when examining location decisions of services offshoring. Cuervo et al. (2007) adopts these two theories for the basis of finding

out advantages and disadvantages in internationalizing. Also Sethi and Judge (2009) have the same starting point in their paper with CODBA and LOF, but their approach is to argue that the latter theory is just one part of CODBA. Their conceptual model is finally presented of costs and benefits of cross border operations of MNE´s subsidiary.

Regression models are used by Bunyaratavej et al (2007), Elango (2010) and Hutzschenreuter et al. (2011). Elango (2010) adopts this approach to test the relationship between internationalization and risk across two industries. He uses hypotheses to present his findings, which is very typical in many resource papers of this study, but he uses a methodology from earlier literature as a base for data collection and classification. The main research theory base of Hutzschenreuter et al (2011) is the Penrosean perspective but regression models are used to facilitate the examination of potential negative impact against future expansion plans of a company, which might arise after a period of strong internationalization. The Penrosean effect is about consequences which arise when a firm is expanding rapidly and its managerial resources are not enough to fill the needs. So after all this constraint could slow down the firm´s growth in subsequent periods.

Besides many mathematical models and theory based approaches, conceptual models are also presented in many resource papers. Hammami et al. (2008), for example, present this type of model of how to model supply chains in delocalizing context. Stringfellow et al. (2008) use this approach to conclude their findings of "invisible costs" in service offshoring and furthermore Sethi and Judge (2009) also adopt conceptual model to delineate the costs and benefits of doing business abroad by assets and liabilities. The modeling approaches and research methods used and adopted for the resource papers are presented chronologically in the table below.

TABLE 3. Modeling approaches of the resource papers

Year of publish	Author(s)	Modeling approach
2000	Rudberg and West	multi-objective approach
	Sabri and Beamon	multi-objective approach, mixed integer linear programming, nonlinear programming
2003	Krikke et al.	mixed-integer linear programming method, Petri-Net
2005	Wu and O´Grady	network-based approach, Petri Net
2006	Grossman and Rossi-Hansberg	conceptual model, Heckscher-Ohlin Economy –models
	Prater and Ghosh	multi-objective mixed integer programming
	Tsoulfas and Pappis	life-cycle assessment method
2007	Bunyaratavej et al.	parity concept, multiple regression model, CDBA, LOF
	Cuervo et al.	resource-based theory, conceptual model, CDBA, LOF
	Shen	location-routing model, inventory-routing model, location-inventory model
	Sommer and Troxler	software engineering approaches
2008	Azaron et al.	multi-objective stochastic mixed-integer nonlinear programming approach, goal attainment method
	Bock	Tabu Search approach, mixed-model comprising method
	Bunyaratavej et al.	Data Envelopment Analysis
	Chung and Yeaple	count-based model
	Hamad and Fares-Gualda	mixed integer linear programming
	Hammami et al.	conceptual modeling
	Robert-Nicoud	monopolistic competition framework, 2-country, 2-sector trade model, ´New trade/New economic geography' model
	Stringfellow et al.	conceptual model
	Vivek et al.	Interpretive Structural Modeling, transaction cost economy theory, resource-based view theory, grounded theory-building approach, theoretical sampling method, analytical framework
	Aybar and Ficici	event study methodology, linear regression model
2009	Hahn et al.	conceptual model, transaction cost theory
	Kedia and Mukherjee	analytical framework, Disintegration–Location–Externalization theory
	Schütz et al.	two-stage stochastic programming
	Sethi and Judge	conceptual model, CDBA, LOF
	Xia et al.	conceptual model, reviewing approach

2010	Aryanezhad et al.	nonlinear integer programming model, genetic algorithm solution approach
	Aspelund and Butsko	qualitative approach model, transaction cost theory, OLI model, Uppsala internationalization model, Innovation-related internationalization model (I-RIM)
	Bashiri and Tabrizi	Global Criterion Approach, Theory of Constraints, Nonlinear mixed integer programming, Particle Swarm Optimization method
	Cui et al.	mixed integer programming, continuum approximation model
	Elango	regression models
	Fuchs and Kirchain	simulation modeling, quantitative modeling approach, process-based cost modeling
	Hijzsen et al.	empirical methodology
	Lee and Wilhelm	theories of international economics (comparative advantage, competitive advantage, and competitiveness), the global competitiveness report (GCR), the world of competitiveness yearbook (WCY), reviewing method, comparative method
	Ojala and Kontinen	analytical model, qualitative approach, Uppsala model
	Salema et al.	mixed-integer linear programming, graph approach, generic modeling framework
2011	Cuervo-Cazurra	incremental internationalization model theory, non-sequential internationalization model, born global firms model, sequential approach
	Hutzschenreuter et al.	Penrosean Perspective theory, regression model approach
	Luo and Shenkar	friction theory, theoretical framework, cognitive approach
2012	Dogan	integrated combining approach of Bayesian Networks and Total Cost of Ownership

2.3 Tools

The purpose of this section is to examine the tools used in the resource papers of this thesis work. Majority of the papers do not identify any tools since they concentrate mainly on the arguments, researching and results. Nevertheless the table below lists down the software tools used. Of course, the papers on the list are more mathematical and present models for (re)designing supply chains with many echelons, like Aryanezhad et al. (2010) and also Salema et al. (2010), which takes the reverse flows into consideration too. C++ is adopted into use by Bock (2008) and

Cui et al. (2010) to help with the coding within the same kind of problems. On the other hand, Hutzschenreuter et al. (2011) utilizes Tobit model for data controlling and a Stata software program to examine the robustness of the research results and estimations.

TABLE 4. Software tools used in the research papers

Year of publish	Author(s)	Software tools
2000	Sabri and Beamon	LINGO, production/distribution model (PILOT)
2005	Wu and O´Grady	Trans (software prototype)
2008	Azaron et al. Bock Hamad and Fares-Gualda	LINGO 10 C++ MS Excel
2009	Schütz et al.	C++, Xpress 2006
2010	Aryanezhad et al. Cui et al. Salema et al.	Visual Basic.Net 2008, LINGO 8.00 C++ GAMS/CPLEX
2011	Hutzschenreuter et al.	Stata, Tobit model,
2012	Dogan	Bayes Net Toolbox

2.4 Case studies

The nature of the case studies in the source papers varies and some of the articles do not include one. Over half, 60% of the papers present a case study with a real life data from companies or from official investigation reports. For instance Aybar and Ficici (2008) used UNCTAD's World Investment Report for data of foreign sales and foreign employees of firms to examine the value implications of cross-border acquisitions. Furthermore Lee and Wilhelm (2010) adopt information of the global competitiveness report (GCR) and the world of competitiveness yearbook (WCY). Besides explaining the reports, the paper also presents examples of how they could be used to compare countries and how to find the most specific country measures. A large scale case study of Sethi and Judge (2009) considers the car manufacturer Ford India's operations within 80 years with an objective to find out the costs and

benefits of doing business abroad. Similar one-firm specific studies are performed also by Rudberg and West (2000), Schütz et al. (2009) and Xia et al. (2009).

Majority of the information source articles used in this research use bigger firm groups as a base of their case studies and some of them compare countries to find out benefits and disadvantages of them as a host country in internationalization concept. As an example, the final sample of Elango (2010) consisted of 367 global and multi-domestic firms as the relationship between internationalization and risk was studied. U.S. Department of Commerce, WorldScope database and the Directory of Corporate Affiliations were used as resources basis. Moreover, Dogan (2012) presents a comparative research of four manufacturing offshoring host countries, Turkey, China, South Korea and Mexico. Tangible and intangible location criteria data is compared between the countries using the Global Competitiveness Report, Central Intelligence Agency, Index Mundi, and Human Development Report.

Some of the resource papers concentrate on reviewing and summing up the previous literature and theories so they do not present case studies. Cuervo et al. (2007) extends the theory of what causes the difficulties in internationalization using the resource base theory as a basis, starting point and support. Advantage and disadvantage point of views are used and theoretical propositions are presented but practical company or country based studies are not carried out in the paper. Also Luo and Shenkar (2011) present a theory extending or developing study without numerical examples or real life data. The paper anyway sheds bright light on the perspective of cultural friction in international business. TABLE 5 shows the case studies presented by each of the resource papers and also the data sources, basically meaning if there is a question of real life data or a case study with some numerical example.

TABLE 5. Case studies of the resource papers

Year of publish	Author(s)	Case study
2000	Rudberg and West	Descriptive study of how Ericsson Radio Systems adopted the model factory concept in their global operations strategy and manufacturing network.
	Sabri and Beamon	Numerical example of a supply chain model incorporating production, delivery and demand uncertainty and performance measures.
2003	Krikke et al.	A closed-loop supply chain design for a refrigerator aiming to minimize costs, energy use and residual waste. The base and data for the case study is from Tokyo University and furthermore from consumers.
2005	Wu and O´Grady	A numerical example supply chain design for the manufacture of two computers leveraging the Trans-net.
2006	Grossman and Rossi-Hansberg	Productivity effect, a relative-price effect and a labor-supply effect are studied within Heckscher-Ohlin Economy model.
	Prater and Ghosh	The study is about the global operations of U.S. manufacturing firms that have facilities and operations in Europe.
	Tsoulfas and Pappis	The paper does not present a case study or a numerical example.
2007	Bunyaratavej et al.	The case investigates the factors that contribute to the location choices for services offshoring activity via hypothesis using real life data regarding wages, infrastructure, education etc. from many different sources, for instance UNICTAD (2004), UBS (2003) and World Bank (2005).
	Cuervo et al.	The paper does not present a case study or a numerical example.
	Shen	Existing integrated decision making models in supply chain management are reviewed and many models with different modifications are created.
	Sommer and Troxler	Estimates about outsourcing and offshoring are asked from employees from different consultancies.
2008	Azaron et al.	The case is a numerical example of a supply chain network design problem with an aim to minimize total cost, the variance of it and the financial risk.
	Bock	A new mixed-model assembly line balancing model is introduced regarding manufacturing costs with real data and estimated figures.
	Bunyaratavej et al.	The attractiveness of 44 developed and developing countries for offshoring services is examined using data obtained from the LOCO monitor database related to FDIs.

	Chung and Yeaple	The case is to test the attractiveness of the country-industry attributes by using data of internationally expanding U.S. firms from Bureau of Economic Analysis.
	Hamad and Fares-Gualda	The case study is to present a MILP model that solves the facility location problem through minimization of the total logistic cost including real data from chemical industry.
	Hammami et al.	The paper does not present a case study or a numerical example.
	Robert-Nicoud	The case is a 2-country, 2-sector trade model about positive and normative effects of offshoring routine tasks and its interaction with falling trade costs. Example data is used.
	Stringfellow et al.	The paper does not present a case study or a numerical example.
	Vivek et al.	By obtaining interview approach, the study examines how the specific investments made by clients in offshoring alliances relate with the assumptions of investments made in the theories of TCE and RBV. Many different real alliance and company level data is used and also at least six members at different levels in teams from different firms are interviewed.
	Aybar and Ficici	The value implications of cross-border acquisitions of EMMs are examined by using firm level data from World Investment Report
2009	Hahn et al.	The paper examines the determinants of risk that firms bear in their offshoring decisions with proposed hypothesis and they are tested on a data set of offshoring projects from LOCOmonitor, International Country Risk Guide and Worldwide Governance Indicators.
	Kedia and Mukherjee	Theories from multiple disciplines form the foundation of Disintegration–Location–Externalization (DLE) framework are applied to research of why do firms offshore their business functions.
	Schütz et al.	A Norwegian meat industry supply chain design problem to minimize the sum of investment costs and expected costs of operation is solved as a two-stage stochastic program formulation.
	Sethi and Judge	Various events during Ford India's operations within 80 years are examined for conceptual model presenting net impact of costs and benefits of doing business abroad.
	Xia et al.	The work applies the developed framework in a multinational company to redesign its distribution network which helps the company to reduce operational cost at the same time to improve level of service.

2010	Aryanezhad et al.	The integrated supply chain design model presented is applied to a numerical case, which considers impacts of the facility disruptions on both the strategic facility location and tactical inventory decisions.
	Aspelund and Butsko	Offshoring decisions in 10 Norwegian SMEs that have established manufacturing capabilities in low cost countries are investigated by interviews and using secondary sources.
	Bashiri and Tabrizi	A numerical example regarding a distribution supply chain problem is solved by Particle Swarm Optimization method.
	Cui et al.	A reliable incapacitated fixed charge location problem is solved by hypothetical numerical example of mixed integer program formulation. The facility location models minimize normal construction and transportation costs and also hedge against facility failures within the system.
	Elango	Using a sample of 367 firms the relationship between internationalization and risk across global and multi-domestic industries is tested.
	Fuchs and Kirchain	The impact of manufacturing offshore on technology competitiveness in optoelectronics industry is studied by using a combination of simulation modeling and empirical firm level data of U.S firms with subsidiaries in East Asia.
	Hijzsen et al.	The impact of offshoring on productivity is explored using firm-level data for the Japanese manufacturing industries.
	Lee and Wilhelm	The case is to describe and compare the GCR and WCY, two annual competitiveness reports, and to give examples of how measures of the reports can be applied to some example countries.
	Ojala and Kontinen	The case is about Finnish software firms entering the Japanese market to research the distance-creating factors in the distant foreign market entry and the distance-bridging factors that are used to facilitate the new market entry.
	Salema et al.	A strategic and tactical supply chain design model proposed is related to a Portuguese glass company, which wants to design and plan its forward and reverse networks simultaneously.
2011	Cuervo-Cazurra	The paper analyses the host country selection in internationalization and the hypotheses presented are tested with firms from the Middle East.
	Hutzschenreuter et al.	The hypotheses proposed in the paper are tested using a panel of 91 German MNEs.
	Luo and Shenkar	The paper does not present a case study or a numerical example.

2012	Dogan	The case is to analyze the problem of selecting a global manufacturing facility location comparing Turkey, Mexico, South Korea, and China. The study considers many tangible and intangible facility location criteria.

2.5 Benefits

To richen the review of the resource papers, the aspects that have been found specifically positive are considered in this section and the summaries of these points are presented in the TABLE 6 below. It is stressed that the points raised up in this research are all identified by the authors themselves of the papers and so they are original. Generally, some of the papers are more acquiescent than others and do not reveal or identify none of the benefits, like Tsoulfas and Pappis (2006) but on the contrary, for instance Cuervo and Cazurra (2011) describes them really carefully and with longer pattern. Many more mathematical papers for example with mixed integer linear programming models state that the models can be extended or modified to different directions and to solve variety of different problems, not only the ones that they are developed for. This type of notion is made by Krikke et al. (2003), Shen (2007), Hamad and Fares-Gualda (2008) and Schütz et al. (2009) to mention few of them.

Many of the source papers also express that the findings and arguments presented in them are suitable for managerial use in international operations and in their designing processes. Related to this, Hutzschenreuter et al. (2011) argues that the heterogeneity of the countries where a MNE is active affects more on slowing down international expansion than the number of countries. Cuervo-Cazurra (2011) provides useful information concerning three types of knowledge needed for internationalization and tactics that can be used to develop them. On the other hand, Elango (2010) concentrates more on explaining carefully the possibilities of a company to shift value chain activities across subsidiaries in international operations when opportunities arise and disappear, and provides considerable findings for the managers from this perspective. Also there are other articles used as a source in this research which identify the characteristic to provide advice for

firm management in offshoring and internationalizing concept as one of their positive points.

Important perspective is noticed in Aspelund and Butsko (2010) as they argue that the SMEs have not gained enough attention in internationalization theories and previous literature. Also taking different size firms into account in the research concerning global operations of U.S. manufacturing firms in Europe is identified as a benefit in Prater and Ghosh (2006).

TABLE 6. Benefits of the resource papers

Year of publish	Author(s)	Benefits
2000	Rudberg and West	The model factory concept considers all the three dimensions of a transnational strategy; global integration, local responsiveness, and worldwide learning. Therefore the paper is considered as an important contribution to the continual evolution of manufacturing network management. The research also points out clearly how management can gain from the findings revealed in the paper.
	Sabri and Beamon	The model facilitates simultaneous strategic and operational planning, reduces complexity and is flexible for many strategies.
2003	Krikke et al.	The created single period, deterministic, linear model can be easily extended to concave costs functions and capacity constraints. Also the modeling approach can be adapted to other cases.
2005	Wu and O´Grady	Trans-Net approach enables multiple factors to be considered simultaneously and easy computing.
2006	Grossman and Rossi-Hansberg	A paradigm is proposed, which first of all casts task trade and relegating goods trade to a supporting role.
	Prater and Ghosh	The paper looks for how interactions between global experiences, operating strategy etc. differ between firm sizes, which is not included in previous literature so often.
	Tsoulfas and Pappis	Benefits are not identified.
2007	Bunyaratavej et al.	The research system can be applied for different real cases and because there are two models examining the same sources and hypotheses, reliable results are easy to find.

	Cuervo et al.	The research extends the study of the liability of foreignness beyond an understanding of its consequences to an understanding of the causes of the difficulties in internationalizing to new markets. The paper does not only discover the costs, but also reduced revenues and resources that a firm lacks.
	Shen	The algorithms reviewed in the paper can be applied to many other concave cost minimization problems.
	Sommer and Troxler	Benefits are not identified.
2008	Azaron et al.	The goal attainment method used has fewer variables to work with, so it is one of the best methods to solve large-scale mixed-integer nonlinear programming problem, in terms of computational time.
	Bock	The approach presented is the first one to provide a detailed analysis of the tradeoff between lower worker wages and additional manufacturing costs caused by decreased worker skills.
	Bunyaratavej et al.	The findings are useful for MNEs looking to offshore since a wide country comparison is presented. Also, the results provide action objectives for governmental policy makers seeking to capitalize on the growth of offshore investment to maintain economic and social development.
	Chung and Yeaple	The first study to look widely across numerous countries to present how firms use knowledge sourcing as a strategy, and to show the relative importance of the motivations for using knowledge sourcing.
	Hamad and Fares-Gualda	The model presented is easy to adjust with possible available information or extra echelons. It is easy to use, fast and does not have high running requirements. The best contributions are the segregation and considerations on international fiscal benefits and local taxes.
	Hammami et al.	Benefits are not identified.
	Robert-Nicoud	Compared to previous similar researches, this paper unbundles intangible tasks of tangible tasks in offshoring concept.
	Stringfellow et al.	The paper introduces new construct, interaction distance, that can be used to guide the nature of work offshored and the site selected. Also the findings provide guidelines for companies trying to make offshoring decisions.
	Vivek et al.	The study presents that the transaction cost logic is suitable to explain investments in offshoring alliances in the initial stages.
	Aybar and Ficici	This paper constitutes one of the rare multi-country studies of EMMs focusing on the value implications of internationalization through acquisitions.

2009	Hahn et al.	The macro-level analytical perspective adopted would be well-complemented by additional micro-level research examining the details of the individual decision-making dynamics of management as they consider the trade-offs between alternatives of various risk levels in IS offshoring decisions.
	Kedia and Mukherjee	The Disintegration–Location–Externalization (DLE) framework in the research is robust since it is based on solid theoretical foundations and can generate testable propositions. Also, the framework has combined the strategic management theories, geographic location theory and organizational learning theory in the context of offshoring.
	Schütz et al.	The mathematical formulation can be applied to any supply chain that consists of subsequent levels of splitting and combining processes (or only one type of process).
	Sethi and Judge	The arguments of the study have implications at the firm level for selecting MNE strategies, market-entry modes, FDI decisions, and mechanisms for operating international cooperative alliances. The framework can also help MNE managers do more accurate cost–benefit analyses of location choices.
	Xia et al.	The paper shows that there are huge potential to improve the performance in cost and service level by redesigning the network and reassigning the resources and functions, especially if they are not reviewed periodically.
2010	Aryanezhad et al.	The model can be extended to some different directions.
	Aspelund and Butsko	The paper investigates and proves that the existing internationalization theories are not appropriate in explaining and guiding the offshoring process of SMEs.
	Bashiri and Tabrizi	A new concept to the strategic decision of locating a warehouse among a plant and a set of retailers is introduced.
	Cui et al.	Case study test results show that the continuum approximation method is a promising tool for finding near optimal solutions.
	Elango	The study makes important contributions to the literature and offers several implications for managerial practice and research. It adds to the knowledge on a sub-topic of real options by showing how the relationship between risk reduction and internationalization varies across global and multi-domestic industries.

	Fuchs and Kirchain	The results show that moving manufacturing offshore changes the relative economics of two competing technologies: emerging and prevailing.
	Hijzsen et al.	The results consolidate the offshoring literature and they show e.g. that intra-firm offshoring has generally a positive effect on productivity of the offshoring firm, while arm's-length offshoring does not have such an effect.
	Lee and Wilhelm	Since strategic models deal with long-term horizons, the approach presented could result, for example, in a strategic plan locating and relocating facilities over time to optimize global competitiveness.
	Ojala and Kontinen	The paper gives a wider perspective to entering a new market covering all the distance-bridging and distance-compressing factors used by the case firms to moderate and facilitate their distant foreign market entry.
	Salema et al.	Computational times of the model are very good.
2011	Cuervo-Cazurra	The paper contributes to the literature, for instance it identifies an alternative internationalization strategy and explains and tests its determinants. Also internationalization of firms from the Middle East is analyzed, which has been rare in business literature. Finally, the paper provides beneficial information for managers related to knowledge of firms.
	Hutzschenreuter et al.	The paper provides useful implications for MNE managers.
	Luo and Shenkar	Cultural friction concept presented in the paper links directly and strongly with transaction costs and other theory bases for international expansion, for instance in addressing uncertainty, conflict, and moral hazards. It also contributes to theory development and leads to stronger resource dependence in cross-cultural exchanges.
2012	Dogan	The Bayesian Networks approach used in the paper represents and identifies casually various facility location factors and cost elements to facilitate the work of decision makers.

2.6 Disadvantages

In contrast to the previous section, here the disadvantages and drawbacks are viewed that the source paper authors have identified in their published works. Also here it is stated that the points revealed in this section are from the authors of the source papers and they have identified the drawbacks and disadvantages of their papers. But besides the fact that every research has its limitations, not all the papers reveal them. Many papers state inaccuracy, missing- or not exact data as one disadvantage and they are mainly the ones with mathematical formulations, like Wu and O´Grady (2005) and Grossman and Rossi-Hansberg (2006). Also some other details concerning country specific information or firm level data seem that they could have been more carefully measured. This issue has been stated at least in Bock (2008) and Bunyaratavej et al. (2008). Another basic limitation within the source papers seems to be that there is only one host country or companies only from one country when international operations are studied. For example Cuervo et al. (2007), Chung and Yeaple (2008) and Hutzschenreuter et al. list these cases in their papers as disadvantages. More comprehensive study would be of course to include firms which offshore to different countries with different country of origins.

Some papers concentrate on the literature and proposing new perspectives and point of views. The lack of testing these propositions or hypotheses is then listed as a disadvantage on the papers, for instance in Stringfellow et al. (2008). Usually these necessities or drawbacks are then suggested as further research extensions in the future by the research authors. Basically, majority of the papers state that the disadvantages of the studies can be twisted into extensions for the published researches or into basis for completely new research topics.

From a perspective to another, a significant note in Sethi and Judge (2009) is that the costs and benefits of offshoring are studied, but the differences in importance between the findings are left without attention. It seems that none of the resource papers in this thesis study consider this point at any level, even though it is remarkable aspect in this research area. Another important perspective is the differences between different size companies in offshoring and internationalizing. In previous section it was noted that some papers state this as an advantage or a plus

in their research, but also this aspect has been listed in the drawback chapters of some resource papers, for instance in Bunyaratavej et al. (2007) and Hahn et al. (2009). The table (TABLE 7) below presents the disadvantages and drawbacks of the resource papers of this research.

TABLE 7. Disadvantages and drawbacks of the resource papers

Year of publish	Author(s)	Disadvantages & critical points
2000	Rudberg and West	The research concentrates mainly on manufacturing issues in internal, intra-firm factory networks that are under direct managerial control.
	Sabri and Beamon	Stockpile fill rate and lead-time cannot be used simultaneously in the model, and the same problem arises with volume flexibility and its weight factor.
2003	Krikke et al.	The results can be manipulated easily and objective functions are changing. Also the results depend strongly on the product and model/data so generalizing from the case is limited.
2005	Wu and O´Grady	The model does not consider inaccurate data or the impact of decision support systems.
2006	Grossman and Rossi-Hansberg	Some complementarities are needed to enrich the cost functions for offshoring to allow for interdependencies between subsets of tasks. All the cost assumptions are not exact. Also there is an assumption that transporting partially processed goods is costless.
	Prater and Ghosh	Results propose that smaller firms should leverage IT to compete in the global marketplace but the study does not identify which types of IT in which operational environments.
	Tsoulfas and Pappis	The paper does not identify any benefits, drawbacks or development ideas related to the research.
2007	Bunyaratavej et al.	The research has been limited with leaving out different sized and different specialized service firms and the geographical distance with the time zones.
	Cuervo et al.	The attention is on firms internationalizing in search of only new markets, and only to one new country.

	Shen	The focus is on models including facility location decisions but other popular supply chain design or redesign concepts, such as postponement strategies, are not discovered. Also, the models of this paper are not designed for large-scale data sets or systems.
	Sommer and Troxler	The paper does not identify any benefits, drawbacks or development ideas related to the research.
2008	Azaron et al.	Because of the goal attainment method the solution is sensitive to the goal vector and the weighting vector given by the decision maker.
	Bock	The model cost calculation does not notice the costs caused by (incorrect) handling of material and the control ability factors in the formulation are estimated. Also finding optimal constellations is unrealistic since the applied problem model is complex.
	Bunyaratavej et al.	Some relevant factors are not included in the model, e.g. host country economic and political risk or resources, geographical distance and capabilities of the investing firms.
	Chung and Yeaple	While examining a multitude of country pairs, the other country is always the USA. Also instead of the profile for the U.S.-industry-year, the technical profile of the individual investing firms could have been used to get better results.
	Hamad and Fares-Gualda	The non- treatment of seasonality and the simplified calculation of the customer service level are the main limitations of the model.
	Hammami et al.	The paper does not identify any benefits, drawbacks or development ideas related to the research.
	Robert-Nicoud	The paper does not identify any benefits, drawbacks or development ideas related to the research.
	Stringfellow et al.	Many propositions are presented but none of them is tested.
	Vivek et al.	The paper does not explain the evolution of elements in offshoring alliances as the objectives of the alliances evolve. Also, clients create combination of specific investments, but the paper does not solve how the combination of elements plays in each stage.
	Aybar and Ficici	The event study methodology in this case assumes that the market response to public information about strategic event is instantaneous, complete, and unbiased, which is not true. Instead, long-term performance measures should be used. The parent companies are regionally concentrated in the study.

2009	Hahn et al.	Various firm-level characteristics such as sales volume, market capitalization, or number of employees are dismissed in the research. Also it should consider both firm- and environment level factors and examine both risk and success/failure to point out the differences.
	Kedia and Mukherjee	The paper should identify the activities of the firm that can be unbundled and what activities should remain under the hierarchical control.
	Schütz et al.	The model does not include high variations at the operational level and the runtime is relatively long.
	Sethi and Judge	The paper does not spot the differences in importance of the benefits and costs of offshoring and the specific regions are left also without attention.
	Xia et al.	The case example should focus more on the flexibility of the network.
2010	Aryanezhad et al.	The model could include different probabilities for the disruptions of DCs and also it could consider the possibility of disruptions for the supplier.
	Aspelund and Butsko	The qualitative approach limits the ability to use scholarly defined and validated concept in the research such as experiential knowledge and the concepts of OLI (ownership, location and internalization) model. Also the company cases are selected from a customer list of a public support organization and so they are from the same geographical region.
	Bashiri and Tabrizi	More layers such as a plant, a distribution center, wholesalers and a set of retailers could be included in the supply chain model.
	Cui et al.	Only static decision rules are considered in the study ignoring the duration and the frequency of the facility disruptions.
	Elango	The research has a limited amount of control variables, for instance it uses employees to control for firm size.
	Fuchs and Kirchain	The research is related only to optoelectronics industry.
	Hijzsen et al.	The empirical specification of the study only captures partial equilibrium effects and disregards general equilibrium effects so the results should be interpreted at the level of the individual firm and cannot directly be used to make inferences about the total effect of offshoring on the (Japanese) economy.
	Lee and Wilhelm	The research represents different theories, but it lacks the assessing the relevance of international economics theories to strategic planning.
	Ojala and Kontinen	Limitations or development ideas are not identified in this paper.

	Salema et al.	The program could not solve all the problem examples presented in the paper.
2011	Cuervo-Cazurra	The paper does not include other aspects of the internationalization process, such as the selection of methods to enter a new country. Also the knowledge of firms is not directly measured.
	Hutzschenreuter et al.	The organizational form, product characteristics, and both the quality (experience, educational, or cultural background) and quantity of available managerial resources are dismissed in the research. Also due to lack of better data, cultural distance is measured by using country code indexes.
	Luo and Shenkar	The paper does not identify power relations or power dependence in analysis of cultural friction or how friction varies in different situations of negotiations.
2012	Dogan	Drawbacks or limitations are not identified in this paper.

3 Discussion

In this section the research results of the resource papers of this study are examined and also the author´s own point of view into the most relevant aspects using an argumentative and conclusive approach is brought into the study. The most important statements found from the resource papers are noted and they are related with each other to make notions and inferences. Furthermore a conclusive table of these aspects is presented. Also the most important costs are discussed depending on countries, if some countries have significant differences in costs in certain cases. This is done by taking into account everything learned during this thesis work regarding internationalization. Finally, the main points and ideas of further research areas are identified and suggested.

3.1 Conclusions of the relevant aspects and points

The summary table below (TABLE 8) lists down the most relevant points of the reviews and states the authors behind the findings and conclusions. The findings and conclusions are not categorized separately by authors or papers, but it is summarized that which papers include relevant discussion on which topics and their ideas are summed up together in a table considering a topic related categorization.

To analyze the conclusions in the table, the cost reduction in wages of the labor is the main reason for internationalization. It is stated in many of the resource papers. Different supply chain design models are presented in the papers more than expected so they are concluded as well, even though they do not provide much deeper theoretical perspective into understanding the costs of internationalizing. Some of the resource papers consider environmental issues, different firm sizes, reasons for failures, difficulties and facilitating things in cross border operations, so conclusions of them are also presented. The table sums up also the host country selection criteria and due to existing resource papers in this research considering internationalization of services, the main points between this business section and manufacturing are identified and concluded. There are differences in firm entry modes, skill requirement of tasks, outsourcing and offshoring considering international operations so they are presented in the table, too, and finally the conclusions of risks in this area of business are identified and also the aspects that change in manufacturing operations when internationalized are included. The categorization in the table is not presented in any specific order, considering importance, for instance.

TABLE 8. A summary of the relevant aspects of the state of the art

The relevant aspects of the state of the art	**Authors**	**Conclusion**
Reasons and motives for internationalization	Kedia and Mukherjee (2009); Sethi and Judge (2009); Aspelund and Butsko (2010); Elango (2010); Hijzen et al. (2010); Dogan (2012)	To sum up reasons and motives for internationalization, some of the main points revealed are stated: Disintegration (advantages related to increased focus on core competences) -Location–Externalization (DLE) advantages is one of them. Incentives from host government and country, brand image, leveraging international alliances and networks, leveraging knowledge from abroad, leveraging multipoint pricing options are also mentioned reasons as well as marketing strategy, furthermore following a large customer and savings in production costs. Strategic risk reductions is also important point when the option value of switching raw materials, production, and sales across subsidiaries is utilized regarding flexibility and real options. Also improvements in the level and growth of the productivity, attracting new workforce and suppliers and gaining knowledge from them are popular motives to internationalize.
Different supply chain design models	Sabri and Beamon (2000); Krikke et al. (2003); Azaron et al. (2008); Hamad and Fares-Gualda (2008); Schütz et al. (2009); Xia et al. (2009); Aryanezhad et al. (2010); Bashiri and Tabrizi (2010); Cui et al. (2010); Salema et al. (2010);	The number and location of the facilities in a supply chain depends on many factors and so there are designs for supply chains for different objectives. Majority of them aim for minimization of total or logistic costs, the MILP model seems to be the most used model for designing programming and the number of echelons in designs change from two to many. Some of the designs consider the total closed-loop supply chain and environmental perspectives, furthermore some consider minimization of risk and total costs at the same time. There are also designs with natural random disruptions and man-made defections and some concentrate on uncertainty using sample average approximation and dual decomposition. Model designs considering simultaneously strategic design and tactical issues, such as production and inventory, are also popular. Generally, it is stated that redesigning the present supply chain can lead to unexpected cost savings, but it should be done and updated within constant periods.
Theories related to internationalization	Cuervo et al. (2007); Vivek et al. (2008); Hahn et al (2009); Sethi and Judge (2009); Lee and Wilhelm (2010); Luo and Shenkar (2011);	There are a few theory bases which are significantly more used or clarifying than others in the topic of internationalization and costs. The theory of cost of doing business abroad examines the additional costs undertaken by a firm operating under uncertainty in foreign markets. The resource based theory examines the relationship between a resource and advantage and the specificity of a resource to a firm. The theory of transaction cost economies, on the other hand, examines transaction costs, transaction attributes and governance structures, so production costs are not included. Liabilities of foreignness -theory considers costs due to spatial distance, firm-specific costs and home and host country environment costs. Finally, the theories of comparative and competitive advantage and competitiveness consider very clearly limited area as well as the theory of friction which is adopted as a base to examine cultural frictions.

Environmental aspects	Krikke et al. (2003); Tsoulfas and Pappis (2006); Hijzen et al. (2010); Salema et al (2010);	Reverse logistics is used because of environment. Producers are responsible of new measures such as disposal bans, increased disposal tariffs and restrictions on waste transportation. The processes pollute natural resources, which are necessary inputs for the supply chain and it is stated that the supply chain structure has most impact on costs, whereas the product design has most impact on energy and waste. The most competitive and successful international companies have embraced a value called environmental sustainability, which all the companies should aim for. Also from the other perspective, the impact of offshoring diminishes over time due to changing environment and it is stated that the recovery of products is more expensive than disposal.
Difficulties in internationalization	Cuervo et al. (2007); Stringfellow et al. (2008); Ojala and Kontinen (2010); Hutzschenreuter et al. (2011); Dogan (2012)	Loss of advantage provided by resources transferred abroad and lack of complementary resources required operating abroad and both of these have firm-specific and common aspects. The disadvantage of foreignness and the liability of foreignness are the only two concepts which do not rise up in national expansion operations and so they are special in cross-border operations. Moreover the more cultural diversity the firms´ subsidiaries abroad have, the more complex it is environmentally and to manage. Also the managerial resources taken to the internationalization processes mean less these resources for other processes. Finally, many facility location criteria are uncertain and can fluctuate before and after decisions making the managing difficult, and differences in cultures and languages and the geographical distance either do not facilitate the international operation.
Important characteristics of a host country or in location selection	Hammami et al. (2008); Kedia and Mukherjee (2009); Aspelund and Butsko (2010); Fuchs and Kirchain (2010); Lee and Wilhelm (2010); Ojala and Kontinen (2010); Dogan (2012)	To conclude, the most important character of a host country seems to be the wages. There are many location criteria and they change somehow due to the motive of the firm to internationalize. Here some of the main criteria are listed: increasing capabilities and resources, investment-friendly policies, improving infrastructures, possession of inexpensive but quality human capital, wages, knowledge, time sections, quality of workers, life and suppliers and financial and governmental efficiency. Also cultural distance, physical distance and transportation issues are very important. Market growth, barriers to trade, production and other costs like political stability and trade and taxation regulations can be related to explain location decisions as well. The relationships between home and host countries have an impact on location decision too. Generally good home country image facilitates operations.
Facilitating aspects in internationalization	Aybar and Ficici (2008); Aspelund and Butsko (2010); Hijzen et al. (2010); Lee and Wilhelm (2010); Cuervo-Cazurra (2011); Luo and Shenkar (2011);	Benefits of internationalization depend on many aspects, for instance, how supplier networks are organized. Regional domicile, effectiveness of corporate governance and level of control and experience are examples of significant factors in facilitating cross-border expansions as well as better IT technology and availability of skilled managers facilitate international operations. MNEs should identify their competitiveness indicators which contribute most significantly to their success to understand their competitiveness. So knowledge is one of the key factors and superior capabilities too. Also openness, rewarding and feedback within the firm workers create more effective environment and affect positively to operations.

Firm size specific perspectives	Prater and Ghosh (2006); Aspelund and Butsko (2010);	As a conclusion regarding firm sizes, an advice for SMEs is to gain international experience a lot and leverage IT as much as possible. High degree IT is important for large firms, but also own insights and analysis. The global experience affects more on the large firm's global supply chain structure.
Manufacturing vs. Services offshoring	Bunyaratavej et al. (2007); Bunyaratavej et al. (2008); Stringfellow et al. (2008); Hahn et al. (2009); Ojala and Kontinen (2010); Cuervo-Cazurra (2011);	The wages, education and cultural distance are the most critical factors to be measured when a firm is aiming for international offshoring of services. Manufacturing operations require less skilled workers than services, but generally the difficulty level in transferring service or manufacturing abroad depends on the standards and definition preciseness of the process. Language differences and business culture and understanding customers are very important issues in service side, but the geographical distance is more significant in manufacturing due to higher level of transportation. Service business is affected more by differences in religious, cultural or economic variations since they depend more on individuals if compared with manufacturing.
Differences between firm entry modes to countries in internationalization	Aspelund and Butsko (2010); Hutzschenreuter et al. (2011); Luo and Shenkar (2011);	Greenfield entry mode is popular within SMEs. First they test the production and after success they increase the production and complexity and quality of it. Greenfield investment causes less cultural friction than other cross-border acquisition because there the focal organization comes into contact with another organizational system and not only with environmental elements.
Reasons for internationalization failures	Shen (2007); Hammami et al. (2008); Aybar and Ficici (2008);	To conclude the main reasons of failures in internationalization, it is noted that during the time when the design decisions are in effect, many decision parameters may change dramatically. So once supply chain network design-decisions are implemented they are difficult to reverse since they are usually strategic. Underestimated additional costs from delocalization and related especially to transportation and technology acquisition are some of the other main failures.
Aspects that change in manufacturing operations when internationalized	Robert-Nicoud (2008); Kedia and Mukherjee (2009); Fuchs and Kirchain (2010);	Jobs shifted overseas do not translate into jobs lost at home country and also tasks and value chain activities face unbundling. The influential variables in design for manufacturing may also change, especially when moved to a developing country, for instance yield, downtimes, material costs and scrap rates. Generally, the relative competitiveness of the firms changes when they internationalize due to environmental changes.
Outsourcing vs. Offshoring	Sommer and Troxler (2007);	Both offshoring and outsourcing entail the idea of cost advantages but other reasons for outsourcing are also innovation, consolidation and optimization.
High-skill vs. Low-skill tasks	Grossman and Rossi-Hansberg (2006); Bock (2008); Robert-Nicoud (2008); Hijzen et al. (2010);	Routine tasks are easier to move offshore than the others, since the relevant information can be exchanged with fewer misunderstandings and less face-to-face contact are needed. Nevertheless, even though the highest worker skills are in high wage countries, the largest cost reductions could still happen in these countries.

Risks in internationalization	Sommer and Troxler (2007); Hahn et al. (2009); Aryanezhad et al. (2010); Cui et al. (2010); Elango (2010);	Some of the main problems that might arise when expanding abroad are discordance within management, insufficient strategic preparations before outsourcing and contract negotiations under time pressure. Also vendor dependencies, loss of knowledge and control, doubtful cost advantage, difficult performance measurements, interface management, increased complexity, high communication and resistance of employees are worth a statement. Also risk might be in transition costs, litigation and legislations, reliability and quality, cost escalation and hidden costs, loss of core competencies, security breaks and in other random disruptions when internationalizing.

3.2 Complex problem of location decision

International expansion is huge operation and it takes a lot of time. It does not matter if the company has earlier experience, if it is large or small company or what is the target host country, the firm going international will face unexpected costs and difficulties. Regarding the objective of this study a closer look is taken to cost differences and other location selection criteria in different host countries. From the resource papers of this research Dogan (2012), for instance, examines these aspects and finds out that from Turkey, South Korea, China and Mexico, China is the cheapest country regarding cumulative probabilities for total cost. The paper identifies many tangible and intangible cost elements of a host country and weight values are also applied for the elements. Material cost, construction and land cost, manufacturing costs and labor cost are noted as the major cost elements. Especially labor cost makes an advantage for China to be the cheapest host country in certain perspective, since it is a cost of whole time of operation and the level of wages in China are significantly lower than in the other three countries. On the other hand the research states that South Korea has the highest wages, but Turkey is the most expensive country regarding the cumulative probabilities of total cost, whereas South Korea and Mexico are about at the same level. So it can be concluded that the wage level cannot be used directly as a host country measure of cheapness or expensiveness, even though this level is mentioned as the most important criteria by many resource papers of this study and it is a significant, frequent and continuing cost. Also it is a cost that fluctuates by time.

Regarding Fuchs and Kirchain (2010), the concept of wages and labor is more complicated than measured just by the money paid for a worker per hour. The paper examines differences between United States and Developing East Asia (DEA) and notes, for instance, that the number of shifts in one day is three and two respectively. Furthermore daily unpaid breaks for workers and unplanned downtime result up to around two hours in one day in U.S, but more than three hours in DEA countries, which is connected to quality and effectiveness. Big difference is also in working days in one year, where DEA countries work approximately 360 days but in the U.S. the number is more than hundred days less, regarding the paper. So when making any location decisions, the decision making managers should think of the most important characteristics for the company and its strategy, rather than internationalizing directly to the country with the cheapest labor.

Finally, if the distance between a home and a host country is examined, Ojala and Kontinen (2010) divide it into three sections: geographical distance, physical distance and cultural distance. These aspects categorize the distance in internationalization so that the costs can be roughly estimated. Specifically, the paper identifies language, business culture and geographic distance as the main distance-creating factors, so possible costs especially caused by these factors should be taken into consideration. The case study of the paper is related to a Finnish company in Japan, and regarding legal, governmental issues they find no problems, but the business culture and the way of doing business differs significantly, like in the example of Fuchs and Kirchain (2010) noted in previous paragraph. From this it can be concluded that a right knowledge would facilitate the internationalization process also regarding the cultural differences. Knowing beforehand what the key cultural issues are in the host country is an advantage and leveraging it is recommendable to minimize costs and to operate more fluently.

Even though the location decision problem is about costs, it is learned within the literature reviewing process that not all the costs are able to be measured directly and unexpected costs play a big role in internationalization if the operation is not studied very carefully beforehand. Good planning with required or necessary resources are other very important aspects that the expansion needs to minimize

the difficulties, risks and unexpected costs. Nevertheless, it requires right knowledge and experience to have the idea in the beginning about what is needed for the planning process and to start and maintain the operations.

3.3 Limitations and further research suggestions

Like it is learned within this research, the internationalization is complex, big process and it has many dimensions. This work concentrates more on the costs and difficulties and the root causes of them in international expansion and since the research area is very wide, some of the individual aspects are examined just on surface level and so the deeper investigation on those areas could be used as an idea base for a further research. To simplify, basically a closer look for example in a shape of a case study considering any relevant aspect listed in the TABLE 8 could be a good alternative for further research direction. This study does not include much numerical information, prices or cost values since this is generally a research with literature review, so a perspective with values is also suggested as an extension idea. Then there are some topics that do not have a role in this study but are relevant perspectives, too. For instance, different industries in manufacturing are not considered here, but differences in their behavior in international operations could be an interesting base for a new research topic.

3.4 Model proposal

In this section a conceptual model is proposed to summarize the most important costs examined within the literature review process. The purpose of the model is to present the direct and indirect costs of international expansion of a firm and relate them with each other and the home and host country. Also the most relevant points regarding different firm sizes are highlighted and the importance of the main

direct costs is presented. To make it easier to understand, the specific aspects of the model are explained shortly.

It is clear that direct costs in internationalization concept are easier to detect and define than the indirect costs, so here not all of them are identified. Nevertheless for example the costs considering labor, transportation, material, energy and facilities are the very basic costs mentioned in many of the resource papers. Tariffs regarding customs and money exchange rates basically belong to the same group, even though they vary a lot.

Cuervo et al. (2007) examines the loss of an advantage in international expansion. The concepts are divided into firm-specific losses, meaning for example that the value of a resource is advantageous in any location just a limited time, and into non-firm-specific losses where the resources transferred to a new country are not so advantageous due to the new environment. Also the paper notes the creation of disadvantage where for instance the government can discriminate the foreign firm due to its certain nationality or transferring routines of technical and managerial systems may be incompatible with the characteristics of the new host country and so create disadvantage. It is stated that these indirect costs are specifically for smaller firms due to their size and so undoubtedly they might be weaker. Lack of complementary resources belongs to the same category too and the liabilities of infrastructure in the host country but the firm sizes do not have impact on them. If firm had enough resources to operate in the home country, maybe this would turn out as a disadvantage in international expansion if not prepared carefully, since for example more managerial resources are needed. Aybar and Ficici (2009) notice the loss of an advantage in their research and they identify that the causes for this phenomenon can be very simple, for example the lack of experience and organizational inertia or laziness. Nevertheless, Cuervo-Cazurra (2010) discusses that international expansion is easier and faster for smaller firms generally, since they have less established routines and more flexibility in their operations.

In internationalization operations and offshoring projects original employees might lose their jobs. This is stated by Sommer and Troxler (2007) and it is not a negative aspect only for the workers, but also for the home country. Considering Bock

(2008), especially this considers lower skill level tasks since they are easier for the firm to transfer. In addition it might be related also more to SMEs since in an internationalization concept large firms might have more possibilities for changing job tasks inside the firm. These aspects have of course an effect on the attitudes of employees towards an international expansion as well.

Stringfellow et al. (2008), with many other papers, talks about interaction distance, which considers cultural distance, language distance and geographical distance. The use of power differs in countries like communication styles and the bigger the differences between the home and the host country, the greater is the cultural friction. The language is of course another significant measure as well. As a facilitating aspect the paper states that if a firm can create an adaptable culture inside the firm, the difficulties in cultural differences would be less problematic when moving business or parts of it abroad. Due to this aspect SMEs more likely suffer also more from this barrier compared to large firms, because naturally they have fewer resources to create such cultures. As well Luo and Shenkar (2011) examine cultural friction concept and notice that the entry mode to the foreign environment has an impact on the level of cultural friction.

Another root cause for more indirect costs is lack of local roots and relationships in the host country environment. Sethi and Judge (2009) examine this in their study and note that this is part of liabilities of foreignness and costly for a firm. Having the local information directly from the beginning could lead to significant cost savings for a foreign company. Also could be stated that the internal culture inside the firm could facilitate in finding the relationships. If some the employees of the firm had already different international backgrounds, it could facilitate in finding relationships in a foreign environment, since the openness towards diversity of the firm could be then seen via the workers.

Sethi and Judge (2009) also take a closer look to other host country environment costs, where they state lack of legitimacy and economic nationalism against foreign firms as indirect costs in internationalization. This is noticed also by Kedia and Mukherjee (2009) and they talk about economic prejudice. A foreign firm really might need resources for handling problems concerning these before mentioned

issues and to change the possible stereotypes in the host country. Simply the firm needs to fight and work for the success. Also non-governmental organizations, like the World Trade Organization (WTO) and International Monetary Fund (IMF) can cause more work to the firm since cross border operations might require monitoring trade policies with these organizations and regarding Sethi and Judge (2009) interacting with them impacts directly on costs.

But the costs of internationalization are not only for the firm going abroad, but also for the home country. Fuchs and Kirchain (2010) notice that because the increased cost-advantage of a prevailing technology used abroad, the technology development of the firm generally might decrease during the operations. This aspect is negative for the home country as well, since it would also benefit from the possible future developments of a firm originally from this country. Large companies tend to face this phenomenon more likely than smaller firms. Furthermore regarding Hammami et al. (2008) and Salema et al. (2010), if a company leaves a domestic part of its supply chain out of the network because of the internationalization, it is negative news for the country and there are costs resulting for the company about it too. Moreover no matter where the facilities of the supply chain are, Sethi and Judge (2009) examine that costs or at least strategic limitations to a subsidiary abroad are caused by the connection of it with the parent MNE and more specifically its global strategy. Limitations like this can constrain the total possible leveraging of the advantages of cross border operations.

As a remarkable aspect in internationalization, this research identifies also cost of negative effect on further international expansion. Hutzschenreuter et al. (2010) state and propose that international operations might have this impact on the company future, because of dynamic adjustment costs in the new environment. It is understandable especially in a situation when high levels of cultural distance are added into the company supply chain in a short period of time and becoming an insider in the local environment becomes more complex. This phenomenon is also known as the Penrose effect. The number of the operation countries of an MNE does not have such an impact on this phenomenon as the difference between the countries. These aspects are also something that the manager level should know

before the expansion of the company to avoid disappointments or negative surprises in the future.

The costs of host country raised up in this research caused by the foreign firm are not too significant. Pollution and environmental costs are found and the costs of monitoring trade policies and governmental issues. These aspects are examined more specifically for example by Krikke et al. (2003) and Sommer and Troxler (2007) respectively.

The conceptual model below concludes the relevant costs of internationalization and shows their relations. The font size in the model tells about the importance of the certain cost: the bigger the font, the greater the importance. Also the same rule is valid on the arrows which are pointing the relations between the costs.

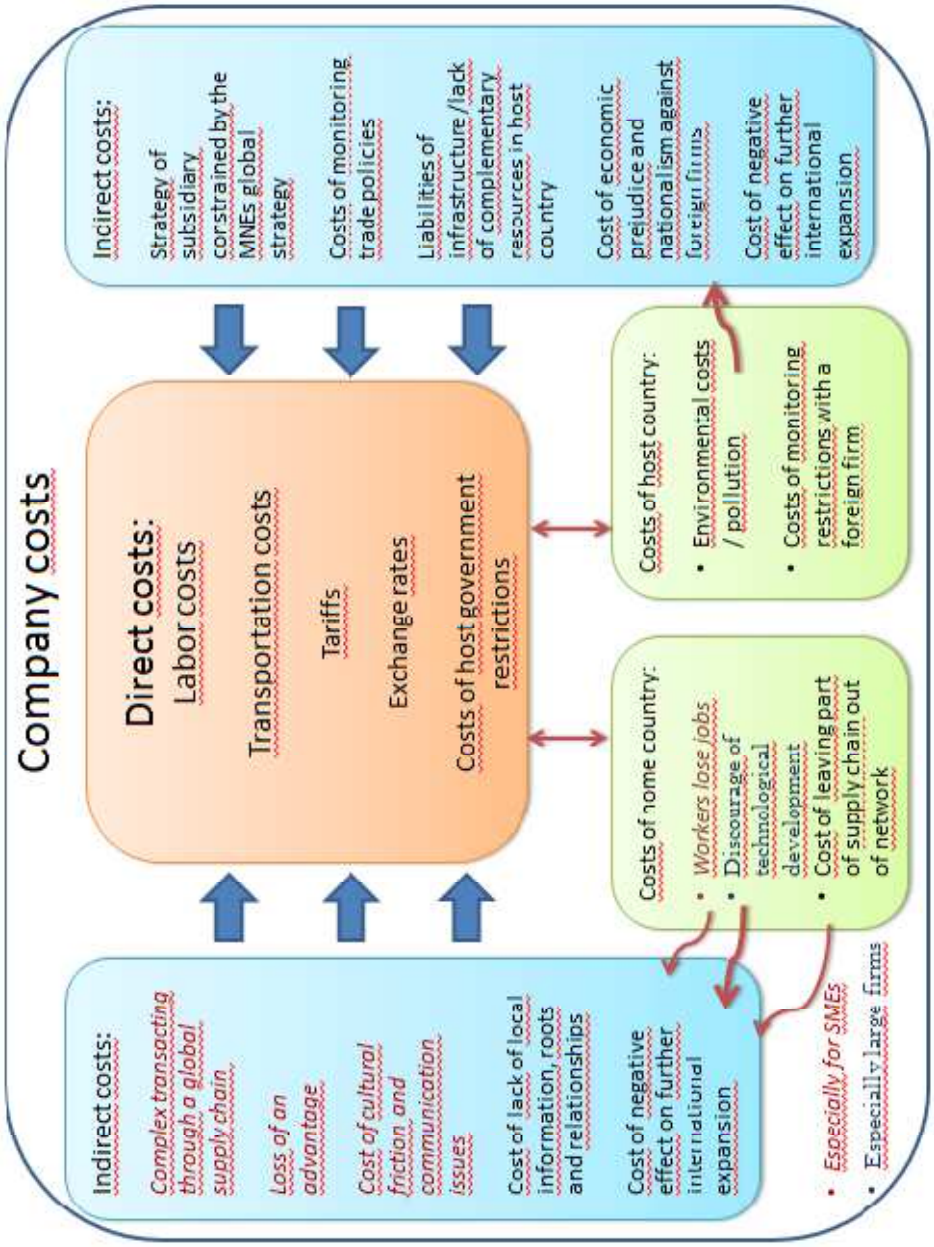

FIGURE 1. Cost structure of international expansion.

5 Summary

In this research the direct and indirect costs of internationalization are examined. To begin with, there is an introduction to the topic. Then a review of the relevant papers and earlier literature is made and they are examined through. An attention is paid to the aim of the papers and to the modeling approaches and tools used in them. Then the case studies are examined presented by each paper and the benefits and disadvantages carried out by the authors of the resource papers are listed down. In the discussion section the most important aspects of the papers studied are summarized.

It was found out that even the wages are the main reason to expand abroad for many companies, there are other reasons too. The firms face difficulties in the expansion concept but the level of them depend on the motive and the way of the company to internationalize. Another finding was that the experience in cross border operations and gaining correct type of knowledge have the most impact on facilitating the future international operations. In addition it was concluded that large companies have an advantage in internationalization compared to smaller firms since they have more capability, but on the other hand smaller firms are more flexible in changes.

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