

# **Reverse Logistics as Part of a Product Portfolio**

## **Case: Freight Forwarder**

Stanislav Savonov



<b>Author(s)</b> Stanislav Savonov	
<b>Degree programme</b> IBMA	
<b>Report/thesis title</b> Reverse logistics as part of a product portfolio.	<b>Number of pages and appendix pages</b> <b>56 + 24</b>
<p>It is essential for every company to follow the market trends and the changing preferences of its customers in order to make necessary changes and adjustments. One of the recent trends is sustainable development, which is supported by the governments around the world as well as by the society, which forces companies to take actions to become more environmentally responsible. It includes becoming more resource efficient, produce less waste and take responsibility for the correct disposal of the products. All these drive the development of reverse logistics, therefore they create a growing demand for reverse logistics services. Thus, companies offering logistics services should satisfy growing demand for reverse logistics.</p> <p>In this research the case of DSV, the freight forwarding company, will be considered. The research seeks to identify benefits of including reverse logistics in the product portfolio. For this purpose the new service development process is investigated and appropriate framework for the study is selected. Further, the external and internal conditions for developing reverse logistics as a new service are analysed. Analysis of external conditions includes customer questionnaire, competitors' offering analysis and research of external environment using STEEP framework. Analysis of internal conditions include in-depth interview with employees and evaluation of DSV's resources necessary for providing reverse logistics services.</p>	
<b>Keywords</b> Reverse logistics, reverse logistics services, freight forwarding, new service development	

## Table of contents

1	Introduction .....	1
1.1	Case company introduction.....	1
1.2	Needs and objectives.....	1
1.3	Research questions .....	2
2	Methodology .....	4
2.1	Philosophy .....	4
2.2	Strategy .....	4
2.3	Methods.....	5
2.4	Validity .....	6
2.5	Reliability .....	7
3	Literature review.....	9
3.1	New service development .....	9
3.1.1	Enablers.....	11
3.1.2	Development.....	12
3.1.3	Analysis .....	13
3.1.4	Design.....	13
3.1.5	Full launch.....	14
3.2	Reverse logistics.....	14
3.2.1	Reverse logistics defined .....	14
3.2.2	Activities.....	15
3.2.3	Drivers .....	16
3.2.4	Challenges.....	18
3.2.5	Related concepts .....	19
3.3	STEEP analysis .....	21
3.4	Theory summary and research structure.....	22
4	Data analysis .....	24
4.1	Development stage .....	24
4.1.1	New service's strategy and objectives.....	24
4.1.2	Reverse logistics service concept .....	26
4.2	External analysis.....	27
4.2.1	Customer questionnaire .....	28
4.2.2	Competitors' offering analysis .....	32
4.2.3	STEEP analysis .....	34
4.2.4	Summary of external analysis .....	38
4.3	Internal analysis .....	39
4.3.1	Internal in-depth interviews .....	40
4.3.2	Internal resources analysis.....	42

4.3.3 Summary of internal analysis .....	44
5 Findings and discussion .....	45
6 Recommendations .....	49
7 Conclusion .....	51
References .....	53
Appendices.....	57
Appendix 1. In-depth interview guide for DSV Group internal interviews .....	57
Appendix 2. Transcript of interview with Sea&Air department's representative.....	59
Appendix 3. Transcript of interview with Solution department's representative .....	63
Appendix 4. Transcript of interview with Road department's representative .....	66
Appendix 5. Customer questionnaire.....	70
Appendix 6. Email sent together with the questionnaire link .....	73
Appendix 7. Responses to the questionnaire .....	74

# **1 Introduction**

This study shall focus on investigation of reverse logistics as a part of the freight forwarder's product portfolio. It aims at answering a question "why should DSV include reverse logistics to its product portfolio?".

The special focus of this study is to provide company with relevant information necessary for the decision-making on developing reverse logistics as a new service of DSV.

## **1.1 Case company introduction**

DSV has been established in 1976 in Denmark as a provider of contracting haulage and delivery services. Since then DSV made a series of mergers and acquisitions which allowed the company to broaden the service range and enter global market. As a result, DSV separated its operations into three divisions: road, air and sea and logistics solutions.

DSV aims at becoming a key player in the international transport and logistics industry by providing services of consistent high quality, pursuing profitable growth, achieving internal efficiency and standardization and maintaining high motivation and competence of employees.

Now DSV is present in more than 70 countries, employs approximately 23 thousand people and holds more than 400 branch offices, terminals and warehouse facilities worldwide. In 2014 its revenue reached 6,5 billion euro.

DSV offers such services as air freight including special services (e.g. express services, on-board courier, hazardous air cargo etc.); sea freight including handling of special equipment or cargo, non-containerized loads, and consolidation of cargo from multiple suppliers; customs clearance and compliance services; project transport (e.g. risk assessment, safe transport, or delivery of outsize goods); road freight and solutions services including warehousing, freight management and other.

## **1.2 Needs and objectives**

This study is needed because DSV can benefit from its findings in its decision-making. It is essential for businesses to follow trends and adapt when necessary, and with growing attention towards sustainable development and resource efficiency more and more companies tend to implement reverse logistics.

Therefore, it is important to understand the strength of the demand for reverse logistics services, future development of this trend and availability of resources in the company in order to make decision whether reverse logistics should be included in the DSV's product portfolio or not.

During the study reverse logistics services will be analysed from several angles. First of all, general market situation will be considered to understand general conditions for the future development of reverse logistics. Secondly, the reverse logistics services offered by DSV's competitors will be studied to understand how competitive advantage could be gained. And, finally, the customers' needs will be researched to anticipate possible demand for reverse logistics services as well as to ensure higher customer satisfaction.

Thus, this study will help to follow the trend of reverse logistics and seize the opportunity of gaining competitive advantage and better customer service if research results will demonstrate that reverse logistics should be implemented; and to avoid unnecessary expenses associated with including reverse logistics in the product portfolio if research results will show that it is not beneficial.

### **1.3 Research questions**

The main research problem could be formulated as following: "Why should DSV include reverse logistics in its product portfolio?"

However, before answering to this question it is necessary to understand new service development process, as including reverse logistics into product portfolio means developing new service. When it is clear how new service is developed and necessary resources and strategy for successful new service development are identified, an exploratory research of the current market situation should be conducted. The research should help to understand main factors that affect demand for reverse logistics and its development in the future, which will be done through STEEP framework. Then it is necessary to analyse reverse logistics services offered by the competitors to identify the opportunities for achieving competitive advantages, at this stage competitors' services should be studied and compared. In addition, the needs of customers have to be studied to understand the nature of the demand for reverse logistics and which services are most valuable for customer, here questionnaires as well as depth interviews could be carried out. And, finally, it is necessary to study DSV itself to find out if company has prerequisites and financial and human resources necessary for adding reverse logistics to the product

portfolio. In order to obtain this information interviews with managers of DSV could be conducted.

Thus, research problem could be summarized in a following way:

**Why should DSV include reverse logistics into its product portfolio?**

- What are the external conditions (market situation, competitors, and customers)?
- Do the internal conditions exist?

## 2 Methodology

In this chapter the research methodology will be discussed covering such aspects as research philosophy, research strategy, methods, validity and reliability.

### 2.1 Philosophy

This study will be undertaken according to pragmatism research paradigm, i.e. the most important determinant when choosing epistemology<sup>1</sup> and ontology<sup>2</sup> is the research question (Saunders et al, 2007, 109). Thus, there might be a variation in research philosophy and it cannot be strictly defined as positivist or interpretivist.

The ontology of the study will lean towards subjectivism, main goal of which is "...to explore the subjective meanings motivating the actions of social actors in order for the researcher to be able to understand these actions" (Saunders et al, 2007, 111). Therefore, customers', competitors' and DSV managers' opinions and beliefs about reverse logistics services will be studied to understand the attitude and motivation behind the demand for these services. However, the objective data also will be needed to answer to the research questions, for example, it will be necessary to know how many customers are interested in reverse logistics services or how many competitors offer these services. Thus, it is possible to conclude that epistemology of the study will be mainly connected to feelings and attitudes of social actors, which constitutes the interpretivist philosophy of the research. Nevertheless, some elements of the study (especially customers' questionnaire) will follow rather critical realism philosophy, position of which "...is that our knowledge of reality is a result of social conditioning and cannot be understood independently of the social actors involved in the knowledge derivation process" (Dobson, 2002).

### 2.2 Strategy

In general, the strategy used for this research could be identified as Case Study. According to Yin (1994) a case study relies on multiple sources of evidence, with data needing to converge in a triangularly fashion and is an all-encompassing method. It can be used on any mix of quantitative and qualitative evidence and need not always include direct, detailed observations as a source of evidence. The research design of a case

---

<sup>1</sup> Epistemology concerns what constitutes acceptable knowledge in a field of study (Saunders et al., 2007, 112)

<sup>2</sup> Ontology is concerned with nature of reality, it questions researcher's assumptions about the way the world operates and the commitment to particular views (Saunders et al, 2007, 110)



study is the logic that links the data to be collected to the initial question of a study. The design is a logical sequence that connects the empirical data to a study's initial research question and to its conclusions. The research design is a logical model of proof that allows the researcher to draw implications concerning causal relationships among variables under investigation. Though the case study method could lack rigor and is considered to be sloppy work in nature, for the purposes of this research project the case study method is considered to be the most appropriate. Main reason for this is its flexible all covering nature, which allows to gain deeper understanding of the reverse logistics services in relation with DSV activities and answer to the research question in a more holistic way.

The particular research problem is considered as holistic embedded case study. Ten characteristics have been highlighted by Remenyi, Money, Price and Bannister (Miller 2008, 46-47) of a high quality case study:

1. Seeks to provide meaning in context;
2. Has a clear cut focus;
3. Shows both an in depth understanding of central issues being explored and broad understanding of related issues and context;
4. Has a thoroughly articulated protocol;
5. Draws on multiple sources of evidence;
6. Should be evidenced by means of triangulation;
7. Is a story;
8. Must be reasonably bounded;
9. Can draw on qualitative and/or quantitative tools, for tools/for evidence and/or analysis, but cannot be exclusively quantitative in nature;
10. Should not require the researched to become too immersed with the object of the research.

It is important to notice that this research could be classified as exploratory, meaning that thesis will help the company to gain better understanding of the reverse logistics and its possible importance for the product portfolio, it also will present some general information which could be used as a basis for the more detailed and oriented research.

### **2.3 Methods**

During the study mixed-methods approach will be used including both qualitative and quantitative methods. Among qualitative methods the in-depth interviews will be carried out to gain more insight on the topic and obtain understanding of opinions and attitudes of customers as well as managers of the company, if possible the in-depth interviews with competitors will be conducted as well. As a quantitative method questionnaire among

customers will be implemented to gain better understanding of the demand scale and reflect their opinion in a more numerical way. In this way, in-depths interviews will aim at understanding of attitudes and beliefs about reverse logistics services from different perspectives (internal and external, i.e. employees and competitors), while questionnaire will help to measure the demand for these services, which could be extremely important for the decision-making based on the findings of the study.

Mixed-methods approach allows to combine strengths of both qualitative and quantitative methods, gain more evidence than either qualitative or quantitative, answer to certain question that cannot be answered by one of the methods only, and it is also more practical. At the same time mixed methods research imposes certain challenges, for example, it requires more complex analysis and it is more time and resources consuming. It is necessary to be aware of these challenges for better allocation of resources and time planning of the study process.

Thus, both primary and secondary data will be gathered to obtain more holistic understanding of the research problem. Secondary sources will be used to gain general understanding of the topic and form theoretical basis for the collection and interpretation of primary data. Theoretical part of the study will cover the new service development process, meaning of reverse logistics, its activities, advantages, challenges and general trends in the area. It also will be used to analyze competitors and DSV itself. Primary data will help to identify the attitude of managers, competitors and customers towards reverse logistics services, which is essential for answering to the research questions. Interviews and questionnaire also will help to gain deeper understanding of this certain situation, attitudes of DSV and its customers, which will be more relevant for the decision making in DSV compared to secondary sources.

## **2.4 Validity**

Using Yin study validity is divided into construct, internal and external validity (Yin, 1994). Construct validity tests whether practical definition of a variable is in accordance with its theoretical meaning. Several techniques highlighted to ensure construct validity is sound are:

1. Multiple sources of evidence;
2. Chain of evidence;
3. Revision of the case study report by key informants.

As was mentioned before several types of sources will be used in the study. Thus, the sources of data will be represented by theory books in the area of research, relevant articles from trustworthy journals, relevant case studies and publications and information collected during interviews, which ensures objectivity of the research results. In addition, colleagues, or team members in this study, will be asked to give their opinion on the research to make it diversified and avoid subjectivity, which also could be considered as revision by a key informant. In order to establish chain of evidence, the database of relevant documents (transcripts of interviews, letters, questionnaire results etc.) should be created in such way that this material could serve as a proof to the findings and it could be used by others.

Internal validity refers to the extent to which the method is appropriate for the problem investigated. To ensure the internal validity following techniques could be used:

1. Pattern matching (comparing empirically based patterns with predicted ones);
2. Explanation building (creating causal links, explaining how and why);
3. Time series analysis (detailed and accurate tracing of events);
4. Logical models (stipulating a complex chain of events over time).

In the study the explanation building will be used to ensure internal validity, since most of other techniques are more suitable for quantitative research.

External validity refers to the extent the results for a study can be applied to other similar situations (Wikipedia, quoted 10.11.214). To support external validity it is possible to use:

1. Rival theories within single cases (controversial theories should be considered);
2. Replication logic in multiple-case studies (when two or more cases support the theory).

Thus, to ensure external validity, rival theories and opinions will be taken into consideration for the analysis of the findings. Also, the study will include comparison of DSV and its competitors in relation to reverse logistics services, which could be considered as a replication logic.

## **2.5 Reliability**

Reliability deals with the extent to which the results are consistent with reality and the following techniques will be used in this study:

1. Case study protocol;
2. Case study database (Yin, 1994).

Case study protocol reflects all the procedures involved in the data collection for the case study, it should include procedures for contacting key informants, making field arrangements, reminders for implementing rules for protecting human subjects, detailed line of questions, preliminary outline of the case study etc.

Case study database is used for organising and warehousing all important documents of the case study including notes, narratives, tabular material etc. This tool allows to return to the research later and if necessary confirm the findings, or it could be done by other researcher. Opportunity to check and confirm the data used in the study increases its reliability.

The results are expected to be consistent with reality because all reasonable measures will be taken to ensure they reflect the actual situation on the ground. For instance, business research tends to be a reflection of business experience therefore a logical inference has been made that the academic research in this field is a reflective of business practice and thereby providing in depth analysis of the current situation in the forwarding industry.

It is important to mention that the role of the researcher also could benefit the reliability of the research. The investigators position could be explained as technique to achieve reliability of the research through describing by the researcher what and why has been done. Following this technique, all the action taken during the research will be reflected in the thesis and reason behind them will be explained.

### **3 Literature review**

There are two main elements that are important to understand in order to answer to the research questions: the new service development and reverse logistics. Further, the literature review on both aspects will be presented.

#### **3.1 New service development**

The review of the literature on new service development is essential for the purposes of this study. Although the main focus will be on evaluating opportunities related to the introduction of reverse logistics services into offerings of the company, it is necessary to understand how the development of these new services could be successfully implemented.

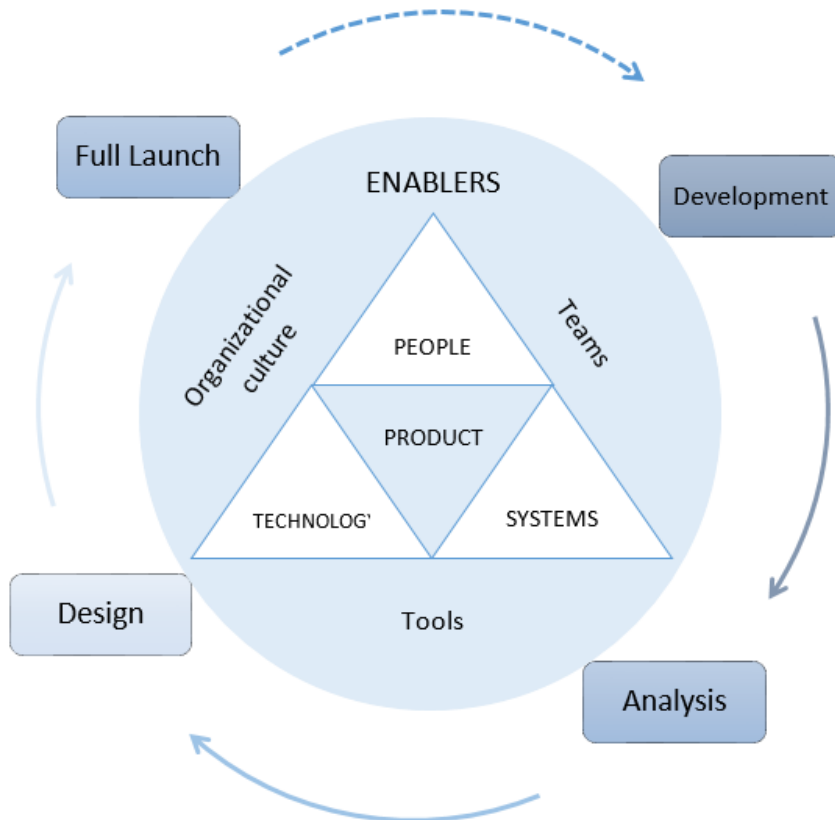
New service development (here and after NSD) could be explained as a process of developing new service offering. And new service is defined as an offerings not previously available to customers that results from the addition of offerings, radical changes in the service delivery process, or incremental improvements to existing service packages or delivery processes that customers perceive as being new (Johnson et al. 2000, 2).

In recent years several NSD models and frameworks (e.g. Scheuing and Johnson 1989; Cooper 1994; Edvardsson and Olsson 1996; Kindström and Kowalkowski 2009; Song et al. 2009) have been developed with intention to formalize and standardize the NSD processes, which, according to various sources (e.g. de Brentani 1991; Edgett 1994; de Brentani and Ragot 1996; Griffin 1997), increases NSD project's chances on success compared to the ad hoc NSD.

Usually, companies take rather formalised and standardised approach towards new product development (NPD) process, while the NSD projects are considered as they happen naturally. Meanwhile standardised service development process helps to improve predictability of the projects, which allows to fix problems in a timely manner (Dooley et al. 2001). In addition, the risk associated with project budgeting and scheduling could be reduced via formalisation of NSD processes (Persse 2007).

The importance of standardised NSD process was substantiated for relatively long time. For example, already in 1994 Edgett conducted a study where NSD process of the companies were analysed, and one of the findings was that successful NSD projects had higher formalisation level compared to unsuccessful ones.

Figure 1. New service development model (adopted from Johnson et al. 2000, 18)



Jin et al. (2014) suggested that formalization of the NSD process could be established in three aspects:

- Systematic behaviour: the competency of using standardized and formal rules and also appropriate tools and techniques to manage NSD processes,
- Documentation: the competency of conducting formal paperwork,
- Assignment of responsibilities: the competency of defining roles and assigning responsibilities related to NSD decision making.

In order to simplify the formalisation of NSD process the NSD models and frameworks were developed. In this study the model introduced by Johnson and Scheuing (1989) and developed further by Johnson et al. (2000) will be used as a basis for the analysis of the reverse logistics as a new service offering, since this model reflects NSD processes in a more holistic way and better satisfies the needs of the research problem compared to other models. Visual representation of the NSD framework depicted in the figure 1.

The NSD process cycle is supported by enablers (teams, tools and organizational context), which allow to make the cycle less time-consuming and ensure that the new service is consistent with customers' needs. Both process cycle and enablers aim at

developing new service product, which consists of people, technology and systems. Below each part of the model presented in the figure 1 will be explained in more detail.

### **3.1.1 Enablers**

Enablers of NSD could be defined as resources necessary to support and drive NSD activities, and for this reason enablers are at the centre of the NSD model (Figure 1). Practices that focus on cultivating, motivating, and developing the intellectual, physical, and organizational resources to support NSD are called resource-oriented (Froehle and Aleda, 2007). Examples of such practices could be creation of cross-functional teams for NSD, development of organizational culture that supports innovative approach, acquiring tools that help to enhance NSD etc.

Froehle and Aleda also identified process-oriented NSD practices, main focus of which is on planning, defining and executing the actual sequence of NSD steps (development, analysis, design and full launch). Examples of such practices would be service concept development, concept testing, idea generation, launch of new service etc. Authors believe that it is important to use both types of NSD practices to ensure successful NSD and gain competitive advantage.

As explained earlier NSD enablers are represented by teams (i.e. intellectual resources), tools (i.e. physical resources) and organizational context (i.e. organizational resources). Further these three enablers will be explained in more detail.

Teams usually are represented by cross-functional teams of employees created specifically for NSD. Involvement of employees in the process of NSD ensures higher quality and better performance. The research conducted by De Brentani (1989) demonstrates that project development with participation of employees guarantees more successful outcomes. However, it is important to mention that also participants from outside, such as business partners, suppliers or customers, could be included in the NSD processes in order to achieve more insightful results.

Organizational context is very important aspect in NSD and it includes "...firm's formal reporting structure, its formal and informal planning, controlling, and coordinating systems, as well as informal relations among groups within a firm and between a firm and those in its environment" (Barney 1991, 101). All these parts of organizational culture should support innovation in order to ensure more successful NSD. For example, acceptance and involvement of top management could be vital for the successful execution of NSD projects.

Tools are represented by ICT networks, prototyping programs, computer simulation systems and others. New technologies could be extremely important in NSD, as they often provoke service innovation. In addition, technology is one of the most important elements of service companies' production and delivery process.

### **3.1.2 Development**

The first step of NSD model includes such activities as formulation of objectives and strategy of new service, generation and screening of ideas, development and testing of the service concept.

Well-defined strategy directs the NSD process and keeps it in line with general goals of the company thus achieving better efficiency and effectiveness. Johnson and Scheuing (1989) differ between four major new service strategies: share building (selling existing services to current customers), market extension (selling existing services to the new customers), line extension (selling new services to current customers) and new business strategy (new services to new customers). Line extension strategy is the most suitable for the context of the study. In other words, new RL services would be offered to existing customers. This strategy is not as risky as new business strategy, does not require discount pricing introduction as in case of share building, and it is not as complex as new market penetration, which is part of market extension strategy. However, line extension strategy requires deep understanding of existing customers' needs and company's internal capabilities in order to develop service, which would add customer value.

Generation of ideas for new service could be triggered in various ways. For example, possible changes to the services could be suggested by customers, some new opportunities could be identified by employees, or shifts in the external environment (social, technological, economic, environmental and political) can force company to introduce new service.

When the relevant ideas are identified, they are used for the formulation of the service concept. Edvardsson and Olsson (1996) define service concept as a customer utility and the benefits which the service and its various sub-services are intended to provide and convey to the customer. In other words, service concept is a description of a new service. According to Johnson and Scheuing (1989) concept should include explanation of a problem that company can encounter in the future, reasons why new service is to be offered, description of its characteristics and advantages, and rationale for buying it.



In order to understand the customers' opinion about the potential service and ensure that it is customer-oriented, service concept testing is implemented. Johnson and Scheuing (1989) identify three main points that should be carefully evaluated during the concept testing stage:

- Does the customer understand the idea of the potential service,
- Does customer have positive reaction to the service?
- Does the service satisfy unmet needs, in customer's opinion?

Thus the result of the development phase is a developed and tested new service concept, which then is analysed during the analysis phase.

### **3.1.3 Analysis**

Second stage of NSD includes such processes as business analysis and project authorization.

Business analysis includes detailed market assessment and preparing an approximate budget for the development and introduction of the new service.

At the project authorization stage, top management should decide whether the new service should be implemented, and if yes, necessary resources should be allocated for this purpose.

### **3.1.4 Design**

While the development and analysis stages represent a planning phase, design and full launch could be called execution phase of NSD process cycle. At this point, service delivery, design and cross-functional development efforts as well as involvement of customers and even suppliers are essential for the success of the NSD project.

This stage includes such activities as service design and testing, process and system design and testing, marketing program design and testing, personnel training, service testing and pilot run, and marketing testing.

Service design and testing aim at development of the operational details of the service and it is closely linked to the design of the process and system of the service delivery. Service delivery process and system should be designed very carefully and then tested to ensure the proper service quality and success of the project in general. When the operational details of the service and its delivery and processes are defined, the

marketing program should be created and tested. At this stage it is very important to pay attention to the personnel training to ensure that employees are familiar with the new service and its operational details and are able to sell and deliver the service in the most optimal way. Service testing helps to understand customers' reaction on new service and pilot run to identify possible bottlenecks and problems in the service delivery. Marketing testing is used to evaluate possible sales levels, customers' reaction on the changes in marketing mix, and also test the marketing program.

### **3.1.5 Full launch**

When the delivery system and marketing program is tested and necessary changes are made, company can initiate full-scale launch of the new service. It is essential to monitor the service after the launch and make a post-launch review, because even after thorough testing of the new service some changes might be required to adapt to the changing environment or unexpected events.

## **3.2 Reverse logistics**

In this section the literature review on reverse logistics will be presented for better understanding of the nature of reverse logistics, its main activities, drivers and challenges. It is important to gain theoretical knowledge in these aspects before analysing findings of qualitative research to be able to evaluate the depth of service concept understanding by DSV's customers and employees.

### **3.2.1 Reverse logistics defined**

One of the earliest and most holistic reverse logistics research was done by Rogers and Tibben-Lembke (1998), where they identified importance and strategic approach towards reverse logistics, its role in such concepts as returns management and secondary markets and future trends in area of reverse logistics. They defined reverse logistics as "...a process of planning, implementing, and controlling the efficient, cost effective flow of raw materials, in-process inventory, finished goods and related information from the point of consumption to the point of origin for the purpose of recapturing value or proper disposal." This definition very well reflects the idea of reverse logistics (here and after RL), but it is necessary to mention that the products are not necessarily returned to their point of origin, but could be transported to another place for the recapturing of the value or disposal (De Brito & Dekker 2003).

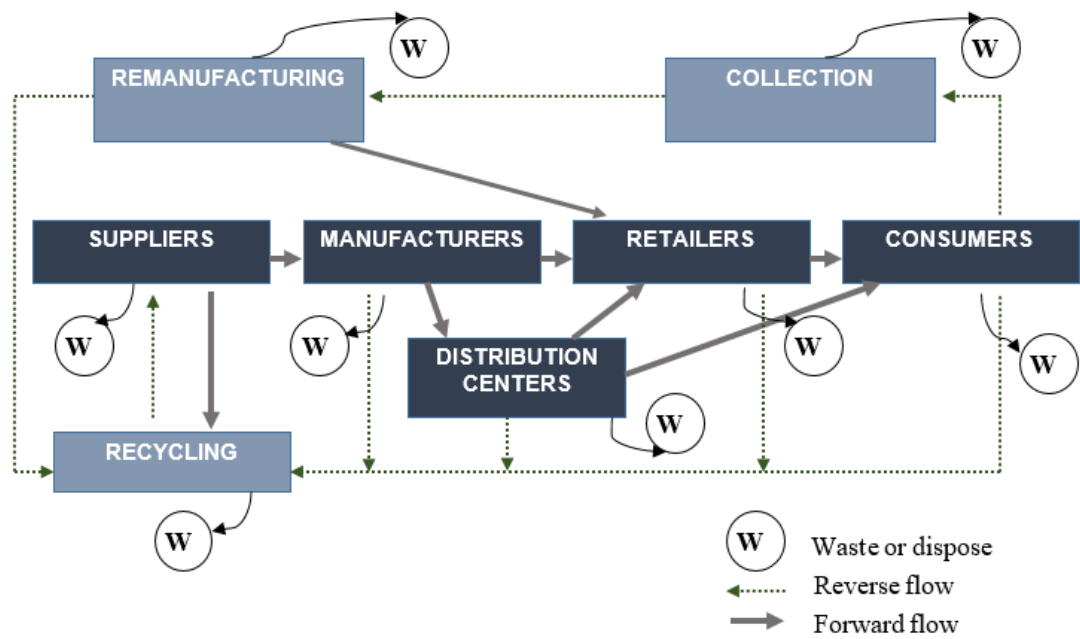


Figure 2. Supply chain with forward and reverse flows (adopted from Beamon 1999)

Figure 2 depicts RL as a part of supply chain, also it helps to identify when the operations related to the RL take place.

Reverse Logistics Association (RLA) offers another definition of RL from the monetary point of view: “In other words, anytime money is taken from a company's Warranty Reserve or Service Logistics budget, that is a Reverse Logistics operation”. RLA also suggests several terms that are considered as synonymous to RL such as aftermarket logistics, retrologistics, aftermarket supply chain, and reverse supply chain.

### 3.2.2 Activities

Furthermore, it is essential to understand RL activities to gain more detail knowledge of RL and identify the services that could be offered in this area. RL logistics activities vary among different sources depending on from which point of view RL is considered. For example, some sources present recycling and waste management as a part of RL (e.g. as in RLA), while others consider it as a separate activities. For the purposes of this study it is not necessary to identify exactly which activities belongs to RL and which are not, it is enough to understand what RL services could consist of. For this reason several sources were examined, including Rao (2008), Bloomberg et al. (2002), Grant et al. (2006), De

Brito and Dekker (2003), Rogers and Tibben-Lembke (1998), and RL activities were classified in a following way:

- Acquisition: a process that involves the collection of the product from the market (end user) and delivering it to the point of recovery or “gate keeping” centre.
- “Gate keeping”: it is the point of entry of goods into the reverse flow and it includes following operations:
  - Inspection – why the product has been returned?
  - Sorting – organizing the products in accordance with reason of return
  - Selection – which products should be reused and which sent to the recovery point.
- Recovery is a process of recapturing the utilised goods value and it could be implemented through following:
  - Repair – replacement of faulty or failed parts to recover product usability;
  - Refurbishing – products undergo minor changes such as minor repairs, painting, cleaning, removal of stains etc., but the most of product structure stays unchanged;
  - Reconditioning – broken parts of the product are replaced, so that basic structure stays the same;
  - Remanufacturing – a full manufacturing process with usage of both new materials and ones recovered from used products;
  - Disassembly and cannibalization – working parts of the product are removed for further use and failed parts are sent to recycling or disposal; cannibalization is a very selective disassembly;
  - Reclamation or retrieval – here remaining valuable materials are reclaimed before the leftovers are sent to landfill;
  - Recycling – is a process of converting waste materials so that they could be used again.

### **3.2.3 Drivers**

To be able to understand the reasons of growing demand for reverse logistics services, i.e. why DSV customers would be in need of such services, it is necessary to consider the drivers of RL.

There are various reasons for integration of RL, which could be warranty returns, return of units for the upgrade, return of products related to the safety or security, lease returns, return of unsold products etc. (Bloomberg et al. 2002).

De Brito and Dekker (2003) differentiate following reasons for product returns:

- Manufacturing returns: raw materials surplus, quality control returns, production leftovers,
- Distribution returns: products recall, B2B commercial returns, stock adjustments,
- Customer returns: warranty returns, service returns, end-of-use return.

However, often these reasons, while force companies to set up RL, are not sufficient to place RL at the same level of importance as, for example, forward logistics or marketing. For this reason, it is necessary to consider other factors that drive organisations to consider RL from strategic point of view.

Kokkinaki et al. (2000) consider three clusters of incentives for setting up RL, which are achieving positive environmental impact, recovering of the value and gaining competitive advantage. Other study, carried out by De Brito and Dekker (2003), highlights following RL drivers: economic, legislative and corporate citizenship. While both frameworks help to understand the motivations behind RL integration and reflect the reality, former one is lacking legislative perspective. For this reason, the drivers identified by De Brito and Dekker will be explained further.

*Economic drivers* are associated with lowering use of raw materials (since old ones are reused), adding value with recovery and cutting disposal costs. However, it is important to understand that economic value could be gained also in other ways. For example, company can gain competitive advantage through attractive return policy, which cannot be implemented without RL; also take-back services help to prevent the acquirement of technology by competitors; another reason for setting RL is that well organised return services may improve communication flow between customers and company, making in this way customer satisfaction and, consequently, sales grow (De Brito and Dekker 2003).

*Legislative driver* could be considered as the most powerful when considering RL integration. In many countries the legislation concerning the disposal of end-of-life products. For example, in Germany law inflicts the responsibility for the final disposal of products on their producers. In many states in the US retailers of vehicle batteries are required to take back used batteries. In other cases, when producers are not forced to take back their products, there are limitations of what is allowed into landfills. In EU several directives have been introduced aiming to decrease the number of end-of-life vehicles, electrical and electronic equipment, batteries and packaging that goes to landfill (Winter 2009).

The last driver of reverse logistics, *corporate citizenship*, concerns a set of values or principles that in this case impel a company or an organization to become responsibly engaged with reverse logistics (De Brito & Dekker 2003, 8). Sustainable development trend and growing environmental awareness forces companies to consider more environmentally friendly way of operating, which makes RL more and more popular, since it is efficient and effective tool for achieving resource efficiency and waste minimization.

### **3.2.4 Challenges**

In this section several challenges that companies might face when implementing reverse logistics will be considered. It is important to understand what type of problems customers might have as it would help to identify what services will be in demand.

Starostka-Patyk et al. (2013) classify challenges or barriers for reverse logistics implementation in four groups: economic barriers, organizational barriers, barriers related to markets and barriers related to government. Further each of these groups will be considered in more detail.

Economic barriers include, for example, lack of economic benefits, high set-up and operating costs or lack of economy of scale (Starostka-Patyk et al. 2013). This group of barriers could be of special interest for logistics services providers, since they are able to reach economy of scale and minimize operating costs if there will be sufficient amount of customers' orders. Thus, customers are able to decrease costs related to reverse logistics activities and logistics service provider could get increase in sales.

Organizational barriers encompass lack of top management commitment, insufficient strategic planning, lack of appropriate information systems, low competence of personnel in the area, unestablished formal procedures for product returns etc. (Starostka-Patyk et al. 2013). For this group of challenges, logistics service providers could offer to customers consulting services if there is enough competency in the area.

Barriers related to markets are represented by such challenges as uncertainty in timing, quality and quantity of product returns; difficulties in marketing of remanufacturing products, inability to measure the performance, lack of support from supply chain partners etc. Often, it is complicated to forecast the time, amount and condition of products that will be returned, which makes it difficult to plan the operations and allocate resources (Halldorsson & Skjott-Larsen 2007, Starostka-Patyk et al. 2013). However, freight

forwarders manage flows of large amount of goods every day and it should be much easier to deal with uncertainty of product returns and measure the performance.

Barriers related to government could be low awareness of RL, lack of supportive economic policies or legislations, unregulated waste management etc. These barriers are rather difficult to deal with as they are independent of the companies, and could be solved mainly by government (Starostka-Patyk et al. 2013).

### **3.2.5 Related concepts**

In this section the connection of reverse logistics to other closely related concepts is studied. It is important to understand with which trends RL is associated and where the need for RL services could arise, which would make it easier to understand the nature of the demand and develop appropriate service offer.

RL is often associated with following concepts: green logistics, closed-loop supply chain, green supply chain, circular economy, return management, and aftermarket services. Further these concepts and their connections to RL will be considered in more details.

*Green logistics* aims at creating environmentally responsible logistics system through resource efficiency, minimization of the environmental impact of logistics activities and promotion of harmonious economic development (Changling 2011). For example, green logistics activities include green warehousing, decreasing environmental impact of freight transportation, optimization of vehicle utilization, improving routing etc. Even though some activities of green logistics might be similar to the ones of RL, these two concepts have different focus. RL's focus is on the reverse flow of goods, while green logistics concentrates on measuring and minimizing environmental impact of all logistics activities (Rogers & Tibben-Lembke 2001). Therefore, RL and green logistics overlap when products are returned for recycling, remanufacturing, reuse etc. However, such activities as lowering air and noise emissions and packaging reduction would be included in green logistics, but not in RL.

*Closed-loop supply chain* is a supply chain that simultaneously carries out forward and reverse flows. RL in this case is a part of closed-loop supply chain and it actually closes the "loop". In other words, without reverse logistics there is no closed-loop supply chain.

The main difference of *green supply chain* from traditional is that in the former one the environmental effects of all processes of supply chain, from the extraction of raw materials

to the final disposal of goods, are considered (Emmett & Sood 2010). Purpose of green supply chain is to reduce energy consumption, increase rates of recycling and reuse, and minimize waste and pollution generation. For this reason, RL is important aspect of green supply chains, since it enables resource efficiency and it is essential in recycling, remanufacturing and reusing. However, it is important to remember that green supply chain's activities are much wider than the ones of RL. For example, green design, green production, green procurement, choosing suppliers based on their environmental indicators, are parts of green supply chain.

*Circular economy* "...aims to enable effective flows of materials, energy, labour and information so that natural and social capital can be rebuilt. It seeks to reduce energy use per unit of output and accelerate the shift to renewable energy by design, treating everything in the economy as a valuable resource" (Ellen MacArthur Foundation 2013, 26). Thus, in order to ensure effective flow of materials and energy, so that natural capital can be rebuilt, it is important to put emphasis on such activities as repair, reuse, redistribution, remanufacturing, refurbishing, and recycling; which are essential elements of circular economy model and are impossible to implement without addressing to RL. It is possible to say that RL lies at a very foundation of the circular economy.

According to Rogers et al. (2002, 5) "*returns management* is that part of supply chain management that includes returns, reverse logistics, gatekeeping and avoidance". Gatekeeping in this context aims at controlling and minimizing the amount of products that enter reverse flow and preventing the return of products that should not be returned. And avoidance means managing returns so that minimum products would be returned. As seen from the definition of returns management, RL is vital part of this concept as well.

*Aftermarket services* are provided after the product has been sold and it may include warranty services, returns management, technical support, repairs, spare parts supply etc. Some sources (Manners-Bell 2014) even use aftermarket sales as a synonym for RL. The main focus of aftermarket services is to improve customer service quality, enhance interaction with customers and increase sales. In some industries (e.g. automotive, electronic equipment, white goods etc.) managing aftermarket services could be essential for maintaining competitive advantage and attracting more customers. RL plays important role in aftermarket services when product or product parts are returned, and at this point logistics service providers can seize the opportunity and offer RL services in order to minimize costs and ensure better aftermarket services for their clients.



### 3.3 STEEP analysis

In this section STEEP analysis will be explained. It is important to understand what STEEP analysis is and how it is implemented as it will be used for the external analysis of the RL market situation. STEEP analysis is usually applied to the whole company, but in the context of this study it will be used to analyse RL, and external factors that may influence its further development. Thus, it will be easier to understand the future of RL and if there will be a demand for RL services.

STEER stands for Social, Technological, Economical, Environmental and Political elements of macro environment. STEEP analysis is based on External Environment analysis (opportunities and threats) which usually can be found in mission statement or similar document, where company attempts to define its strategy. STEEP analysis considers social/cultural, technological, economic, environmental and political/legal conditions in order to understand the factors in which company could exist successfully.

When analysing social/cultural conditions the following data is relevant: demographic conditions, changes in values/attitudes, changes in lifestyle, attitudes towards work/spare time, education conditions, work environment conditions, health conditions, changes in income distribution, etc. (Makos 2015).

In order to analyse technological conditions, data about scientific and technological developments should be considered (e.g. spreading of and breakthrough in new technology, publicly supported R&D – projects, development in R&D, new patents and products, etc.).

When analysing economic conditions, gross national product (GNP), inflation rate, wage level, other costs, private consumption and available income, development of the rate of exchange, public finances, interest level, unemployment level, etc. are important (Makos 2015).

For environmental conditions information related to energy, reusing and recycling, protecting biological bases, food protection, air and water quality should be analysed; for instance, ecology issues, pollution conditions, Green energy, energy conservation, waste handling, carbon credits, etc.

Finally, for political/legal conditions the following data should be relevant: global, regional and national political development (administration, political parties etc.), tax politics, labour market politics, agricultural politics, public interference, trade political conditions, etc.

In order to accomplish STEEP analysis the trends should be followed, for example number of restrictions on import is political/legal trend. STEEP analysis should follow the path of assumptions, implications and template. First of all the assumption should be made (where certain trends, developments, and events are heading and which will be most important for the company), then implications of different features based upon these trends explored (identification of threats and opportunities), and finally a simple template grid document should be used if possible (Makos 2015).

Analysis of five STEEP factors should lead to a clear external environment analysis and at least partially answer to such questions as what social, economic, political, environmental and technological factors in the external environment influence ability of a certain company to accomplish its mission and vision; which events or trends are having (or may have) an impact on the company; how will these external factors develop; what will the developments mean for a certain company; how will developments affect the position in the marketplace, stakeholders, programs, products and services, and institutional capacities.

### 3.4 Theory summary and research structure

In this section the literature review presented above would be summarized to build a research framework, which would support and structure practical research. Also, each part of the theoretical framework would be explained in a more detail.

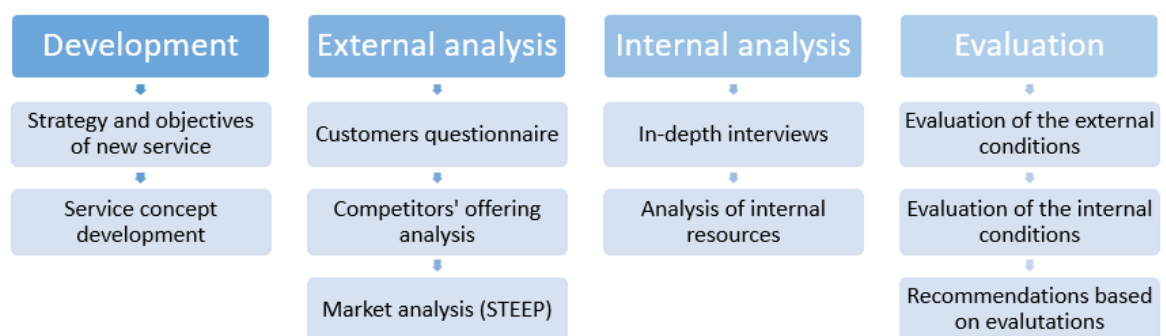


Figure 3. Research framework

As seen in the figure 3 there are four main stages of the research: development, external analysis, internal analysis and evaluation.

Stages depicted in the figure above represent first two steps of NSD processes cycle: Development and Analysis. Therefore, based on the results of this study DSV management will be able to make a decision whether the RL service concept should proceed to the next NSD steps (design and launch).

During the Development stage the strategy and objectives of RL services will be developed and their fit to the company's general strategy is analysed. Then the RL service concept will be formulated including explanation why RL services should be offered, description of main sub-services and identification of necessary resources, basis for which will be the theory related to RL activities, drivers and challenges.

External conditions will be analysed from three different perspectives: customers, competitors and market. Questionnaire survey will be conducted to understand customers' needs and opinions on new service concept, and at this point theoretical information about NSD and development step, in particular, will be used as a guidance. Competitors' RL services are analysed to understand the existing offers and find opportunities for gaining competitive advantage. Finally, STEEP analysis will be implemented to understand general situation in the market. Literature review on concepts related to RL will help to identify relevant trends and on RL drivers – most important factors influencing RL development in the future.

Information for internal analysis of DSV will be gathered through in-depth interviews. At this stage, DSV's internal capabilities will be studied in order to understand if DSV has necessary resources (identified during development stage) to offer RL services. During evaluation phase, all the results of analysis stage will be evaluated and summarised, and recommendations will be formulated.

## **4 Data analysis**

In this chapter the practical aspects of the study will be described and results will be analysed. The structure of this chapter will follow the research framework explained in previous section and will include formulation of objectives, strategy and concept of new service (i.e. RL), description of the results of internal and external analyses, and evaluation of the results. The chapter will be concluded by providing recommendations for DSV management based on evaluated results.

### **4.1 Development stage**

In this section the objectives and strategy for development of RL services as new services for DSV will be formulated in accordance with company's general strategy. Furthermore, the description of RL service concept will be given based on such factors as reason for offering RL services, main sub-services and necessary resources.

#### **4.1.1 New service's strategy and objectives**

Line extension strategy is the most suitable option for the development of RL services as new services. This strategy is used when new service is offered to the existing customers, and it allows less aggressive approach (as in share building, when discounted prices are offered trying to win customers over). In addition, line extension strategy is not as resource-consuming or risky as market extension and new business strategies.

It is necessary to consider DSV's strategy before NSD strategy formulation in order to ensure that the latter one is in line with company's objectives. Thus, below the strategy and objectives of DSV will be considered.

DSV's vision: "We want to be a leading global supplier, fulfilling the customer needs for transport and logistics services, targeting extensive growth and being among the most profitable in our industry. This way we are able to set the pace and direction of our own development while being an attractive business partner."

Vision demonstrates that DSV is oriented on extensive growth and constant increase in profits and aims at becoming global leader, which means that eventually DSV will extend the market share and range of services. Thus, introducing new service offering in area of transport and logistics services is absolutely in line with company's strategy.

Moreover, the vision is supported by growth, customer focus, business processes, organisation, and HR statements:

- Growth statement: “we actively pursue profitable growth balanced between a solid above market organic growth and an active acquisition approach guided by our market ambitions.”
- Customer focus statement: “we offer our customers global and competitive transport and logistics services of a consistent high quality.”
- Business processes statement: “internal efficiency and standardisation in our business processes are crucial in order to operate at low cost, enabling us to be competitive and deliver timely and high quality services to our customers.”
- Organisation statement: “we are one company and aim for the right balance between local, divisional and central tasks and responsibilities, while safeguarding the DNA of DSV and taking advantage of scale and technology.”
- HR statement: “we strive to motivate and increase the skills of our loyal and talented employees in line with the changing conditions for the business by offering relevant education, career development opportunities and being an attractive workplace for employees, supported by efficient tools and technology.”

To summarize, DSV aims at extensive market growth offering high quality services, which is achieved through highly efficient business processes, balanced organisational structure and talented and motivated employees.

While line extension strategy does not imply extensive market growth, it can help to identify new opportunities for further business development and gaining market share. In addition, during the interviews with DSV employees it was discovered that the company already offers reverse logistics services in some extent, just they are not highlighted or differentiated in any way. For this reason introducing RL services as well-defined and differentiated offering could be done at low costs, since certain prerequisites already exist.

Thus, in order for NSD strategy to be in line with DSV strategy it should be:

- Growth-oriented,
- Able to contribute to quality of DSV services,
- Implemented in a cost-efficient way or focused on improving cost-efficiency,
- In line with organisational structure,
- And supportive of employees development and motivation.

Developing RL services as a new offering could achieve all of these objectives. Giving more attention to RL can open new opportunities for the business development (e.g. acquisition of companies specialised in RL), attract new customers and increase service quality for existing customers. Moreover, DSV already has some experience and knowledge of RL services, which would allow to develop new offering in a more cost-efficient and effective way without compromising the organisational structure. Finally, NSD represents opportunity for employees' professional development.

#### **4.1.2 Reverse logistics service concept**

The RL service concept consists of three main parts: reason for NSD, main activities or sub-services and necessary resources for service implementation.

The main reason for considering RL service development is to ensure that company does not miss attractive opportunities. With growing attention towards sustainable development and resource efficiency as well as with increasing number of legislations related to waste minimization, more and more companies implement reverse logistics, which indicates opportunity for logistics services providers. It is important to track changes in customers' needs and adapt the services accordingly in order to sustain competitive advantage and ensure further development of the business.

Main RL activities, or sub-services, were explained in the third chapter of this study and they are divided in three groups: acquisition, gate keeping, and recovery. In addition, RL services could include developing RL strategies, information systems and solution, assisting with legal aspects related to RL, compliance services in area of waste minimization and others. These services could be summarized under consulting services.

Finally, necessary resources for RL service could be divided in three groups: physical, human and financial resources. For example, for acquisition service there is a need for such physical resources as trucks to pick up returned goods, storage where returned products will be delivered, information systems that support the process, and all related to this equipment; or such human resources as employees, maybe consulting firms that would plan the acquisition process etc.; such financial resources as investments in information systems for acquisition activities, in storage facilities, in planning of the acquisition process etc. The summary of main RL activities or sub-services is presented in the table 1. The financial resources are not considered as it would depend on DSV management's decision about how and where financial resources would be allocated.

It is important to mention that recovery activities (repair, remanufacturing, recycling, refurbishing etc.) are most likely to be performed by other companies, as these activities require specialised facilities and expertise in the area, and often logistics service providers do not have necessary resources to implement recovery services. However, logistics service providers often offer such services as repackaging or redistribution, for this reasons it is possible to offer some variation of recovery services.

Table 1. RL services and necessary resources

Sub-services	Physical resources	Intellectual resources
<b>Acquisition</b>	Vehicles, storage facilities, packaging, information systems	Vehicle drivers, employees at storage facilities, other employees facilitating the acquisition process.
<b>Gate keeping</b>	Facilities for inspection, sorting and selection (e.g. warehouse), equipment necessary for gate keeping activities, vehicles for delivery of inspected, sorted and selected goods to the point of recovery or to customers, packaging, information systems supporting the process etc.	Employees skilled for inspection, sorting and selection, vehicle drivers, other employees facilitating gate keeping process
<b>Recovery</b>	Facilities and equipment for value recapture (varies depending on type of recovery), vehicles for delivery of recovered goods, packaging, information systems, materials necessary for recovery etc.	Employees skilled for recovery processes, vehicles drivers, warehouse employees, administrative personnel facilitating recovery processes.
<b>Consulting</b>	Information systems and tools	Employees with high level of competence in the area

Furthermore, DSV should make decision about the level of involvement in RL services. RL offering can vary from just picking up returned products and delivering it to clients, to offering full spectre of RL services including acquisition, gate keeping, repair, refurbishment, remanufacturing etc. The level of involvement depends on several factors, for example, on the volume of investments, demand, availability of resources, management's vision, situation on the market etc. In following sections most of these factors will be analysed in more details.

#### 4.2 External analysis

In this section external conditions for developing RL service as part of DSV's offering will be analysed. The results of customer questionnaire will be presented, based on which it will be possible to understand the level of demand for RL services. Further, competitors' offering of RL services will be studied, which will help to identify opportunities for gaining

competitive advantage. And, finally, STEEP analysis will be performed to evaluate other external factors affecting the demand for RL.

#### 4.2.1 Customer questionnaire

In this section the results of customer questionnaire will be presented, which will help to understand customers' awareness of RL concept and estimate the demand for RL services.

Questionnaire consisted of 13 questions:

- Customer's background information (size of the company, industry) – 3 questions,
- RL concept and RL's role in customer company – 5 questions,
- Demand for RL services – 3 questions
- Contact information – 2 questions.

The example of the questionnaire could be found in the Appendix 5, and an email that was sent with the questionnaire link is presented in the Appendix 6. Questionnaire was sent to 229 DSV's clients, and 38 responses were received, so the response rate is 16,6%. The low rate of response was expected and for this reason the little incentive was offered to the first twenty respondents. The full answers report could be found in the Appendix 7.

Most of the respondents (86,8%) are represented by small and medium sized companies with income less than 10 million euros and between 10 and 50 million euros respectively (figure 4). Also most of the respondents operate in the machinery (34,2%) and consumer products (15,%).

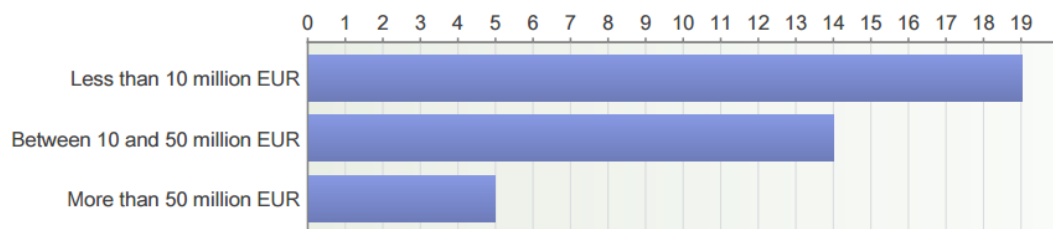


Figure 4. What is your company's annual revenue?

Table 2. Reverse logistics activities performed at respondents' companies

RL activity	Number of	Percentage
-------------	-----------	------------



respondents		
<b>Customer returns</b>	12	21,4
<b>Aftermarket services</b>	7	12,5
<b>Warranty returns</b>	7	12,5
<b>Transportation to the manufacturer</b>	6	10,7
<b>Repair</b>	5	8,9
<b>Recycling</b>	5	8,9
<b>Consignment returns</b>	4	7,1
<b>No activities or plans</b>	4	7,1
<b>Return of unsold products</b>	2	3,6
<b>Redistribution of used products</b>	2	3,6
<b>Packaging returns</b>	1	1,8
<b>Refurbishment</b>	1	1,8

Furthermore, most of the respondents are well-aware of the RL concept since most of them already perform RL activities. These activities are summarised in the table 2.

Respondents were asked to indicate what RL activities they have had or plan to have. As seen from the table above, most of the respondents perform customer and warranty returns, and aftermarket services. It is important to clarify here the difference between these three activities. Customer returns include also warranty returns, but not all customer returns are warranty related. Aftermarket services, as was explained in the 3<sup>rd</sup> chapter of this study, could include warranty services, but in this context this term is used to indicate the services other than repair, warranty and customer returns. For example, it could be related to spare parts management or technical service, also such responses as “service operations” were considered as aftermarket services.

Moreover, 10,7 percent of respondents stated that their companies return the goods to the manufacturer, here the respondents play the role of the middle man (i.e. end customer returns product to respondent, and respondent sends it further to the manufacturer) or the customer, for example, if cargo arrived to respondents premises was not in proper condition.

Several respondents answered that they perform consignment returns. The main difference between consignment returns and customer/manufacturer returns is that

consignment returns just indicate the size of the shipment rather than the reason for the return. This information could be useful when designing RL service package, for example, there could be an option for small and large freights.

Return of unsold products in this case means return of unsold products from retailer to the manufacturer (i.e. marketing returns) or return of the products that were not sold at the exhibition (i.e. exhibition returns). Also, the packaging return here means that the company has reusable packaging system, for example, it could be pallets or boxes that are used for deliveries to the customers and then returned back for further use.

Thus, DSV's customers already perform some RL activities and they do it in various ways. In addition, some respondents stated that they use RL services provided by other freight forwarding companies (DHL and UPS), which clearly indicates that there is a demand for RL services.

Furthermore, respondents stated that the main role of products returns is to maintain competitive advantage, as seen from the figure 5. Here also could be attribute such responses as warranty and customer returns, customer satisfaction and repair service, which were specified in "other" section. This finding is also supported by STEEP analysis presented later in the study. This information could be used for marketing of RL services, i.e. it could be communicated to customers that RL can bring competitive advantage.

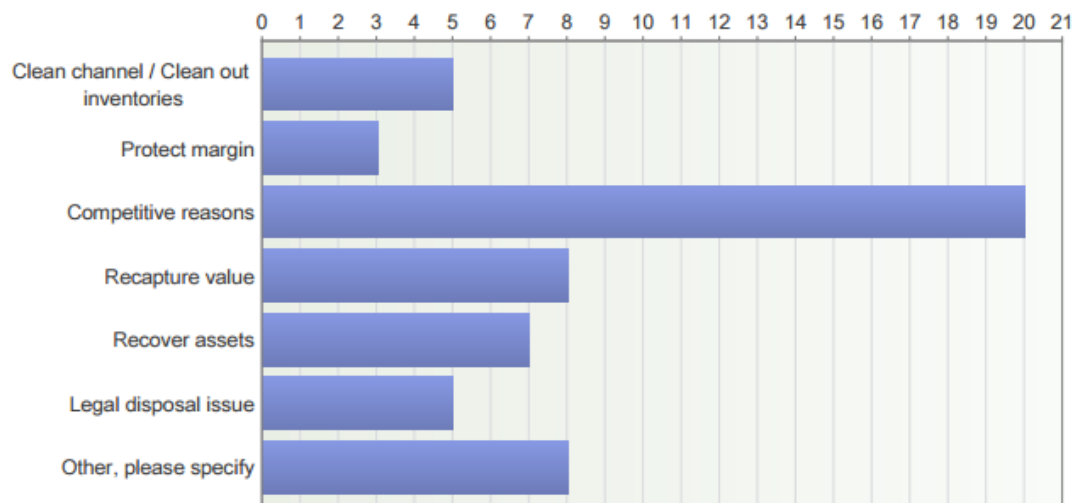


Figure 5. What role do products returns play in your company?

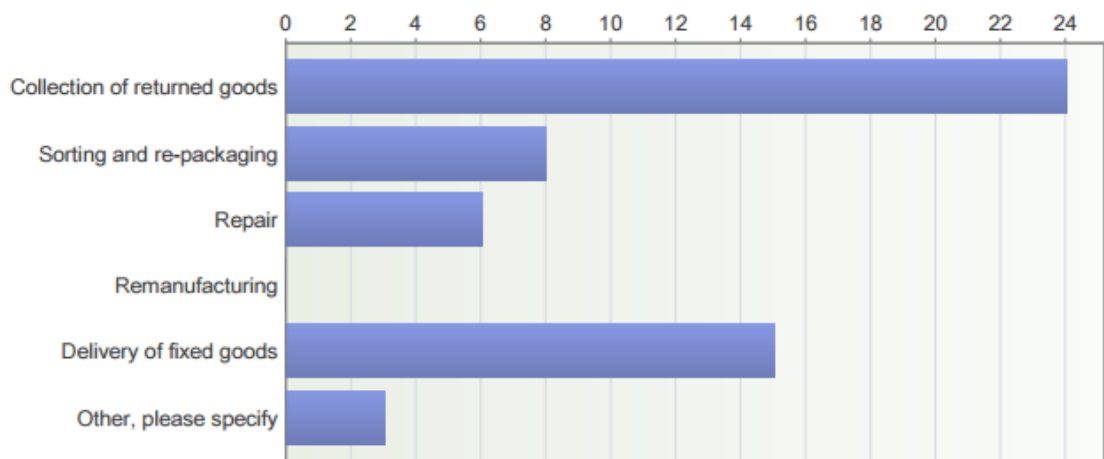


Figure 6. Which reverse logistics activities would you outsource?

Moreover, based on responses for question nine 50<sup>3</sup> percent of respondents would consider to outsource RL to DSV, and 15,8 percent did not know that DSV could provide some of the RL services. Others (34,2 percent) would not consider to outsource RL to DSV. And the main services that respondents would outsource are collection of returned goods (or acquisition) and delivery of fixed goods, as depicted in the figure 6.

When designing a new service it is important to consider which characteristics are the most important to customer. As seen from the table 3, respondents find service quality as the most important, and then cost reduction and speed.

Table 3. On a scale of 1 to 5 (1 being very unimportant, 5 – very important) rate the factors when outsourcing reverse logistics activities:

	1	2	3	4	5
Cost reduction	0	3	2	12	21
Quality of service	0	0	4	8	26
Speed	0	3	7	9	19
Customized solution	1	3	10	11	13
Flexibility	0	1	9	15	13

<sup>3</sup> Numbers used for calculating percentages could be found in the Appendix 7

To summarize, DSV's customers perform many of RL services and some of them already use services provided by DSV's competitors that demonstrates that the demand for RL exist. However, not all the respondents understand the RL concept and its potential, as for example, 7,1 percent (table 2) answered that they do not have any RL activities and they do not plan to have. In addition, in the question about the challenges related to RL activities, the most popular answer was "unimportance of RL relative to other issues". Thus, even though there is certain demand for RL services, it probably would not be critical to DSV. However, it could represent the opportunity for customer satisfaction improvement and business development.

#### **4.2.2 Competitors' offering analysis**

In this section the results of analysis of ten main DSV's competitors' offering of RL services is presented, which will help to understand the relevance of developing RL services and to identify the areas for achieving competitive advantage. The companies were selected for the analysis based on the benchmark of global top twenty freight forwarders, where DSV takes sixth places.

Thus, the offering of following freight forwarding companies will be analysed:

1. DHL Logistics (DE),
2. Kuehne + Nagel (CH),
3. DB Schenker (DE),
4. C.H. Robinson (US),
5. CEVA Logistics (NL),
6. Panalpina (CH),
7. Dachser (DE),
8. Expeditors (US),
9. SNCF Geodis (FR),
10. UPS (US).

In order to analyse the offering of the companies, their websites were screened. The services or products offered by each company were studied to identify if there is RL services among them, and if there are what type of services they are (acquisition, gate keeping, recovery or consulting). It is important to mention that relevant concepts discussed in the chapter 3 were also taken into account, since companies often could use them as synonyms, and also RL often is part of other concepts (e.g. after-market, returns management etc.). Moreover, RL services often were offered for such industries as automotive, high-tech, electronics, and other industries related to technology. Some companies have more specialized services than others. For example, UPS has developed such services as UPS returns, UPS returns plus, UPS returns exchange and others. And

other companies just mentioned that they provide RL services, but describing other services (e.g. return management) they explained some activities of RL.

The results of the analysis are reflected in the table 4. It is seen that eight out of ten companies offer RL services, and most of them offer full spectre of RL services. However, the main recovery services include repair, repackaging and labelling. As it was expected, very few companies offer more complex RL services, for example, such as remanufacturing or disassembly. In addition, all the companies offer RL consulting, which could be analysing the situation in the company and offering solution for more efficient RL, or providing information system for RL management, or designing RL network or any other similar service.

The fact that eight out of ten main DSV's competitors offer RL services, and, what is more important, give considerable attention to RL, indicates that the including RL in service portfolio could be very beneficial, since DSV will be able to sustain existing customers (who could apply to other service provider with better RL service offering) and attract new ones.

Table 4. DSV's competitors' RL service offering

Company	Acquisition	Gate keeping	Recovery	Consulting
<b>DHL Logistics</b>	yes	yes	Repair, repackaging	yes
<b>Kuhne + Nagel</b>	yes	yes	Repair, refurbishment, labelling	yes
<b>DB Schenker</b>	yes	yes	Repair, recycling	yes
<b>C.H: Robinson</b>	yes			yes
<b>CEVA Logistics</b>	yes	yes	Repackaging, repair	yes
<b>Panalpina</b>	yes	yes	Repackaging, labeling	yes
<b>Dachser</b>	-	-	-	-
<b>Expeditors</b>	-	-	-	-
<b>SNCF Geodis</b>	yes	yes	Repair	yes
<b>UPS</b>	yes	yes	Labelling, repair	yes

### 4.2.3 STEEP analysis

In this section the results of STEEP analysis for RL will be presented. In the beginning each factor (social, technological, economic, environmental and political) will be considered in more detail and in the end the results will be summarized in the table.

When considering *social factor* for RL development, the important aspect is sustainable development trend and growing awareness of companies' impact on environment. More and more people value companies with responsible attitude towards environment and society, and often it becomes one of the decision factor when considering buying certain products or services. This puts more pressure on organisation to be more resource efficient and minimize environmental impact of their activities, which increases popularity of reverse logistics as it is efficient way to become more environmentally friendly and reduce costs.

Another aspect to consider is that customers become more demanding, which require companies to be more efficient and provide more value-adding services. For example, return policies often become indicator of service quality, and in order to manage return in efficient way, it is necessary to implement RL.

Finally, the number of e-retailers is growing, as growing number of people prefer to shop online (see figure 7) and according to Statista (2015) in 2016 there will be 1,6 times more online buyers than in 2011, and here the return management is even more important to ensure service quality than in many other industries. Thus, with growing popularity of online shopping, the demand for RL services as part of return management also will grow.

Following to consider in STEEP analysis is the *technological factor*. At the moment RL practices are implemented in technology related industries more often than in many others. It could be explained by the stricter legislation in this area (e.g. introduction of compulsory take-back of end-of-life vehicles, batteries or waste electrical and electronic equipment) and also demand for aftersales services such as repair or supply of spare parts. It is reasonable to suggest that with growing pressure (related to legislation and environmental performance, which will be analysed more later in this section) on companies in technology industry to take back their products for proper recycling or value recovery, the demand for RL services in this industry also will grow.

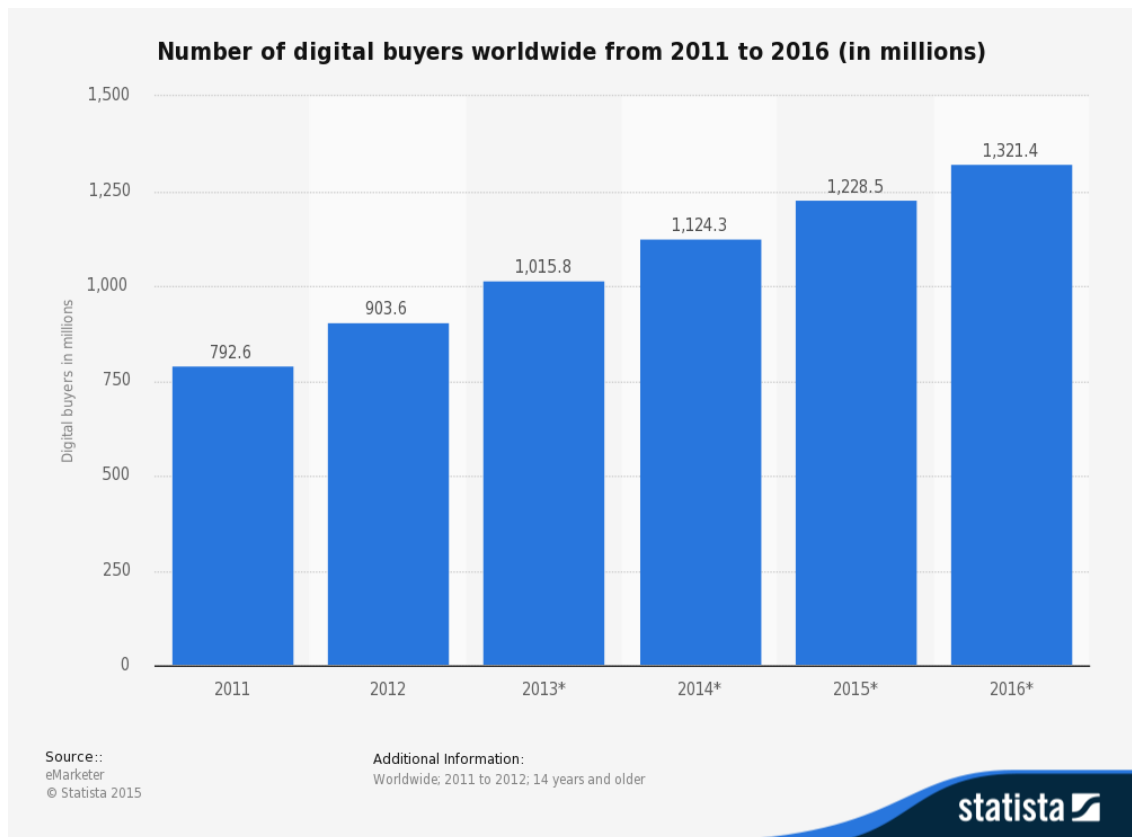


Figure 7. Number of digital buyers worldwide from 2011 to 2016 (source: Statista 2015)

Furthermore, in the chapter of this study describing challenges of RL it was mentioned that it is difficult to predict when, how many and in what conditions products will be returned, and to measure the performance. In addition, it was stated that one of the barriers for RL implementation is lack of appropriate information systems. These challenges could be resolved with the development in technology and invention of information system that is suitable for RL forecasting. Nowadays, the number of research in area of RL and return management is growing and due to the sustainable development trend RL is implemented in practice more often, which will lead to larger demand for technical solutions in RL. Thus, it is possible to imply that the information system for managing RL activities will be created or existing ones will be adjusted and it will lower the barriers to RL and boost its further development.

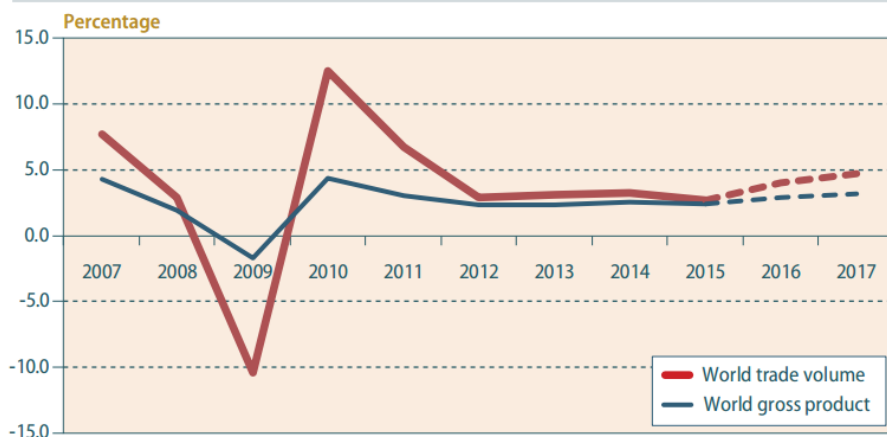
For example, ERP (enterprise resource planning) systems market leaders, SAP, Oracle, and Microsoft (Columbus 2013), already developed some solutions for RL management. SAP has such functions as warranty management, claims and returns, recycling management, repair management, business scenario for RL for new and exchange parts etc. Oracle has developed a waste management solution that helps to track and control

materials from customer to final disposition, track costs and value recovered from re-use or recycling etc. Microsoft also offers solutions for ERP systems to manage returns. These examples alone, not mentioning other solutions for RL management developed by smaller companies, show the growing importance and demand for RL.

Next step of STEEP analysis is studying the *economic factor*. Here, further development of RL could grow or decline depending on economy situation and other conditions. For example, it is unlikely that in crisis situation company would invest in developing RL, but if the pressure to take products back is too high, then it would be more reasonable to implement RL to respond to the pressure with minimal costs. While, chances that RL will develop further are high when economic situation is positive, and they are even higher if the pressure exist. Thus, it is necessary to consider future economy situation and pressures (legislative and social) to understand the effect of economic factor on RL.

According to World Economic Situation and Prospects (WESP) 2016 developed by DESA (development policy and analysis division) of UN, world economy will have only slight improvement for the next two years. The WESP report also highlights that there will be five major headwinds such as macroeconomic uncertainties, diminished trade flows, volatility in exchange rates and capital flows, stagnant investment and productivity growth, and disconnect between finance and real sector activities. Nevertheless, the world trade will face moderate growth, as shown in the figure below and it is possible to say that the economy situation will develop in a positive direction despite some challenges.

Growth of world trade and world gross product, 2007-2017<sup>a</sup>



Source: UN/DESA, based on United Nations Statistics Division National Accounts Main Aggregates Database. <sup>a</sup> Growth rate for 2015 is partially estimated; growth rates for 2016 and 2017 are forecast.

Figure 8. Growth of world trade and world gross product



As was discussed earlier, the social pressure will stimulate increase of RL implementation, and as will be shown below, environmental legislation will put even more pressure on companies to become more resource efficient. Thus, it is possible to conclude that the demand for RL services will grow, with the condition that economic situation will develop in a positive direction.

The *environmental factor* is probably the most apparent in relation to RL development, as it is often considered in environmental context, in particular waste minimization and resource efficiency improvement. At the moment the resource consumption rate and level of waste generation are very high, if they will continue to grow then, according to estimation of Hart and Christensen (2002), more than four planet Earths would be needed to have enough natural resources and space for waste disposition. For this reason, governments all over the world attempt to minimize environmental impact of production and consumption by introducing legislations and incentives for companies. For example, in EU there are more than 130 environmental objectives to be met by 2050, and 63 of them are legally binding (EEA 2013). Thus, the growing attention to the environmental situation, especially in the area of resource consumption and waste generation, will drive RL development even further.

The last factor of STEEP framework is *political or legislative*. In attempt to minimize environmental impact governments are developing legislations and incentives. Some examples of laws in EU that drive RL development could be directives of End of life vehicles (ELV) 2000/53/EC, Waste electronic and electrical equipment (WEEE) 2002/96/EC, the Battery 2006/66/EC, and Packaging and Packaging waste (94/62/EC). Even though these directives are not legally binding, it is strongly encouraged to follow them.

The ELV Directive's goal is to minimize the amount of ELV sent to landfills through environmentally friendly disassembly, reuse and recycling of used or worn-out vehicles. (Winter 2009, 16). WEEE Directive puts physical and financial responsibility on producers to execute collection and disposal of WEEE. Battery Directive enforces member states to develop take-back models for battery recycling, and its main goal is to reduce hazardous waste. Packaging and Packaging waste Directive aims at minimization of environmental impact of packaging and obligates member states to implement models for the return and collection of packaging and packaging waste (Winter 2009).

Table 5. Summary of STEEP analysis

Factor	Trend	Effect on RL
<b>Social</b>	<ul style="list-style-type: none"> <li>– Growing environmental awareness of society,</li> <li>– More demanding customers,</li> <li>– Growth of online shopping.</li> </ul>	Growing demand for RL services
<b>Technological</b>	<ul style="list-style-type: none"> <li>– Growing importance of technology industry,</li> <li>– New information systems solution for RL management.</li> </ul>	Growing demand for RL services, Lower barriers for RL implementation.
<b>Economic</b>	<ul style="list-style-type: none"> <li>– Moderate improvement of economy situation,</li> <li>– Macroeconomic uncertainties,</li> <li>– Volatility.</li> </ul>	Slowing down the growth of demand for RL services in case of stumble economy situation
<b>Environmental</b>	<ul style="list-style-type: none"> <li>– Sustainable development,</li> <li>– Waste minimization,</li> <li>– Resource efficiency.</li> </ul>	Growing demand for RL services
<b>Political/legislative</b>	<ul style="list-style-type: none"> <li>– Legislation for resource efficiency and waste minimization.</li> </ul>	Growing demand for RL services

Waste minimization gets more emphasis over the years, and it is likely that stricter legislations will be introduced forcing organisations to consider more resource efficient ways of operating. For this reason RL practices will become more common as it allows to minimize waste generation and reduce costs.

Thus, it is possible to conclude that the external conditions will stimulate the development of RL and growth of demand for RL services. Economic factor could slow down the process, but other factors impose such a pressure that it is unlikely to become insurmountable obstacle in further advance in RL. More detailed summary of STEEP analysis presented in the table above.

#### 4.2.4 Summary of external analysis

In this section the analysis presented above will be summarised.

The external conditions for developing RL services were considered from three different perspective (customers, competitors and market situation), which allows to build rather holistic view on the research question.

From the results of the customer questionnaire it was discovered that DSV's customers already perform some of the RL activities and even outsource some of them to DSV's

competitors. While some customers are well-aware of the RL concept and have positive attitude towards it, other do not see the potential that RL represents. Thus, it is possible to conclude that there is demand for RL services, but it is probably would not be very high. In addition, there will be a need for educating the customers about the potential of the RL, which often requires some investments. However, when the level of competition is high often additional benefits could have a big difference in influencing customer decision-making. For example, customer can choose other freight forwarder, the service package of which includes RL, instead of buying one service package from one company and RL service package – from another.

Furthermore, the competitor analysis demonstrated that most of the analysed companies offer RL services, and some of them have even created special service packages or offers. This shows that DSV's competitors considered RL as beneficial addition to their service portfolio, and it is reasonable to say that DSV needs to study the opportunities presented by RL and consider adding it to the service offering. It does not mean that DSV necessarily should repeat after the competitors, but it is important to understand the situation in the market and consider the opportunities.

Finally, STEEP analysis showed that the environment for RL development is rather positive, and based on that the growth of the demand for RL services is expected to grow, which adds even more importance to considering RL as a new service. In addition, it is not necessary to start big, the services could be offered in a smaller scale in the beginning and expand later if demand increases.

In general, even though at the moment the demand for RL is quite moderate it could represent the great potential for the company development and attractive opportunities in the future.

### **4.3 Internal analysis**

In this section internal conditions for developing RL service as part of DSV's offering will be analysed. The results of internal in-depth interviews will be presented, based on which it will be possible to understand the attitude towards RL. Also the internal resources necessary for RL implementation, defined in the "RL service concept" section of this study, will be studied and evaluated.

#### 4.3.1 Internal in-depth interviews

The in-depth interviews were conducted with one representative from each division (road, sea and air, logistics solutions). Representative from air and sea division was Kaisa Hopponen, Business Development Manager; from logistics solutions - Juhamatti Joensuu, sales manager; and from road division - Maija Naumanen, business unit manager. The in-depth interview guide with questions as well as transcripts of the interviews could be found in the appendices 1-4. The transcripts of the interviews are presented with the permission of interviewees. Further, the main results of the interviews will be discussed.

The main takeaways from the interviews are presented in the table 6. In general, there is positive attitude towards RL despite the imbalanced concept awareness across different divisions.

During these interviews it was discovered that DSV already offers some RL services, just these services are not standardized under one service package. Rather RL services are offered as customized solution for certain customers, which could be a result of an ad-hoc NSD process.

Interviewees see potential in RL as it could attract new customers, improve customer service for existing customers, help in gaining competitive advantage and add value to sustainable image of DSV. The need for RL services already exist, as DSV already offers some RL services, and it will grow when the service package is developed and marketed. However, the evaluation of the scale of customers' needs in RL services varies across departments.

Furthermore, interviewees believe that DSV has or could relatively easily acquire the resources necessary for introducing RL services. However, there is some concern related to the lack of experience in more complex RL activities. Air and sea division mentioned that DSV might not have enough experience in RL warehousing activities. However, after the interview with solutions division, it was found that DSV already has some experience in such RL activities as acquisition, gate-keeping and repair. And, solutions division indicated the need for "dedicated person" when creating RL service package. Road division also has some doubts about resource sufficiency, but it is something that could be gained if it is decided to implement RL services.

The main challenges associated with introducing RL as new service are difficulties with custom clearance, customers' unawareness of RL and its potential, and it is reasonable to add imbalanced awareness of RL inside the company.

Table 6. Internal in-depth interviews results

Evaluated factors	Air and sea	Logistics solution	Road
Awareness of RL concept	Partial, only in terms of product returns	Very well aware	Aware
Awareness within DSV	Not aware of term RL, rather product returns	Solutions division is well-aware, but others divisions are not	Aware, more relevant for Solution department
Attitude towards RL	There is potential, if RL services are presented well	Positive, there is great potential in RL	RL is not important now, but might be in the future
Potential demand for RL services	Clients have a need for product returns services, and demand could grow if specialised service is created	Demand would grow if service package is created	There could be some demand in the future, but customer research is needed
Existing RL services, if any	Managing returned shipments	Acquisition, gate-keeping, repair for copy machines	RL activities are controlled by customers, DSV Road just does transportation
Potential challenges	Customs clearance of returned shipments; lack of experience in RL warehousing	Customers' unawareness of RL potential	Potential challenges for RL are not clear
Availability of resources for RL services	Resources exist, as RL activities would not differ much from current export/import processes	Resources are in place, maybe there is need for person competent in RL	There is lack of resources for RL services implementation
Advantages of RL services	New customers (consumer electronics shops)	New customers, improving sustainability image	Gaining competitive advantage
NSD development process	Ad-hoc process	Ad-hoc process	Ad-hoc process
Factors affecting decision for NSD	Seeing potential in some service	Business potential, management decision, employee "promoting" the idea"	Management decisions, strategy, customers' needs
RL as a new service of DSV	Developing clear concept and combining existing services in one product	RL service package should be adjusted to industry-specific needs	Clear definition of the service and what activities it includes

Factors to consider, stated by interviewees, when developing RL as a new service are building customers and employees awareness of RL, developing RL services suitable for certain industries, ensuring that services really satisfy customers' needs and combining existing services in an efficient and attractive for customers way.

It was interesting to learn that DSV does not really have standardised NSD process, and it usually implemented on ad-hoc basis, which indicates that DSV is reactive company rather than proactive, i.e. it is trying to adapt only when strong need is aroused instead of anticipating the changes. It is important to consider since it could be an obstacle for development RL services as a new offering.

Furthermore, during the interview process it was discovered that DSV is somewhat resistant to change, and some departments are more than others. For example, while Solutions division seemed to be open-minded and positive about the RL concept and business development in general, Road division did not seem to be eager about changing anything about the way they operate. In addition, there was some resistance during collecting customer information for conducting the customer questionnaire, sales managers viewed this questionnaire as a way to bother their customers rather than as an opportunity to learn more about customers' preferences and to improve service. This difference in culture between the departments could complicate the NSD process and make it less successful.

#### **4.3.2 Internal resources analysis**

DSV's internal resources will be analysed based on the resources necessary for RL that was defined in the RL service concept section of this chapter.

It is important to mention that existing resources necessary for developing RL as a new service are analysed, but the evaluation of availability or of the amount of needed resources is rather complex, and is not included in this study. Therefore, it could be said that the analysis of the DSV's potential as a RL service provider rather than actual planning of resource allocation is implemented.

Table 7. DSV's internal resources necessary for RL services

Sub-services	Physical resources	Intellectual resources
<b>Acquisition</b>	20 000 trucks; 300 warehouses; wide network of air and sea freight; WMS, FMS, DMS <sup>4</sup> and e-visibility information systems	Skilled workforce already exist
<b>Gate keeping</b>	20 000 trucks; 300 warehouses; wide network of air and sea freight; WMS, FMS, DMS and e-visibility information systems; testing and quality inspection capabilities	Skilled workforce already exist
<b>Recovery</b>	20 000 trucks; 300 warehouses; wide network of air and sea freight; WMS, FMS, DMS and e-visibility information systems; repackaging, repair, return and spare parts management capabilities	Skilled workforce already exist
<b>Consulting</b>	WMS, FMS, DMS and e-visibility information systems; existing practice of inventory optimisation consulting	Lack of employees with high level of competence in RL

The summary of the existing resources, which could be used for introducing RL services, is presented in the table 7. In general, DSV has necessary resources for performing RL activities. The only possibly weak point is offering consulting services in RL. However, it could be developed when the necessary expertise in the area is obtained.

There is vast transportation network comprising road, sea and air freight; large number of such assets as warehouses, vehicles, information systems; and most important there are people with relevant experience and positive attitude towards RL. Thus, it is possible to conclude that DSV has all the necessary potential to provide RL services.

Thus, with fair amount of trainings and organisational effort it would not be challenging for DSV to find necessary resources for introducing RL services.

---

<sup>4</sup> WMS – warehouse management system, FMS - functional movement screen, DMS – document management system.

### 4.3.3 Summary of internal analysis

Here the main findings of the internal analysis will be summarised.

To understand internal conditions for RL development as a new service, three in-depth interviews with representatives of each of the DSV's divisions and then the internal resources were evaluated.

It was discovered that the awareness of and attitude towards RL varies across divisions. Solution division has the best understanding of RL and what activities it encompasses, also this division has the most optimistic view on RL and its potential. Sea&Air division faced with RL only in terms of product returns, and there is no full understanding of the concept, but the attitude was still rather positive and introducing RL as a new service was considered as beneficial as it requires just combining of the existing services under one package. Finally, Road division was aware of the concept, but there was not full understanding of the RL activities and resources necessary for that. Also, the awareness of RL potential was the least in this division as RL services are not seen as something that customers would have a need for. In addition, RL was considered as something that might have some potential in the future, but not at the moment.

This difference in views on RL could represent certain challenge for introducing RL as a new service package, but with right approach and probably trainings it should not be too difficult to overcome this challenge.

Furthermore, the analysis of the DSV's resources demonstrated that the company has what it takes to provide RL services. Especially DSV already offers some of the RL services, so the service package could be just refined in a more concise way, which should not require extensive investments and resource-consumption.

Another discovery that was made is that DSV does not have a standardised way of NSD, i.e. most of the new services were created on an ad-hoc basis. While it is not main topic of this study it is still important to consider as the attitude towards NSD process can make development of RL as a new offering easier or represent additional obstacle.

In general, DSV has all the needed resources for introducing RL as a new service package, but there is a need for alignment of awareness of the concept and its potential across the divisions.



## 5 Findings and discussion

In this chapter main findings of this study made during data analysis will be summarised and discussed. However, before stating and analysing main findings of this study it is important to recall the research questions. So, the findings of this study should help to answer following questions.

### **Why should DSV include reverse logistics into its product portfolio?**

- What are the external conditions (market situation, competitors, and customers)?
- Do the internal conditions exist?

In the beginning, the main findings of external analysis will be discussed, then of internal analysis, and the chapter will be concluded with the summary of the findings and answer to the main question.

Accordingly, main findings of external analysis could be presented as following:

- DSV's customers have a need for RL services as they already perform some of RL activities,
- Most of DSV's competitors offer RL services and pay considerable attention towards it;
- External environment is positive for RL development in the future.

Analysing the results of customer questionnaire it was discovered that DSV's customers already perform some of the RL activities, most common of which are customer returns, aftermarket services, and warranty returns. In addition, some customers stated that they use RL services offered by DSV's competitors. Moreover, 50 percent of respondents stated that they would consider to outsource RL to DSV, if such service is offered and the main services that respondents would outsource are acquisition of returned products and delivery of fixed goods. These results demonstrate that there is a demand for RL and half of the customers would be willing to address with this demand to DSV, which certainly shows that DSV should consider including RL in its service offering. Although including RL in the service offering would not bring the highest margins it certainly could help to sustain competitive advantage through improved customer service. Most of the customers do not consider RL as important as some other business areas (e.g. finance or marketing) and it could represent an opportunity for DSV, because usually companies outsource activities that are not considered as part of core operations. Thus, if customers do not see RL as a part of their core activities, they would be more willing to outsource it, which could be used when marketing RL services. It is also important to mention that if DSV decides to develop RL as a new service offering, more profound understanding of customers' needs should

be gained, since the questionnaire conducted in terms of this study is not sufficient for the whole process of NSD.

Furthermore, analysis of DSV's competitors' offering showed that 8 out of 10 analysed competitors offer RL services and pay considerable attention to it, which adds even more importance to considering including RL in the service portfolio. However, it also could represent some sort of challenge as new RL services offered by DSV would be competing with the established services offered by other freight forwarders. This aspect should be carefully considered when and if developing RL service package. Nevertheless, it is important to analyse the situation in more detail to understand the opportunity and cost of the decision to develop RL as a new service offering, and of the decision not to develop.

Result of STEEP analysis indicate that external conditions will stimulate the development of RL and consequently the growth of demand for RL services. Unfavourable economic situation could slow down the process, but other factors, in particular social, environmental and political, impose such a pressure that it is unlikely to decrease demand for RL in the future.

Thus, external conditions affecting the demand for RL services could be seen as generally positive and motivating development of RL as a new service offering. Customers have need in RL services, offering of RL's service by DSV's competitors show that it is beneficial, and external environment will drive the growth of demand for RL.

The main findings of internal analysis could be summarised in the following way:

- DSV has all the necessary resources for introducing RL as a new service offering,
- RL is seen as opportunity for attracting new customers and improving service for existing ones,
- The understanding of RL concept is imbalanced across the division,
- DSV has ad hoc NSD process.

The results of the analysis of internal resources necessary for introducing RL to the service portfolio demonstrated that DSV has the potential and resources for providing RL services. There is vast transportation network, large number of warehouses and vehicles, information systems that could be suitable for managing RL activities; and most important there are people with relevant experience and positive attitude towards RL, in particular in Solution division. However, to ensure more successful development of RL as a new service it is advisable to have a person dedicated to this process, so there might be a need for hiring a person with more profound insight in the area of RL, or assigning responsibility for RL to certain employee with relevant experience, or maybe providing some training.

During the in-depth interviews with representatives of three DSV divisions, it was discovered that interviewees see potential in RL as it could attract new customers, improve customer service for existing customers, help in gaining competitive advantage and add value to sustainable image of DSV. Moreover, the need for RL services already exist, as DSV already offers some RL services, and it is believed that it will grow when the service package is developed and marketed. Furthermore, the main challenges that could be encountered when including RL to the service portfolio are difficulties with custom clearance, customers' unawareness of RL and its potential, and imbalanced awareness of and attitude towards RL inside the company. Following these results it is important to consider following aspects when developing RL as a new service: building customers and employees awareness of RL, developing RL services suitable for certain industries, ensuring that services really satisfy customers' needs and combining existing services in an efficient and attractive for customers way.

Moreover, during the interviews It was discovered that the awareness of and attitude towards RL varies across divisions. While Solution division has profound understanding of the concept and sees great potential in RL, Air&Sea division faced with RL only when products were returned and despite the partial awareness of the concept this division believes that RL service package has the potential, and Road division is somewhat aware of the concept, but it does not see the great potential in it for DSV. This difference in views on RL could complicate the process of introducing RL as a new service package, but with right approach it should not be too big challenge. In addition, as it was mentioned during the interviews, "it is more about fine tuning and "wrapping the gift"" meaning that DSV already provides some RL services and all the resources necessary for that exist, and there is only a need to standardize the services and present it in a more attractive and clear way.

Another finding during the interviews was made and it is that DSV has an ad-hoc NSD process, in another words, the company introduces new service only when a strong need is aroused instead of anticipating or even driving the changes. It is important to consider since according to several studies discussed in the literature review of this study standardised NSD process implies more successful implementation of new service. Thus, ad hoc NSD process could represent additional challenge in developing RL as a new service.

Answering the research question internal conditions for introducing RL as new service offering do exist. DSV has all the necessary resources and potential for providing RL

services. Nevertheless, some of the internal aspects such as imbalanced understanding of the concept across divisions and ad hoc NSD process could impose certain challenge on developing RL. For this reason it is important take these aspects into consideration when developing RL service package.

Finally, it is possible to answer to the main research question, which is “why should DSV include reverse logistics into its product portfolio?”

External conditions drive the growth of demand for RL services. And DSV, as stated in the company’s vision, aims at fulfilling the customer needs for transport and logistics services, targeting extensive growth and being among the most profitable in the industry. Thus, including RL into the service portfolio is fully reflects the vision of the company, as it would fulfil customers’ needs, present opportunities for growth, and help to sustain competitive advantage. In addition, DSV has the internal conditions necessary for providing RL services.

## 6 Recommendations

In this chapter the recommendations related to developing RL as a new service in DSV will be outlined.

The recommendations could be separated in three groups:

- Before actual development of the service,
- During the development,
- Marketing new service.

As was stated during the in-depth interviews and also discussed in the literature review, it is advisable to have a person or team responsible for the NSD process. If DSV decides to introduce RL as a new service, more extensive research should be done. For example, customers' needs should be analysed in more detail, the functional side of the service also - be studied more, employees' responsibilities – outlined, and marketing strategy – selected. And there should be a person or a team for organisation and management of all the necessary activities.

In this study it was identified that the understanding of the RL concept and its potential varies across departments. Thus, it is advisable to increase the awareness of RL in the company, maybe some training could be organised, or just some media material distributed. If employees understand the potential of the new service there would be less resistance towards introducing it in the service portfolio. In addition, better understanding of the service would improve customer service.

During the development of the service it is important to understand what customers really need, which service characteristic they value the most, and why would they address with their need to DSV. For example, results of customer questionnaire showed that customers value the most the quality of the service, then opportunity to reduce cost of operation and then the speed of the service. Furthermore, most common RL activities performed by customers are customer returns, aftermarket service and warranty returns. These factors should be considered when developing new service: would be freight size large or small, labelled or not, how to handle custom clearance, what would be the procedures for handling service requests etc.

When marketing RL services the message communicated to customers should be clearly defined. For example, in the customer questionnaire respondents stated that the main role of products returns is to maintain competitive advantage, which could be used to communicate that RL services provided by DSV could help to maintain competitive

advantage. Furthermore, one of the results of the questionnaire is that customers do not see RL as important as some other activities, i.e. it is not core activities. This means that customers will be more willing to outsource RL, which also could be used in marketing. For example, it could be communicated that while customers concentrate on their activities DSV could take care of RL in a more efficient way.

Another important aspect here is that not all customers are well-aware of RL concept, for this reason it is necessary to market new service using the language that customers would understand. For example, RL service package could be developed considering customers' industry specifics. In the machinery industry term "spare parts management" or "aftermarket" could be used, in electronics – "end-of-life logistics", in consumer – "returns management" etc.

Another general recommendation is to follow changes in the legislation related to product returns or take-back systems. It could help to anticipate the need for RL service and improve customer service.

Finally, it is highly advisable to formalize the NSD process. During the in-depth interviews it was discovered that DSV has ad hoc approach towards NSD, which decreases chances of NSD project on being successful. As was discussed in the literature review on new service developed standardised service development process helps to improve predictability of the projects, take corrective actions in a proactive manner and minimize risk related to project budgeting and scheduling.

## 7 Conclusion

The main objective of this study was to provide the company with relevant information and analysis necessary for the decision-making on including reverse logistics to the service portfolio.

It is essential for businesses to follow trends and adapt when necessary, and with growing attention towards sustainable development and resource efficiency more and more companies tend to implement RL. And purpose of this study was to evaluate the level of demand for RL services, identify external conditions for future development of RL and evaluate internal conditions of DSV.

During the study reverse logistics services were analysed from several angles. First of all, general market situation was studied using STEEP analysis to understand general conditions for the future development of RL. Secondly, the RL services offered by DSV's competitors were studied to understand the position of RL in the industry and also identify opportunity for sustaining competitive advantage. And, finally, the customers' needs were researched through conducting questionnaire, which helped to understand the level of demand for RL services and to gain some insight on customers' needs related to RL services. After analysing the data, main findings were identified and discussed, based on which recommendations were given.

Analysis of external conditions showed that there are positive environment for RL development in the future and that the demand for RL services will grow. Internal conditions analysis demonstrated that DSV has all the necessary prerequisites for providing RL services, but there are several challenges that could complicate the process of developing RL as a new service.

Researcher believes that this study contributed the company in several ways. First of all, it helped to elaborate on opportunities that were not considered by the company before, and it is important to understand the trends and opportunities they bring in order to be able to develop business and ensure growth of the company. Secondly, DSV employees, especially those participating in the interview and assisting in the research, gained better awareness of RL and customers' opinion about it, i.e. gained deeper knowledge of the industry the company operates in. Finally, several challenges related to general operations of the company were spotted, which presents opportunity for the company to improve its performance even further. And, of course, if DSV decides to include RL to its

service portfolio, even more benefits could be gained, for example, better customer services, new customers and opportunities for business development.

Concerning the contributions to the researcher, this study helped to deepen knowledge of the industry in general and company in particular. Researcher gained better understanding of the operation related to the development of new services, organisational culture, relations between the divisions and operations inside of the divisions.

Concerning the suggestions for the future research, although RL gained more popularity in recent years there is very few studies related to RL in the freight forwarding or logistics service provider companies. Thus, this area could be explored more, probably some frameworks for evaluation of RL service providers could be developed.



## References

- Barney, J. B. 1991. Firm resources and sustained competitive advantage. *Journal of Management*, 17(1), pp. 99–120.
- Beamon, B. 999). Designing the green supply chain. *Logistics Information Management* 12 (4), pp. 332–342
- Bloomberg, D. J., LeMay, S. & Hanna, J.B. 2002. Logistics. New Jersey: Prentice-Hall, Inc. pp. 200-217.
- Changling R. 2011. Green logistics research based on sustainable development. Artificial Intelligence, Management Science and Electronic Commerce (AIMSEC), 2nd International Conference, pp.4635-4639, 8-10 Aug.
- Columbus, L. 2013. 2013 ERP Market Share Update: SAP Solidifies Market Leadership. *Forbes*. Available at: <http://www.forbes.com/sites/louiscolumbus/2013/05/12/2013-erp-market-share-update-sap-solidifies-market-leadership/#5b4203175755>. [Accessed 2<sup>nd</sup> Mar 2016]
- Cooper, R.G. 1994. Third-generation new product processes. *Journal of Product Innovation Management*, 11, pp. 3-14
- De Brentani, U. 1991. Success Factors in Developing New Business Services. *European Journal of Marketing*, 25(2), pp.33 – 59
- De Brentani, U. & Ragot, E. 1996. Developing New Business-to-Business Professional Services: What Factors Impact Performance? *Industrial Marketing Management*, 25(4), pp. 517-530
- De Brito, M.P. & Dekker, R. 2003. A Framework for Reverse Logistics. Rotterdam: Erasmus Research Institute of Management.
- DESA. 2016. World Economic Situation and Prospects. Available at: [http://www.un.org/en/development/desa/policy/wesp/wesp\\_current/2016wesp\\_ch2\\_en.pdf](http://www.un.org/en/development/desa/policy/wesp/wesp_current/2016wesp_ch2_en.pdf) [Accessed 5<sup>th</sup> Mar 2016]

- Dobson, P. 2002. Critical realism and information systems research: why bother with philosophy? Available at: <http://informationr.net/ir/7-2/paper124.html> [Accessed 23 October 2015]
- Dooley, K., Subra, A. and Anderson, J. 2001. Maturity and its impact on new product development project performance, *Research in Engineering Design*, 13(1), pp. 23-29.
- Edgett, S. 1994. The traits of successful new service development. *Journal of Services Marketing*, 8(3), pp. 40-49.
- Edvardsson, B & Olsson, J. 1996. Key concepts for new service development. *Service industries journal*. 16(2). pp. 140-164.
- EEA. 2013. An overview of EU environment policy targets and objectives. Available at: <http://www.eea.europa.eu/highlights/an-overview-of-eu-environment>. [Accessed 5<sup>th</sup> Mar 2016].
- Ellen Macarthur foundation (2013). Towards the circular economy. Opportunities for the consumer goods sector
- Emmett, S. & Sood, V. 2010. Green Supply Chains: An Action Manifesto . Hoboken, NJ, USA: Wiley
- Froehle, C. M., and Aleda V. R. 2007. A Resource-Process Framework of New Service Development. *Production & Operations Management*, 16(2), pp. 169-188.
- Grant, D. B., Lambert, D. M., Stock, J. R. & Ellram, L. M. 2006. Fundamentals of Logistics Management. New York: McGraw-Hill Education Ltd. pp. 281-285.
- Griffin, A. 1997. PDMA research on new product development practices: Updating trends and benchmarking best practices. *Journal of Product Innovation Management*, 14, pp. 429-458.
- Halldorsson, A. & Skjott-Larsen, T. 2007. Design of Reverse Supply Chains: Centralized or Decentralized Structure. in Koster, R. & Delfmann, W, *Managing Supply Chains. Challenges and Opportunities*, Copenhagen Business School Press, Gylling, pp. 3-25

Hart, S. L. & Christensen, C. M. 2002. The Great Leap: Driving Innovation From the Base of the Pyramid. MIT Sloan Management review. Available: <http://sloanreview.mit.edu/article/the-great-leap-driving-innovation-from-the-base-of-the-pyramid/>. Last accessed 2<sup>nd</sup> Mar 2016.

Jin, D., Chai, K., & Tan, K. 2014. New service development maturity model, *Managing Service Quality: An International Journal*, 24(1), pp.86 - 116

Johnson, S., Menor, L. & Roth, A. 2000. A critical evaluation of the new service development process: integrating service innovation and service design, in Fitzsimmons, J.A. & Fitzsimmons, M.J. (eds), *New service development: creating memorable experiences*, SAGE Publications, Inc., Thousand Oaks, CA, pp. 1-32.

Kindström, D. & Kowalkowski, C. 2009. Development of industrial service offerings – A process framework. *Journal of Service Management*, 20(2), pp. 156- 172.

Kokkinaki, A. I., Dekker, R., van Nunen, J., & Pappis, C. 2000. An Exploratory Study on Electronic Commerce for Reverse Logistics

Makkonen, H. & Komulainen, H. 2014. Networked new service development process: a participant value perspective, *Management Decision*, 52(1), pp.18 - 32

Makos, J. 2015. What is STEEP Analysis? *Pestleanalysis*. Available at: <http://pestleanalysis.com/what-is-steep-analysis/> [Accessed 15<sup>th</sup> Mar 2016]

Manners-Bell, J. 2014. Global logistics strategies: delivering the goods. Kogan Page Ltd, UK.

Miller, M. 2008. The Management of Strategy, Vol I & II, 5th ed., Knowledge Management International pvt Ltd, Australia

Rao, P. H. 2008. Greening the supply chain. A guide for Asian managers. New Delhi: SAGE Publications India Pvt Ltd. pp. 117-128.

Persse, J.R. 2007. Project Management Success with CMMI: Seven CMMI Process Areas, Prentice Hall, Upper Saddle River, NJ.

Rogers, D. S., Lambert, D. M., Croxton, K. L. & García-Dastugue, S. J. 2002. The Returns Management Process, *The International Journal of Logistics Management*, 13 (2), pp. 1–18

Rogers, D.S. & Tibben-Lembke, R.S. 1998. Going Backwards: Reverse Logistics Trends and Practices, Centre for Logistics Management, University of Nevada, Reno, NV

Rogers, D.S & Tibben-Lembke, R. 2001. An examination of reverse logistics practices. *Journal of Business Logistics*. 22 (2), pp. 129 -148.

Saunders, M., Lewis, P., & Thornhill, A. 2007. *Research Methods for Business Students*, (6<sup>th</sup> ed.) London: Pearson.

Scheuing, E.E. & Johnson, E.M. 1989. A Proposed Model for New Service Development, *Journal of Services Marketing*, 3(2), pp.25 – 34.

Song, L. Z., Song, M. & Di Benedetto, C. A. 2009. A Staged Service Innovation Model. *Decision Sciences*, 40(3), pp. 571-599.

Starostka-Patyk, M., Zawada, M., Pabian, A. & Abed, M. 2013. Barriers to reverse logistics implementation in enterprises, in *Advanced Logistics and Transport (ICALT)*, 2013 International Conference , pp.506-511.

Statista. 2015. Number of digital buyers worldwide. Available at: <http://www.statista.com/statistics/251666/number-of-digital-buyers-worldwide/>. [Accessed 2<sup>nd</sup> Mar 2016].

Winter, A. 2009. European Legislation and the Implementation of Take Back Schemes. *Reverse Logistics Magazine*. Edition 15, 4(1), pp.16-19.

Yin, R. 1994. *Case Study Research, Design and Methods*, 2nd Edition, Thousand Oaks Sage

## Appendices

### Appendix 1. In-depth interview guide for DSV Group internal interviews

Greet the interviewee and thank him/her for the time.

Ask if it is possible to record the interview.

Make sure that everything is ready for the interview: the voice recorder, tools for making notes (laptop or notebook), water etc.

Remind the interviewee the purpose of the interview and its structure. For example, The main goal of this interview is to understand your opinion about reverse logistics and its perspective as a new service offering in DSV. This interview will take about half an hour, and there will be around 10-12 questions. Let me know if you have any questions or if something is not clear. So, shall we start?

**Keep in mind the goal during the whole interview!** In-depth interviews with DSV management representatives should help to gain understanding of their opinion and view on reverse logistics and its perspectives as a new service offering. Thus, interviews should help to identify attitude towards reverse logistics, possible challenges and advantages related to introducing reverse logistics as a new service.

Below the interview questions are outlined. These questions are not fixed, so the questions could be changed for better fit to the context of the interview.

At the end of the interview, ask if the interviewee has any additional comments, thank him/her for the time and responses, and ask them if they would like to review interview transcript later.

## Questions for in-depth interviews with DSV employees

<b>N</b>	<b>Questions</b>	<b>Comments</b>
1	What does the concept of reverse logistics (RL) mean to you?	Here it is necessary to understand what opinion of RL DSV management has, if they see any potential in RL services
2	To what extent is this perspective shared by your organization? Which idea of RL other colleagues might have?	Here it is important to understand if the whole company shares the same opinion; and if there is positive attitude towards RL in general
3	Do you think DSV clients would be interested in RL services? Why?	To understand the view of potential demand for RL services from DSV's point of view
4	Maybe DSV already provides RL services (e.g. managing product returns) for some clients? If yes, what kind of services are provided? What are the existing challenges? What are the main difference between RL services and other services provided by DSV?	If DSV already has experience in providing RL services, it is necessary to understand whether it was positive, and if there are any major problems
5	Do you think there will be growth in demand for RL services?	Estimation of DSV's view on RL perspectives
6	Does DSV have resources necessary for offering of RL services?	Here resources could represent human resources, competence in the area, time, financial resources, space etc. It is necessary to understand internal conditions for RL development
7	What challenges related to offering RL services do you see? Why?	Examples: lack of demand, lack of resources, incompatibility with other services etc. Here important point is what may prevent DSV from introducing RL services
8	Can you identify any advantages that offering of RL services might bring?	Examples: gaining competitive advantage, market share growth, new clients, improving image from environmental point of view etc. This question helps to understand if DSV has any positive opinion of RL, and if yes, in which way it could be developed
9	Is there a standard way of new service development in DSV? How are new services developed?	Understanding how DSV creates new services, which would help to identify how RL services could be developed
10	What influences on decision of introducing new service? What are the most important factors?	It would help in evaluation of RL services as a possible new services offered by DSV
11	How would you evaluate RL from new service development point of view?	Would help to understand the perspective of RL services introduction from DSV's point of view.

## Appendix 2. Transcript of interview with Sea&Air department's representative

Interview 25.02.2016, duration 14.00 – 14.20.

Place: DSV Air&Sea, Ansatie 4, Vantaa.

Stanislav Savonov: Kaisa Hopponen, Business Development Manager of DSV Air&Sea Finland. I would like to thank you for finding the time, we would try to keep this interview short and I hope that this will take no more than half an hour.

Kaisa Hopponen: Hello and I would be glad to help you.

SS: I have made some questions available beforehand so you could think of the answers in advance. The first one was "What does the concept of reverse logistics mean to you"?

KH: Ok, I was just actually thinking about this question quite a lot when I saw the questions. When we first talked about reverse logistics the concept was a little bit unclear when it comes to items what different areas of reverse logistics there are. Nevertheless the first thing that comes to mind is return shipments. For some reason something is shipped from Finland or to Finland and it has to be returned to its origin. That is the most clear concept. Coming from a sales background and sales team that is also the most frequent reverse logistics issues that we get like rate requests for the return shipments. So, anything that would go for refurbishing or, how to say, returning the consumer goods – that is not a very familiar side of the reverse logistics to me.

SS: Yeah

KH: And I think that is also in DSV in general: "reverse logistics" as a term might not be known to people, but when you talk about return shipment or "palatautuslähetys", then people know what you are talking about.

SS: Ok, that is really nice. Actually we are heading towards the second question and I think you've mostly answered that. So probably the concept itself is not that clear but we would be talking about return shipments and this is getting more obvious. Do you think that DSV clients would be interested in these kind of services and why?

KH: Well, we have those shipments but we do not normally pay attention of what is the reason. Is return happened because machine is broken or if it has to be returned because some recycling issues or whatever. We do not necessarily know the reason, but we have requests from both clients and our agents as well. So there is obviously a need for this kind of logistics and these kind of services but this is not known or talked with the term "reverse logistics" so it is not kind of launch term like you said.

SS: So in DSV we do not separate standard shipments, the new ones and reverse logistics.

KH: Exactly. But I think clients have a need and would be interested because we have those shipments.

SS: Question number 4. Do you think that there any special existing challenges when we would be talking about reverse logistics or the handling process is mostly the same?

KH: I think it comes down to the fact that if it is a short term need, let's say, some machine goes out from Finland and they notice that this is broken and it has to come back here for repair and then shipped back. If it happens in short time frame, we do not have that big issues because we know that when we are quoting and we are making the shipment in first place, we know in advance that it is going to be a temporarily customs clearance and all that stuff. But if do not know that, and I think one of the issues could be customs clearance. That I usually the challenge that we face the problem of finding out who did customs clearance in the first transportation, the first time goods were exported and where to find out the necessary documentation. Especially if it has not been handled by DSV and we cannot access that information. So the customs procedures could be one. Maybe...I do not know what other challenges there could be...

SS: But otherwise the processes will be the same as with standard shipments, is that right?

KH: Yeah! It is import process and export processes. I do not see that there is a problem in that. Especially if the shipment is going directly to the factory or somewhere, so that we do not need to store it anywhere or provide warehousing. Of course then we have the possibility of providing that one as well but I do not think we have enough experience in reverse logistics.

SS: Do you think that we might see the demand growth for RL services in the future?

KH: I think now I am kind of commenting some of the later questions but feel free to move my sentences around when you write it down. Actually I think that they could be growth if we could somehow standardize the way how to handle this and make it as a product. Because I think that at the moment DSV is perceived by the customers as service provider but they do not necessarily come to think of us when they have to think of this reverse logistics. Of course, also I do not know how many customers are prepared to handle this kind of process as planned process or if they do it on ad-hoc basis when something breaks down.

SS: But, basically repeating your words, DSV has the necessarily resources for offering these kind of services.

KH: Yes, I am totally confident about that.

SS: Do you think that inside the company we might, however, see some kind of challenges for instance lack or resources, lack of personnel, incapability of the personnel?

KH: I would only say that the first challenge that comes to my mind is that we quote for both import and export at the same time, it takes more time to build the quotation, to build the offer and of course the issues that are DSV internal issues like communication with an agent etc. I do not see it would consume that much time, than any other quotation. It



would be an obstacle, but it could be a challenge to build a quotation as it is a little bit more time consuming. But I think we have all right resources: we have people who can handle it. Cooperation between departments is something that should be improved or it should be somehow easily facilitated that export is handling something and then information is given to import department or vice versa. So communication is one key that should be paid attention to.

SS: Do you believe that this will bring some new advantages to DSV and, if so, what they could be?

KH: Well, I am actually thinking like I said before. If we would market it as a product, I am pretty sure we could find new customers. At the moment in Finland we do not have many of these shops, ... how do you say, these shops like Gigantti?

SS: Consumer stores?

KH: Yeah, consumer electronics hypermarkets where the concept is very valid and everyday business for them. We have more of this machinery type of companies etc. where it is a different thing. If we would have more standardized product or concept, which would be easier to introduce, maybe we could gain those kind of customers as well.

SS: Talking from the experience that you have, is there any standard way of developing new services in DSV? I mean if we would start developing this service package is there any standard procedure for that?

KH: No, I would say no. During the 10 years I have been working for DSV, the products that we have actually developed up to "product" level have mostly come out of certain need and there has not been really any approaches or it has been depending on the product in question. If it is insurance, then it has been driven by Denmark and "Express" was driven by air freight department. Although I am business development manager, I am not in product development. We do not have a person dedicated for product development. However, we do have shared marketing resources, but developing a new product is not a marketing department's stuff. I think our new services are developed on ad-hoc basis, case-by-case and involving those people who are mostly working with that type of service.

SS: And I think we are coming to question number 10: "What influences on decision of introducing new service? Basically this is ad-hoc based?"

KH: Yes.

SS: This is the market telling us...?

KH: Exactly, this is something that we have until now had on ad-hoc basis here and there and we have been doing this, and seeing the potential if we package this well and make it easy to market to customers, we might actually get some new businesses. I think that those are the things that if we see the potential, then it can be done, but there is no process for it.

SS: Do you think it would be challenging to develop a Reverse logistics service package for the customers like if we would be starting doing that let's say next week?

KH: Well, we have export and import processes so I think this is not as much of developing something totally new, but more like combining some existing processes to one. And then making presentations and brochures about it. Of course, coming back to the customs clearance issues, those would be the matters that would need most time-consuming and extra information would be needed on that. I think we have the processes in place and it is more about fine tuning and "wrapping the gift" If I can put it that way. Kind of building the one package.

SS: I see. So we have covered it all. Anything else you would like to add?

KH: I have had something but cannot find the thought. I have been thinking about it all the time, but I did not write it down. I will come back to you if I have something.

SS: suits me well. Thank you for finding the time. Hope to get it done within couple of months.

### **Appendix 3. Transcript of interview with Solution department's representative**

Interview 02.03.2016, duration 11.30-11.45.

Place. DSV Solutions, Honkanummentie 3, Vantaa.

Stanislav Savonov: Juhamatti Joensuu, sales manager of DSV Solutions oy, good afternoon!

Juhamatti Joensuu: Good afternoon!

SS: Thank you for finding the time. Today we would like to discuss the concept of Reverse Logistics and whether this topic would be interesting for DSV Group. I have prepared some questions in advance so that you have time to go them through. Starting with the first question it is asked whether, from your point of view, concept is known. How would you comment on that?

JJ: Yes, first of all I am quite familiar with the concept. For me working in DSV, reverse logistics means either recapturing value or disposal. Working for DSV Solutions I see two primary benefits for reverse logistics. First of all, it offers us new ways to offer new kind of services to our clients. In other words, new business potential for our company. But also the sustainability issues as sustainability and CSR are very important for DSV. So that is also why we want to encourage our customers to emphasize reverse logistics. We also see a lot of clients that have probably not go through reverse logistics potential so far within Finnish companies.

SS: Do you think that this perspective of reverse logistics is well shared in DSV Group within organizations?

JJ: I think probably not that as well as it should be. I think there might be differences within different DSV divisions. I think that the Solutions division is quite well-aware of reverse logistics because we are already doing a lot of reverse logistics related activities to our customers. But maybe some other division, for instance, Road while transporting pallets or cartons they perhaps think in the same way that they are not dealing with reverse logistics in the first place. Instead they see that they are transporting shipments.

SS: Yeah, I see. As you mentioned earlier some DSV clients are already using Solutions services using reverse logistics perspectives. Is that correct?

JJ: Yes, that is right. We also do that in our Finnish warehouses. As an example, we recapture the value of from copy machines by collecting the machines from end users and bringing them to our warehouse. Then in the warehouse we check all copy machines functions and do spare parts inventory. So whenever the machine in use requires a spare part, the spare parts are firstly taken from the old machine kept in warehouse. After all usable spare parts from old machines are taken out, only then the machines are shipped to be disposed later on. So yes, that is basically what we do as one example.

SS: Coming to question number four, do you think that there are any existing challenges related to this whole process? Like you have just provided an example of copy machines, but are there any specific challenges when you would be dealing with reverse logistics?

JJ: I think that biggest challenge is that maybe the companies, or DSV customers, themselves they do not understand the potential of reverse logistics and what kind of value it could offer. I do not see any other big issues. We are major global logistics provider and we are capable of doing basically whatever our customers require us to do. So once again, the biggest challenge is to raise awareness of our customers regarding the reverse logistics.

SS: Do you think that once we will get this service package done and ready for marketing, that we might expect a growth in demand for these kind of services?

JJ: Yes, I see no reasons why not, but reverse logistics is also industry related. Some industries, like copy machines industry, they are quite extensive in reverse logistics but not all industries have the same potential for recapturing value. I think that when you are going to prepare a marketing package or a product package, you should also consider industry specific requirements as this is not "one solutions suits all". Usually it is required to dispose the products. The copy machines or hazardous materials have different disposal requirements so you have to kind of tailor a solution for each industry.

SS: Does DSV have internal resources necessary for offering this kind of services?

JJ: We do not have dedicated reverse logistics staff but all our employees are capable of doing recapturing the value from the copy machines or whatever is required to be done in the warehouse. So in that sense, yes we have resources. But if you really want to start marketing reverse logistics activities, maybe it would require a dedicated person.

SS: Coming to question number seven, do you think that one of the challenges would be extra sales force that would help implementing this?

JJ: Maybe yes. Someone would have to prepare the product itself of what we are capable of doing, what are the costs, what are the benefits for the customer, financial side, environmental issues. We would definitely need a dedicated person as an example.

SS: Talking about benefits, what could be the advantage for both DSV as a service provider and customers?

JJ: As I have already mentioned during first question, that DSV is looking for the new ways of doing business. In addition we are searching for the new ways of improving sustainability footprint in the first place. There are two primarily benefits for us. And I see the same benefits when talking about customers: at least the sustainability one but also the recapturing of the value of their products. In my opinion, just the rare part of the clients understands the value that reverse logistics has.

SS: Talking from your experience, is there any standard way of new service development in DSV or we have just been told by Denmark that “this is a new system that we should work with”?

JJ: I do not think there is any standard procedure to develop new service. For some services it goes the way that we get instructions to do like this. But sometimes it happens that one sales guy or one operations guy has an idea and starts sharing that idea to managers. Generally there is no standard way of creating new services.

SS: Just repeating, this is more “ad-hoc” based?

JJ: Yes, someone gets a good idea that has business potential, what could it mean, what would it require etc. But there is no standard workshop to create new business models, or at least I haven’t heard of any.

S. I see. Anything else you would like to add or you shall give me a tip of how to conduct this research further?

JJ: One thing that I mentioned: consider the fact that if you start preparing reverse logistics service offering for any clients, you can provide general service package but consider what industry specific requirements are. Also think what industry you would like to concentrate on. As you are also working for DSV, we need to consider the business potential not to put too much emphasis on industries that has not business potential. It has to offer both business potential and sustainability. Once again, concentrate on such industries that you see have these benefits.

SS: Thank you very much for finding the time. I will try to summarize everything and hope to get the thesis done within couple of months.

JJ: Thank you.

#### **Appendix 4. Transcript of interview with Road department's representative**

Interview with Maija Naumanen, Business Unit Manager, Customer care at DSV Road oy.  
Place: Tulkintie 29, Vantaa.

Date: 11.03. Duration 12.30 – 12.50.

Stanislav Savonov: Good afternoon Maija Naumanen from DSV Road. I would like to thank you for finding the time and I very much appreciate it and I know how you are busy these days, especially after all reorganizational procedures. Today I would like to speak about the concept of reverse logistics. If you could describe what kind of first thoughts come to your mind when we would be talking about Reverse Logistics or what does it mean you?

Maija Naumanen: For me in person I see this as something for the future. Talking from company's point of view, for DSV Road especially, this is not that important or at least this is not in our scope for the moment. For example, the clients nor DSV are not seeing the demands for arranging these reverse logistics services. But for sure, that would be something for the future.

SS: Do you think that this perspective in general is well shared in DSV Group? Probably we have been thinking of this already? What is your opinion on that?

MN: Well I see that here in DSV Road, we are not actually that pro-active with this issue. At the same time I cannot really speak for Air&Sea or Solutions. I think that for Solutions could be more relevant at the moment. But for example I have had some discussions with Road sales team and it appeared as something not actual.

SS: So in your opinion Road customers would not be interested in this concept as you've already mentioned?

MN: I think this is something that we have not actually really covered from the market. Because many of our customer actually have some kind of reverse logistics solution of how to arrange this kind of transports but this is more like something they have built up on they own and not they have asked us to arrange for them.

SS: and here we are coming to question number 4. In case of DSV already providing these kind of reverse services to customers and probably you could share some examples if you know any?

MN: Actually there some examples but mainly controlled by the customers. So we do know that some parts of shipments are booked to us are actually reverse logistics. But customers control those shipments purely on their own and they just book the transports from us. If we could arrange some kind of frequency or some kind of lanes and somehow support customers' needs that is something we are not involved at the moment. We just

act according to their requests. Of course, then there are some special exceptions but they are just build for that certain customer and serve that customer's needs.

SS: When comparing to standard shipments, probably there are some specific challenges when dealing within Reverse logistics shipments. Do you share this view? Or they are just handled the same way like standard shipments?

MN: In common I do not see any big difference at this day. But is also noticing the fact that also doing standard shipment getting more converse from customer's perspective so what is the "standard shipment" these days? Are there any standards?

SS: Yeah, this is a quite wide question. Do you see that there might be growth for this kind of service and there could be more potential? Or is it hard to predict?

MN: I see that there will be a need for this kind of service. If we see that through this potential we gain a lot more businesswise or we just let the customers to keep the control on their side. Because after all, this is all about the business. Anyhow I think the demands of the customers, or their needs that something what is increasing in the future as well.

SS: I see. If there would anyone doing that, do you think that in DSV we have all the necessary resources for that?

MN: Not for the moment, or at least not in Road. But if that would be something we could gain as a group, then possibly yes. But we are not yet there at the moment.

SS: Are there any specific challenges once sending the quotations to the customers like something sales person would need to take into consideration upon submitting the quote?

MN: To cover the actual need for the customer. Because that we can never be too much focus on what the customer needs and how we could serve them better. Understanding customer's business to find the way gain some business opportunity.

SS: Understood. Coming to question number 8. Will this bring some marketing advantages or some other gains in group in general if we really start doing this as a separate business product? Any kind of thoughts on that topic?

MN: Of course if there is a need in the market the one who is actually able to turn this into business, will be the one who is getting first step. Then there could be an advantage to go on with this.

SS: Okay.

MN: But this is also related to strategy as well. What is the business we actually want to focus on?

SS: Like is only the transportation or like wide range of services?

MN: Correct.

SS: You have been working in DSV for several years and naturally have a lot of experience. Are there any standard way of new service development within the company? I mean that if someone has an idea, how do we implement it to become a new trade lane, segment, etc.?

MN: To be honest not at this point. I would not use the “standard”.

SS: Okay. So basically this is more like ad-hoc based?

MN: Yes. And of course we do some benchmarking after all. But probably I would not compare benchmarking as a standard way.

SS: Fully agree. Let's or try to pretend that there would be idea of implementing reverse logistics concept as a new service. What influences on decision of introduction of new services? ... I don't know, is the management decision? Is it a customer telling us that we should launch this product?

MN: I think it's both. At this point we actually need impulse first from the customers, but have we actually ever went to the customers to search if there is a need and something we go on to? Still at the end, this is of course management decision if this is something important from strategic point of view. Is it something we want to invest to and if there enough potential to go. After all, this is about the volumes, about the costs... well... all relevant risks and whether it is worth doing.

SS: Yeah. Generally speaking if understood correctly, because of the business side it shouldn't be that complicated in Road department to handle these shipment. The reason is that most destinations are EU countries and there is no need to, let's say, we wouldn't need to do customs clearance etc.

MN: Yeah, but this is still fully related to tasks and actions we will be involved in. If this is only transportation of shipments from A to B, then of course it makes it really not much difference. But if there are any additional tasks we are involved it: collecting something or whatever. For example, collecting shipments from the terminal and then we would just combine them as one, so-called “consolidation”, then of course is something what would special kind of processes.

SS: So that generally no problem for transportation only. If something extra – then we need to think twice before implementing it.

MN: Exactly.

SS: Got your point. Any kind of comments or wishes for me as a “young researcher”?... Laughing... Something that you would still like to share?

MN: One issue I see, or actually just been kind of waiting for, that who or how would... anyhow Road business is in the point where normal, standard transportation is in a kind of revolution. What will happen in the future and what will be “the standard” for Road transport in the future. We do not know that for sure for the moment. We know that we must keep on developing our business and keep on developing also the products. Whether this concept of reverse logistics will have some part of the future business we do not know. But this is interesting to see that how this kind of product could be seen in the market already after some years. Because the need, for sure, will be there.



SS: I would like to thank you for finding the time. I will try to make everything ready and summarize it within the next few weeks.

MN: Thank you.

## Appendix 5. Customer questionnaire



### Reverse Logistics research questionnaire

#### 1. What industry does your company belong to? \*

- Aerospace
- Agriculture
- Beauty & Cosmetics
- Chemical
- Construction
- Consumer products
- Food & Beverage
- Healthcare
- Machinery
- Pharmaceutical
- Telecommunications
- Transportation
- Utilities
- Other, please specify

#### 2. What is your company's annual revenue? \*

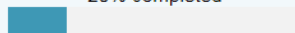
- Less than 10 million EUR
- Between 10 and 50 million EUR
- More than 50 million EUR

#### 3. How many people does your company employ? \*

- Less than 50
- Between 50 and 250
- More than 250

Next -->

20% completed





## Reverse Logistics research questionnaire

4. Please, describe briefly what the reverse logistics activities you have had or plan to have in the future?

<-- Previous

Next -->

40% completed

5. What role do products returns play in your company? \*

- Clean channel / Clean out inventories
- Protect margin
- Competitive reasons
- Recapture value
- Recover assets
- Legal disposal issue
- Other, please specify

6. Please estimate the share of returned products? \*

- Less than 10 %
- Between 10 % and 20 %
- Between 20 % and 30 %
- Between 30 % and 40 %
- Between 40 % and 50 %
- Between 50 % and 60 %
- Between 60 % and 70 %
- Between 70 % and 80 %
- Between 80 % and 90 %
- More than 90 %

7. Which of the following reverse logistics activities does your company perform? Please indicate all that apply:

	In-House	Outsourced
Acquisition of returned products	<input type="checkbox"/>	<input type="checkbox"/>
Repair	<input type="checkbox"/>	<input type="checkbox"/>
Remanufacturing	<input type="checkbox"/>	<input type="checkbox"/>
Outlet sales	<input type="checkbox"/>	<input type="checkbox"/>
Scrap	<input type="checkbox"/>	<input type="checkbox"/>
Other, please specify <input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>

8. What challenges to successful reverse logistics activities exist in your company? Please indicate all that apply: \*

- Company policies
- Competitive issue
- Financial resources
- Unimportance of reverse logistics relative to other issues
- Lack of appropriate information system
- Legal issues
- Management inattention



## Reverse Logistics research questionnaire

### 9. Would you consider to outsource reverse logistics to DSV?

- Yes
- No
- I did not know that DSV could provide this service

### 10. Which reverse logistics activities would you outsource? Indicate all that apply: \*

- Collection of returned goods
- Sorting and re-packaging
- Repair
- Remanufacturing
- Delivery of fixed goods
- Other, please specify

### 11. On a scale of 1 to 5 (1 being very unimportant, 5 – very important) rate the factors when outsourcing reverse logistics activities: \*

	1	2	3	4	5
Cost reduction	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Quality of service	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Speed	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Customized solution	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Flexibility	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

### 12. Can we indicate your contact details as a reference in the thesis? \*

- I agree to indicate both company name and own credentials
- I agree to use only company name but not own credentials
- I do not agree to use any

[<-- Previous](#)

[Next -->](#)

80% completed



## Reverse Logistics research questionnaire

### 13. Contact form:

Name

Lastname

Company / Organization

[<-- Previous](#)

[Submit](#)

100% completed

## Appendix 6. Email sent together with the questionnaire link

Hyvä vastaanottaja,

Olen Stanislav Savonov ja työskentelen DSV Air&Sea:lla myyntipäällikkönä. Teen parhaillaan maisterin tutkinnon lopputyötä, jonka aiheena on paluulogistiikka eli "Reverse logistics" ja sen mahdollinen kehittäminen osaksi DSV:n palvelukonseptia. Pyytäisin sinulta noin 7 minuuttia liitteenä olevan kyselylomakkeen täyttämiseen.

Paluulogistiikkaan sisältyvät esimerkiksi asiakaspalautukset, takuu- ja huoltopalvelut sekä kierrätys. Paluulogistiikassa tuotevirta siirtyy asiakkaalta toimittajalle.

Haluan kiittää kaikkia vastauksistanne, ne ovat erittäin tärkeitä. Kiitokseksi nopeasta panostuksesta haluan lahjoittaa 20 ensimmäiselle vastaajalle viinipullon.

Dear recipient,

My name is Stanislav Savonov and I am working as a sales manager for DSV Air&Sea oy. I am writing my Master Degree Thesis research with the topic of "Reverse Logistics" and conducting a research whether DSV group should develop this business segment further. The questionnaire will take around 7 minutes to complete.

Reverse logistics manages the process of moving goods from point of consumptions back to the point of origin for the purpose of value recapturing. Some examples are remanufacturing, reuse and recycling of the goods. Reverse logistics is used to manage product returns, for instance, warranty returns, marketing returns, returns for further recycling (e.g. used batteries) etc.

I would like to thank all participants in advance. The first 20 responds will be rewarded with a wine bottle.

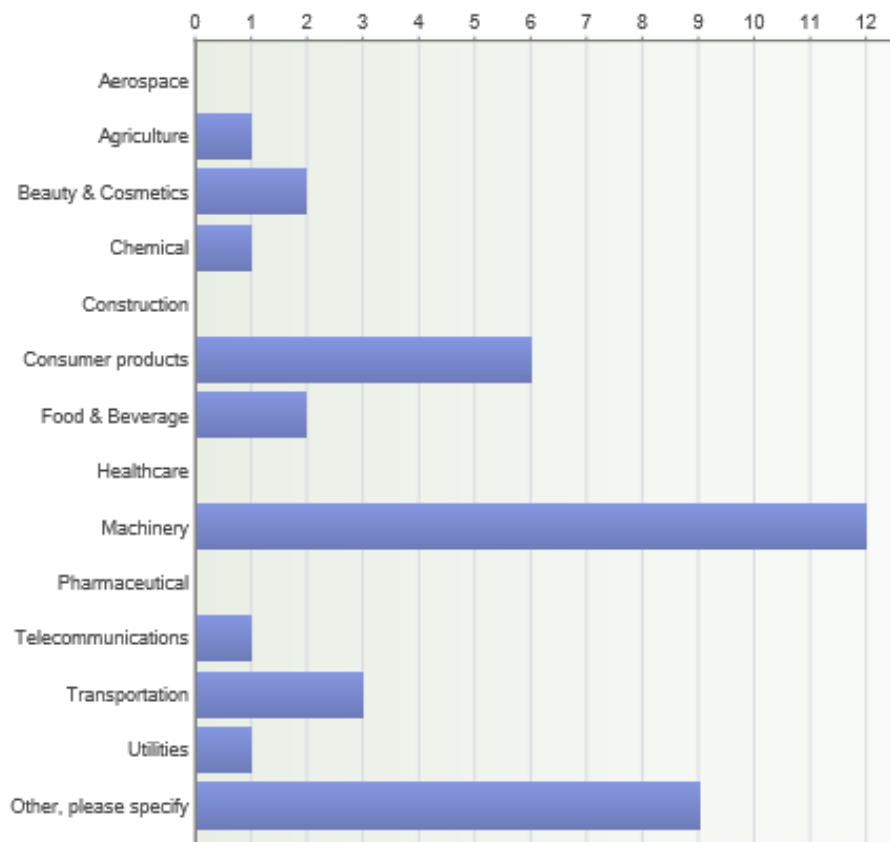
Source of addresses: DSV Air & Sea Finland's customer register. / Osoitelähde: DSV Air & Sea Oyn asiakasrekisteri.

<https://www.webpolsurveys.com/R/4B37876B03BC25B2.par>

## Appendix 7. Responses to the questionnaire

### 1. What industry does your company belong to?

Vastaajien määrä: 38

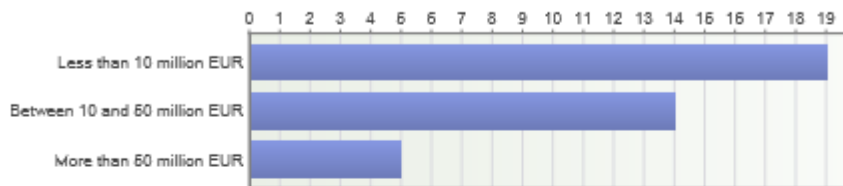


#### Avoimet vastaukset: Other, please specify

- Ventilation
- marine equipment
- electronics
- metal/manufacturing
- Scientific research and meteorological services
- Information Technology
- Process, maritime and energy industry
- Business services and digital printing solutions
- fashion and decoration

## 2. What is your company's annual revenue?

Vastaajien määrä: 38



## 3. How many people does your company employ?

Vastaajien määrä: 38



## 4. Please, describe briefly what the reverse logistics activities you have had or plan to have in the future?

Vastaajien määrä: 37

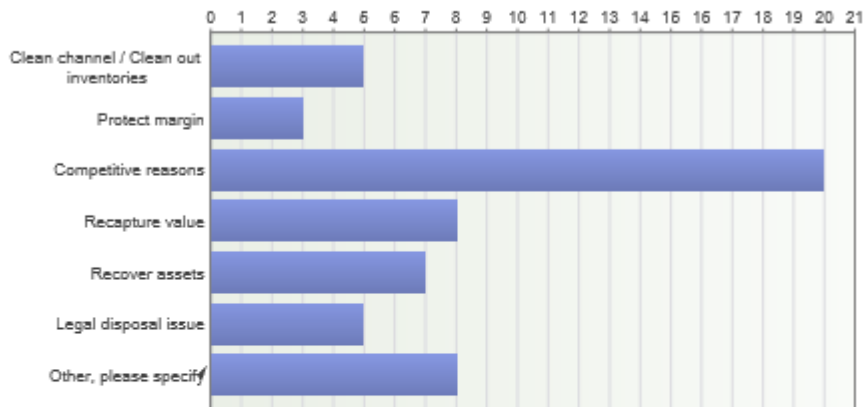
- some electronic devices and gauges
- No plans at the moment
- Just normal claim returns
- materials returns from the customers, machine services
- customer returns
- broken warranty parts for the inspection at the factory
- consignment goods returned to other dealers or to the factory
- exhibition goods returned to the factory
- once returned items 20' container to repair back to china manufacturer
- no plan at the moment
- Reclamations and replacements, if these will occur
- warranty repairs
- "UPS return shipment" worldwide in urgent shipments and "GLS pick up service" from Europe. DHL Euroconnect from Europe in bigger shipments.
- Customer returns and repairs via courier

- Warranty returns mainly
- Finland to Sweden and Norway
- Customer equipment repair.
- Our own customers return some faulty goods containing consignments per year or if the shipments have arrive too late to customer's premises. Our company recycles print cartridges, i.e. return to seller's recycling companies.
- Service operations. Repairs. Preowned device outlet.
- Takuu- ja huoltopalvelut. Asiakaspalautukset. Kierrätys tulee tärkeämmäksi tulevaisuudessa.
- Customers returning items damaged during transportation or due to improper use
- Nordic countries and Russia by road and North America in containers
- Return freights concerning warranty cases
- 1) Return transportation of scientific equipment which has been used in research work in countries both in the EU and third countries, including Antarctica.
- 2) Return transportation of scientific equipment which has been in maintenance or calibration in another country.
- We use recyclable packing solutions which are sent back to us.
- Customer returns, recycling, engineer part returns.
- None at the moment. We try to design and manufacture our products so there wouldn't be any recalls and modifications can be done easily at the target location.
- Taking back broken and/or defective products from our Business customers and consumers and in some cases shipping them forward to the manufacturer.
- We are committed to environmentally responsible business practices. Over the last 20 years, our supplies recycling programs have kept more than 145 million pounds of waste out of landfills.
- We have constant flow of repairservice deliveries from customers around the world and occasional return orders.
- To turn back in Japan for example knives for machine what made of bad steel
- Pieniä varaosia palautetaan joko korjaukseen tai sitten korvattavaksi uusilla osilla. Jonkin verran myöskin meille tulee takuupalautuksia.
- we re-cycle some of our systems and return them back to our UK-factory for refurbishment.
- warranty returns, marketing returns
- Global export and import. In the future maybe external warehouse service.
- Imports from China and Korea. Imports from EU area. Exports to Scandinavia, Baltic states and middle Europe.
- Returns after temporary use and for repair.
- Return deliveries of broken machinery needing to be repaired and re-exported.
- Didn't plan yet. The benefits of such scheme are not obvious yet.



## 5. What role do products returns play in your company?

Vastaajien määrä: 38

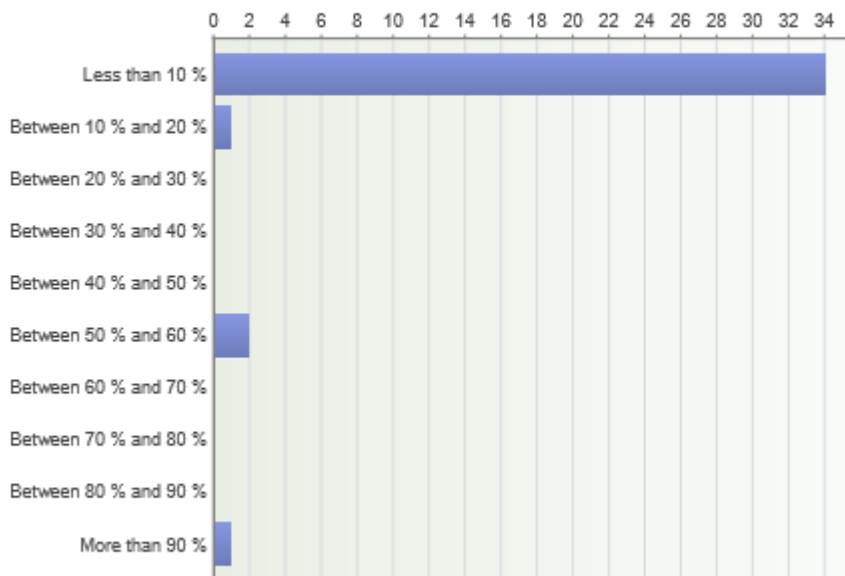


### Avoimet vastaukset: Other, please specify

- warranti issues
- Customer satisfaction
- customer satisfaction
- reclaims
- malfunction or broken equipment
- N/A
- ECO-oriented, waste recycling

## 6. Please estimate the share of returned products?

Vastaajien määrä: 38



7. Which of the following reverse logistics activities does your company perform? Please indicate all that apply:

Vastaajien määrä: 33

	In-House	Outsourced	Yhteensä	Keskiarvo
Acquisition of returned products	12	6	17	1,3
Repair	23	9	32	1,3
Remanufacturing	16	3	19	1,2
Outlet sales	12	1	13	1,1
Scrap	10	8	18	1,4
Other, please specify	0	1	1	2
Yhteensä	73	27	100	1,4

**Avoimet vastaukset: Outsourced**

- demonstrations in shows

8. What challenges to successful reverse logistics activities exist in your company? Please indicate all that apply:

Vastaajien määrä: 38

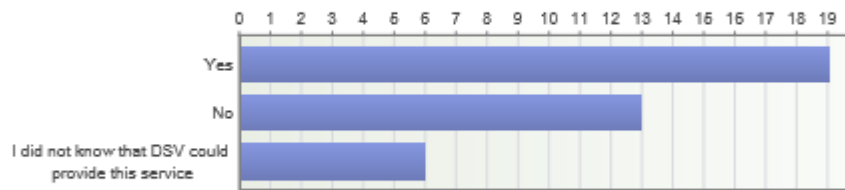


**Avoimet vastaukset: Other, please specify**

- cooperation in collection from client's warehouse
- Lack of knowledge on international logistics
- none

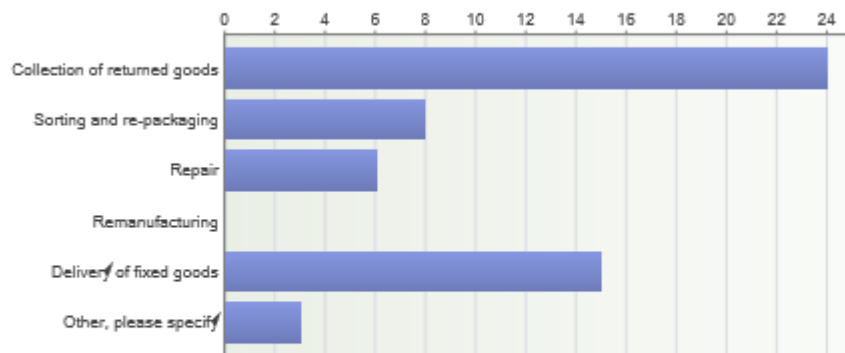
9. Would you consider to outsource reverse logistics to DSV?

Vastaajien määrä: 38



10. Which reverse logistics activities would you outsource? Indicate all that apply:

Vastaajien määrä: 38



**Avoimet vastaukset: Other, please specify**

- non at the moment
- None
- retyring of recycling wastes

11. On a scale of 1 to 5 (1 being very unimportant, 5 – very important) rate the factors when out outsourcing reverse logistics activities:

Vastaajien määrä: 38

	1	2	3	4	5	Yhteensä	Keskiarvo
Cost reduction	0	3	2	12	21	38	4,3
Quality of service	0	0	4	8	26	38	4,6
Speed	0	3	7	9	19	38	4,2
Customized solution	1	3	10	11	13	38	3,8
Flexibility	0	1	9	16	13	38	4,1
Yhteensä	1	10	32	66	92	190	4,2

12. Can we indicate your contact details as a reference in the thesis?

Vastaajien määrä: 38

