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Business relationships in humanitarian logistics: A case study of the WASH-kit network

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Abstract

Purpose: The purpose of this thesis is to describe and explore how business relationships impact humanitarian logistics. We will achieve this by looking at general theories on humanitarian logistics and business relationships and applying them to a particular international humanitarian assistance network. We wish to explore the relationships between a facilitator (Norwegian Emergency Preparedness System, NOREPS), a customer (Norwegian Church Aid, NCA) and a supplier (Lunner Produkter, LUPRO) and find the key success factors and drivers for business relationships and their exploitation for providing the best possible product for humanitarian purposes.

Design/methodology/approach: We will use theory from humanitarian logistics to highlight the challenges in the industry overall. We will then apply theory on business relationships from the industrial networks approach, as well as new product development and supply chain literature to develop a conceptual framework. We will apply a qualitative approach with an exploratory design of a case study, conducting a focus group and an interview analysis.

Subject: Business relationships in humanitarian logistics, with focus on a particular network, namely the network of supplying WASH-kits to disaster areas. Exploring the key success factors and drivers of business relationships.

Originality/value: The study contributes to increased awareness of the business relationships that occur in humanitarian logistics. In particular we emphasize the importance of exploiting business relationships as a valuable resource in order to provide the best possible humanitarian products. We also highlight how actor coordination challenges in the response phase are likely to be affected by business relationships are utilized in the preparedness phase. As the thesis is written in cooperation with NOREPS, the focus is on a particular network, namely the network of supplying WASH-kits, rather than a general view.

Keywords: Humanitarian logistics, business relationships, coordination, preparedness phase, new product development, supply chain, trust and commitment, information exchange and communication.

List of abbreviations

ARA: Actors, Resources and Activities

ERUs: Emergency Response Units

GWC: Global Wash Cluster

IFRC: International Federation of Red Cross and Red Crescent Societies

LUPRO: Lunner produkter

MSF: Médecins Sans Frontières (Doctors Without Borders)

NCA: Norwegian Church Aid

NOREPS: Norwegian Emergency Preparedness System

NPD: New Product Development

OCHA: Office for the Coordination of Humanitarian Affairs

UD: Utenriksdepartementet (Department of Foreign Affairs)

UN: United Nations

UNICEF: UN Children's Education Fund

UNHCR: UN High Commissioner for Refugees

UNHRD: UN Humanitarian Response Depot

WATSAN: Water and sanitation

WASH: Water, sanitation and hygiene

WHO: World Health Organization

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1. Introduction

In November 2013, Typhoon Haiyan- an exceptionally powerful tropical cyclone- hit Southeast Asia. Particularly the Philippines suffered great losses with over two million families affected across 41 provinces. (National Disaster Risk Reduction and Management Council 2013). The Joint Typhoon Warning Center assessed the system as a category-5 equivalent super typhoon on the Saffir-Simpson hurricane wind scale (National Hurricane Center 2013). Mighty winds, substantial rains and seawater have led to a massive humanitarian impact as these have devastated infrastructure and the majority of the population's everyday life. At the time of writing, typhoon Haiyan is the most recent natural disaster of this scope, however the need for humanitarian assistance has been comparable to other natural disasters such as the Haiti earthquake (2010) and the Indian Ocean earthquake and tsunami (2004). Between 1975 and 2011, the numbers of natural disasters as well as the number of people affected by these disasters have increased almost five-fold (EM-DAT: The international disaster database 2011).

The increasing magnitude, complexity, and unpredictability of these emergencies have made it very difficult for humanitarian organizations to provide effective relief to the victims (Majewski et al., 2010). For instance, there is a known issue with the massive amount of organizations all present in the crisis; an enormous amount of international humanitarian assistance is offered in these cases, and actors from all around the world fly in wanting to contribute. The United Nations High Commissioner for Refugees (UNHCR), UN Children's Education Fund (UNICEF), World Health Organization (WHO), Médecins Sans Frontières (MSF) and International Federation of Red Cross and Red Crescent Societies (IFCR) may very well all be present during a given crises; In Haiti alone, 21 Emergency Response Units (ERUs) were deployed to the field (Inside Disaster 2011). Coordination among all these actors might thereby seem to be a complex issue; not only during a disaster, but also in preparation for one.

One way to evaluate the coordination issues in humanitarian logistics is taking a network approach to analysis, as networks consist of business relationships that in fact can be utilized in order to improve the network performance in terms of efficiency and effectiveness. Anderson et al., (1994, 15) argues, "In order to

understand these business relationships, greater attention must be directed to the business network context within which dyadic business relationships take place". We therefore see the potential on focusing on business relationships from a network approach in the particular area of international humanitarian assistance. Although research on business networks is challenging, it has the potential to make significant contributions to evolving business practice. In Norway there is given unique attention on facilitating the international humanitarian assistance network, through the organization Norwegian Emergency Preparedness Systems (NOREPS). NOREPS is a public authority network where actors such as businesses, governments, NGOs and the UN agencies constitute an active forum and partnership. The NOREPS network objective in this context is to prepare for disasters by establishing close relations and access to products, service packages and personnel between the different actors in the network.

The 21 ERUs in Haiti were in place providing different items and services; for instance they supplied food, health care, water, sanitation, relief, shelter and electricity among others. Although different products are central to provide as soon as possible, practitioners and researchers have concluded that products related to water, sanitation and hygiene (WASH) in specific are prioritized as the most critical products to provide during a crisis (The Sphere Project 2011). Furthermore, products within water, sanitation and hygiene products are one example of products that has been carried out to be combined into a single big kit and sent combined to areas in crisis, as a specific attempt to improve the response phase by being better prepared. Exactly as Van Wassenhove and Martinez (2010, 309) conclude: *"Responding is a less difficult task if the response system is well prepared."* The use of kits is becoming more and more used in the humanitarian industry and scholars argue that using standard designs adds value to humanitarian logistics. *"An example would be keeping standard aid kits in regional warehouses and distributing them to local hubs at the onset of a disaster with minor adjustments depending on the local needs and specific demands of the disaster."* (Van Wassenhove and Martinez 2010, 313) Nevertheless, the authors argue that this has the prerequisites of standardization and collaboration between actors.

Finally the topic of WASH-kits is extraordinary interesting as it has been estimated that more than 3.4 million people die each year from WASH-related causes (WHO 2008); a number which signifies the magnitude of this issue. Additionally, the topic has gained substantial attention in the media; the Norwegian annual, nation-wide fundraising event, “TV-aksjonen”, has for 2014 been rewarded to The Norwegian Church Aid, with the aim of raising money to ensure clean water for 1 million people (NCA 2013). The fundraising will find place on October 19th 2014.

1.1. Research question

After being introduced to the WASH –kit network as a potential case study for our master thesis, we conducted a general literature review in order to see what in specific could be of interest to look into for our thesis in logistics. We found that there has been reported issues regarding actor coordination in humanitarian supply chains from practice, and that there is definitely a need for more understanding of the relations and coordination, ergo the business relationships between them. On this basis we formulated, together with The Norwegian Emergency Preparedness System (NOREPS), the following research question:

“Which business relationships exist in humanitarian logistics and how can these be exploited?”

To be able to answer this overall research question, we will look into particular parts of the issue. Our research is naturally divided into two different paths; one concerning humanitarian logistics and the other concerning business relationships. By answering both and combining them, we are aiming to investigate a so far little investigated area in the literature. Looking at humanitarian logistics, we will look specifically into the main features and characteristics that make up the network in supplying WASH kits. By looking at business relationships, we will focus specifically on what actually influences the business relationships, such as the drivers and key success factors. The business relationships will be divided into

two distinct parts of a process, namely new product development and the supply chain.

As we wrote our thesis based on a request from NOREPS, it was very important to us that we present a research question that can lead to increased knowledge about a topic significant for their work and that they will continue to face in the future.

1.2. Case introduction

The case study chosen for this thesis is the network in supplying WASH-kits. This is a kit containing products related to water, sanitation and hygiene provided by Norwegian Church Aid (NCA) to populations throughout the world affected by natural and man-made disasters. One complete kit fits into a 40 feet container with a total weigh of approximately 10 000 kg and contains products to provide for 5000 people in crisis. There are approximately 60 different items in each kit, some of which are provided in multiple numbers, i.e., four water pumps, two tank transport bladders etc.; a total of 187 items.

Each kit consist of items related to the following areas (NOREPS 2013):

Water – Purification, distribution and storage of clean water.

Sanitation – Sewage management and sufficient toilet facilities, particularly covering women's needs for security.

Hygiene promotion – Combined with qualified personnel, this will put focus on personal hygiene and how to avoid spreading water borne diseases.

The network of supplying WASH-kits is quite complex, as it consists of many actors all with very different roles and responsibilities. NCA functions as the owner and provider of the kits, and serves as the customer in this network. Lunner Produkter (LUPRO) is the current one-stop supplier to NCA of the kit content as a complete package and has a large number of sub-suppliers, both domestic and international. NOREPS is the facilitator between the customer NCA and the supplier LUPRO. NOREPS is a part of Innovation Norway and thereby gives Norway a unique advantage that is not present in other countries, by enabling customers to find appropriate suppliers from the Norwegian industry while at the

same time helping the customers to fund their projects. UNHRD is responsible for storage of kits ready to be deployed when a disaster occurs. The Global WASH-cluster (GWC) is the developer of the idea of combining WASH into a single kit and provides product specifications for its content. Several of the individuals in the different actor-companies have switched positions and employers during the years of WASH as a concept. Due to brevity we have limited the primary data collection to three actors; NCA, LUPRO and NOREPS.

We believe the WASH-kit network is a suiting example of the recently emerged use of kits, and at the same time a suiting example of the complexity of actors in the humanitarian industry.

1.3. Importance of the thesis and practical relevance

The purpose of this study is to investigate a specific international humanitarian assistance network, and understand the business relationships. In particular we want to look into the drivers and key success factors of business relationships in an international humanitarian assistance network, which involves both product development as well as the actual supply chain of an international humanitarian assistance kit: WASH kit. By using the WASH-kit network as a case study, we want to accomplish to cover the complexity of such a network, also directly affected by the focal product complexity, as well as the other characteristics specific to humanitarian logistics.

In particular, kits are increasingly important products in the international humanitarian aid industry, due to the kits' characteristics of being both standardized and flexible at the same time, and because kits easily can be pre-stocked and ready for deployment in case of emergency. This is an advantage to the traditional storage systems (picking facilities), but also opens up for other aspects of business relationships important to take into consideration. Although kits are increasing in use, there is little research done on the implications of its complexity and possible consequences of the business relationships that occur.

In accordance with Norway having an unique position in international humanitarian assistance, functioning and operating as a network (NOREPS-network), it is interesting to further research this type of a network.

In addition, another desired practical outcome of this thesis is to contribute to NOREPS' "aim to strengthen relief agencies' operational capacities and to enhance the efficiency of international emergency relief efforts, in order to help as many victims as possible" (NOREPS 2013 "About Noreps "The objectives"") by making our findings useful in future preparedness and ultimately the response phase, that are highly dependent on business relationships between several different types of actors. Hopefully, this thesis will provide several examples of reasons behind utilizing business relationship in international humanitarian assistance.

1.4. Limitations

In accordance with our problem statement we have the following limitations.

We will focus on a network approach, having the product WASH-kit as the focal product. Our point of departure is thereby the kit itself, and the network of supplying WASH-kits. Hence, a limitation is that this thesis explore a single network rather than to compare several.

We will not cover the technical specifications with the product itself, but rather focus on the business relationships between the actors in product development and supply chain. Rather emphasizing on explaining how or if business relationship between network actors have had affect on product development, or whether the business relationship contribute to changes in the product. This is because that the "product" itself is not a single, simple product, but rather a kit containing a large number of individual items put together. Due to brevity, we will not look into each individual product in the kit, but focus on the relevant products as examples, to ultimately answer our research question.

We have limited our research to a specific selection of actors. The actors included in the research are located in Norway and therefore makes primary data collection

accessible. Relevant actors in the WASH-kit network that we have not collected primary data from are: sub-suppliers to LUPRO, UNHRD and GWC, which could contribute in gaining a more complete network picture.

1.5. Structure of the thesis

The following section will present the research methodology and the methodological challenges related to our work. We will also explain how we have gone about the practicalities of the methods used, as well as how we conducted an analysis of the research. Then in chapter three, a literature review is presented, split into two main parts. This section is concluded with the key take aways we have gained from reviewing the literature, summed up in a conceptual framework of our research. Section four is a case presentation of the findings from the case study. In section five we offer a full analysis of the findings from our primary and secondary data collection, discussed in light of theory, before we finally conclude our thesis in chapter six.

2. Research methodology

Our thesis on business relationships in a humanitarian logistics is based on an extensive literature review, participant observations, a focus group and subsequent semi-structured interviews of the focus group participants.

2.1. Research strategy

Research strategy is meant to generalize and orientate the business research (Bryman and Bell 2011).

Different research theories focus on that qualitative research emphasizes on words instead of quantification, and that the findings are expressed verbally, in order to understand relationships and complex interactions (Bryman and Bell 2011 and Ellram 1996). Our thesis has a qualitative strategy approach, since our research is based on both focus groups and interviews.

Since our thesis explores how humanitarian networks can make use of business relationships, it is important that we as researchers are curious, social and have an open perspective. This is of particular importance in qualitative research, since we as researchers depend much on social interpretations and personal evaluations during our analysis.

As Bryman and Bell (2011) suggest about qualitative research, our objective has been to generate theories based on our research, instead of creating and testing hypothesis based on theory from the beginning. Existing literature about business relationships as a resource in international humanitarian assistance are practically non-existing. Therefore, we have confronted this issue by extracting common traits from more a researched area, namely business relationships in a network approach.

2.2. Research design

The most appropriate research design for our research seemed to be a classic case study design. In a case study, “the case is an object of interest in its own right and the researcher aims to provide an in-depth elucidation of it” (Bryman and Bell

2011), which is the case with our choice of the WASH-kit. In our thesis the objective is of an exploratory nature; we seek to find answers to questions of the form “how, why, how often, how much, how many, who, what, where”, and in this regard the use of a case study seems very appropriate (Ellram 1996).

Stake (1995) distinguishes between three different types of case study: intrinsic, instrumental and collective cases. In our study we have conducted a hybrid between an intrinsic and an instrumental study. Intrinsic cases are done in order to gain insight into the particularities of a situation; as we have gained insights into the network and the process of the WASH-kit. An instrumental case study is one where the focus of the study lies in using a certain case as a means of understanding a broader issue. We have used the WASH-kit as a case to understand how the actors and products work in the humanitarian sector. The figure below illustrates the research design for this thesis.

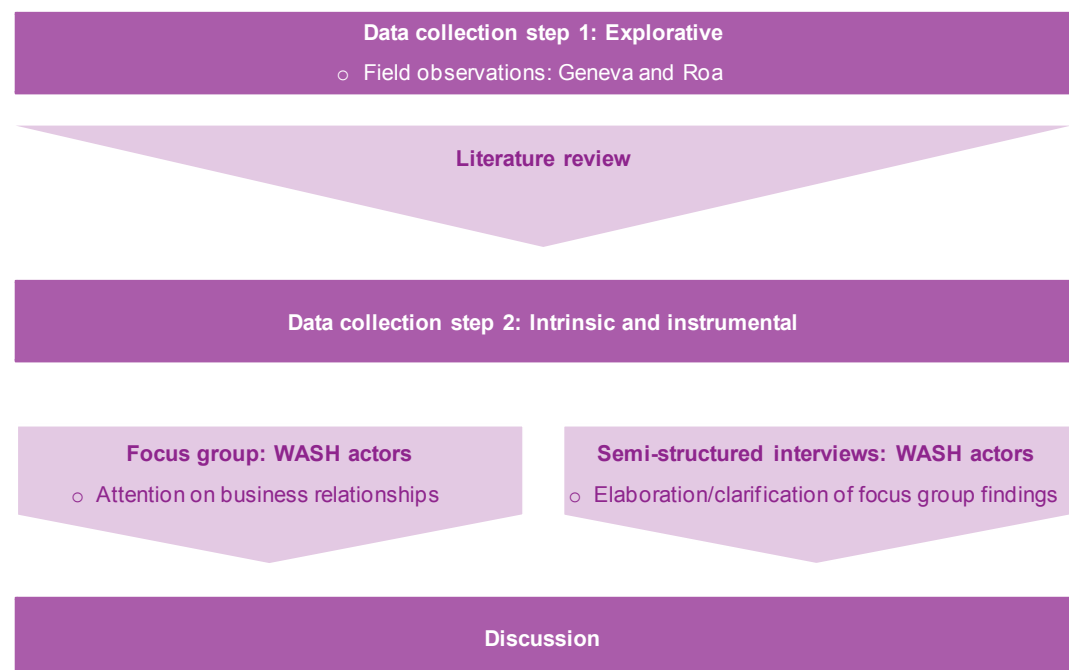


Figure 1 The two-sided research design. Source: Authors` own.

The WASH-kit was presented to us as a suggestion and a request from NOREPS; it immediately caught our interest and was therefore settled for quite early in the thesis writing process. The case thereby holds as the fundament for our data collection.

Our first step, after the WASH-kit was chosen, was to get to know the product, the process and the actors, through participant observations (primary data). We attended a NOREPS conference in Geneva, Switzerland, and travelled to LUPRO head quarters in Roa, Norway. These are further elaborated under section 2.3 Data Collection.

Our second step was to collect secondary data leading to our literature review. The review then formed the basis for conducting the focus group and the individual interviews. Primary data from the focus group revealed new areas of research, and the literature review was therefore further developed, as the thesis is of an explorative nature.

Thirdly, we collected primary data from a focus group session. Our aim was to further explore the dynamics in the relationships between the actors surrounding the WASH-kit. We hoped to see if there was a difference in opinions depending on whether you are the customer (NCA), the supplier (A-Aqua and LUPRO) or the facilitator of the relationship (NOREPS). We also hoped to see whether there was a “leader in the pack” as well as how the discussion developed when we introduced potentially challenging topics.

Fourthly, we collected primary data from semi-structured interviews. These were conducted with the objective of clarifying and elaborating on topics from the focus group. We also wanted to see if there was any difference in opinions when asked individually, rather than in the same room as their supplier/customers/facilitator.

2.3. Data collection

The data collected for this thesis is mostly of qualitative nature as we are looking into individual opinions and perceptions of a case. As already mentioned, our research design consists of both a focus group and semi-structured interviews in addition to field observations which in total makes up for the primary data for this thesis. As secondary data we have explored existing theory on the topics as well as case-specific documents provided to us from the relevant actors.

The first part of the thesis is the literature review, which consists of theoretical secondary data, gathered from databases such as Business Source Complete, but also literature provided by professors in earlier courses. Since the literature review is a very important part of our thesis, it was continuously revised and updated throughout our writing period. We continued to review literature throughout the entire data collection process, which is in accordance to explorative design. The secondary data is also qualitative and is of great importance in order for us to get an in-depth understanding of our research field.

2.3.1. Participant observations

As a large part of our research design we have spent a lot of time and personal resources on participant observations in the business network and amongst relevant actors.

Attended “Innovations from Norway” Geneva 18-19th of September 2013

We were invited by innovation Norway to partake in “Innovations from Norway” a 2-day conference in Geneva. The Permanent Mission of Norway in Geneva and Innovation Norway hosted this conference. The purpose of the conference was to present live demonstrations of Norwegian goods and services relevant to the UN and other international humanitarian organizations. Furthermore, creating a meeting arena for experts, advisors and procurement practitioners in key UN agencies and international organizations to meet with Norwegian suppliers and leading NGOs.

Among the innovative and sustainable products/ solutions demonstrated were the suppliers of our focal product: the WASH kit, and the supplier LUPRO and earlier supplier A-aqua. We also were introduced to NCA, the customer and distributor of the WASH Kit.

Guests in the marking of LUPRO’s 3 year contract with NCA, in October 2013

After the trip to Geneva and being introduced to the supplier of the WASH kit, LUPRO, we were invited to their celebration of winning a three-year WASH kit contract with NCA, as a one-stop provider. The marking gathered actors in the humanitarian network as well as local politicians and representatives of

innovations from Norway and NOREPS. During this marking, we were presented with the journey and importance of the WASH kit, and also a presentation about the supplier, and their other activities. Lastly, we were given a tour of the supplier facilities.

We also agreed with the supplier to visit them another time to get an in-depth presentation of the WASH kit and its content and use.

Field visit to supplier LUPRO in January 2014

This visit was primarily to get an insight of the WASH kit, and learn about all the different products included in the kit. But it was also an opportunity to learn more about the history around the WASH kit, and investigating the supplier's position in the network as well as the network structure in it self. The suppliers spent three hours to thoroughly explain all the features and technical aspects around the three parts contained in the kit: water, sanitation and hygiene. In addition, we asked questions in order to help us limit our research area in regards to the logistical point of view. In all, this trip helped us narrow down the research field and the research question we wanted to explore.

2.3.2. Focus group

Focus groups are a commonly used method of gathering information in qualitative research. It allows the researchers to study the ways in which individuals collectively reflect around a phenomenon (Bryman and Bell 2011). As our research is on exploring the dynamics amongst different actors, we are dependent on observing the participants in cohesion as well as in a naturalistic setting, and the focus group thereby allowed us to do exactly this. The method of focus groups allows for engagement of a number of people in a small, informal group to discuss specific topics in a more naturalistic way, closer to “everyday conversation” (Jane and Jane 2003). We wanted the participants to challenge each other's views (Bryman and Bell 2011, 504) and potentially discover issues and topics that would not normally evolve if the moderator was asking questions in a one-on-one format (Greenbaum 2000). Furthermore, in focus groups participants are able to bring to the fore issues in relation to a topic they deem to be important; this was clearly an important consideration in our study since the viewpoints of the people being studied are an important point of departure (Bryman and Bell 2011, 504).

We hoped to see that the members react and build upon the responses of other group members. The group of people meeting for a focus group was in our case all members of a pre-existing group.

We developed an agenda, keeping in mind that the focus group agenda needs to be of a semi-structured nature where the moderator only poses (not asks) questions, keeps the discussion flowing and enables all members to participate fully (Silverman 2010). The topic agenda was sent out to the participants in advance (see appendix 1) and consists of four main discussion topics, directly related to the literature we have reviewed. This gave the participants an overview in advance of what would we discussed and the opportunity of preparation if they wanted, while at the same time the agenda presented to the participants was kept fairly open, not to bias them. This turned very helpful as several of the participants were in fact well prepared and had brought several documents along to further help us confirm dates and events in the development process of the WASH kit. Under each topic, we had additionally prepared questions/statements in case the discussion declined. In addition to studying the dynamics between the actors of the group, we also wanted to confirm the process of development of the WASH-kit, as we had received several (and in some cases, contradicting) inputs from different actors earlier. We achieved this by proposing a timeline of events, as we had understood them, and getting the participants of the focus group to discuss each point. The timeline was structured into a matrix, based on theory from the literature review. The matrix is also used for analysis. See section 2.5.1.

The focus group was audiotaped, and notes were taken during, for the purpose of later analysis. The audiotape was later transcribed and summarized. According to literature on executing focus groups, transcription of focus group audiotapes is often a tricky job, considering that there are several participants often talking at the same time (Greenbaum 2000, Jane and Jane 2003 and Bryman and Bell 2011). It is therefore suggested making notes and only transcribing the most relevant parts of the focus group. This is provided in the appendices (see appendix 2). An assistant was in place to make sure the technical gadgets and other practicalities were in function.

2.3.3. Semi-structured interviews

In qualitative research, such as our own, the emphasis is rather on generality in the formulation of initial research ideas, and on interviewees' own perspective than to maximize validity and reliability of measurements of key concepts such as in quantitative research (Bryman and Bell, 2011). As it was important for us in our research that the participants speak freely, we chose a flexible and semi-structured interviewing technique, wanting to receive rich and detailed answers.

We developed an interview guide (see appendix 3) with fairly specific topics to be covered through certain questions that needed to be answered. As the interview was conducted semi-structured, we as interviewers had a great deal of leeway and the questions were therefore not necessarily posed in the same way as outlined by the guide. Some of the questions were also added during the interview as we picked up on what the interviewees said. But, by and large, all the questions were to be answered, and the guide made sure that the wording used from interviewee to interviewee was quite similar. As we were two interviewers present during each interview, we were able to divide the responsibility amongst us; an advantage according to researcher Bechhofer, Elliot and McCrone (1984). After the introduction and opening remarks, one of us would take the word and take brief notes while she progressed- the other one would take extensive notes and carefully observe the reactions and body language of the interviewees. When the time was right and one topic was covered, the other one of us would take over and continue on to the next topic. This also helped us pose even better follow-up questions as we had a deeper understanding of fewer topics, rather than less understanding on many topics.

The interview guide was divided into five main topics, directly linked to the literature review. Under each of the five topics several sub questions and follow-up questions are organized. The interviews were audiotaped and notes were taken during the interviews. In order to more thoroughly examine the answers, we transcribed the interviews after listening to the tapes several times before deciding to transcribe those portions we found useful and relevant (Bryman and Bell 2011, 485).

2.3.4. Documents

In addition to already existing literature on the topic, which we have presented in the literature review, we have received secondary literature from several of the actors involved in the network. These documents have been vital components for us to ensure a complete and correct picture of findings, by filling the gaps.

From NOREPS we have for instance been provided mail correspondences, tender specifications and process reports, as well as general information in terms of leaflets and handouts. From LUPRO we have for instance been provided internal documentation and WASH-kit product specifications.

This has helped us grasp the complex network, and increased our knowledge of humanitarian operations in general and the WASH-kit network in specific.

2.4. Sampling of candidates

One of the crucial assignments in qualitative research is sampling the right group of people as the candidates for data collection. As much of the analysis will rely on qualitative aspects such as opinions and experience, making the correct sample is important. It was in particular important for us to have candidates who represent the entire network, so that our research would not become biased by for instance representing solely the buyer-side of a network.

2.4.1. Focus groups

The focus group candidates were fairly easy to sample; we needed the actors in the network of the WASH kit participating in order to ensure a network approach. It was important that both the customer (NCA) and the supplier (LUPRO) would be present in order to illustrate the development process and current situation from both sides of the relationship. We also wanted a representative from the previous supplier (A-aqua) present, since one of the topics of the focus group was the process of the WASH kit, also including product development. Additionally, we wanted NOREPS to be a part of the group, especially since they have the role as a facilitator between the customer and the supplier. There was no intention from our

side to generate a representative sample, since the aim of this exploratory research is to produce analytical generalization instead of pure statistical findings (Yin 2003). The aim and intention was rather to explore collective understandings and shared meanings held within the same, specific group (Bryman and Bell 2011). So the specific candidates we asked to be a part of the focus group were people who are (or have been) working directly with the WASH kit in their job description; that meant for instance the logistical advisor and WASH engineer.

2.4.2. Semi-structured interviews

For the interviews our main objective was to clarify and further explore topics already covered collectively in the focus group, but essentially to get a deeper understanding on the characteristics of business relationship in this particular network. Therefore, this time we wanted to get the supplier and the customer separated, and provide the opportunity to answer individually, in order to avoid the potential bias that might have been present during the collective session. We also wanted our chosen candidates to have knowledge of the overall process of the WASH-kit from the beginning to the current state.

2.5. Qualitative data analysis

For our data analysis we have made sure to have audio taped the data collection sessions and taken notes while conducting them, as well as having transcribed and/or summarized them after wards. The analysis was based on a thorough literature review.

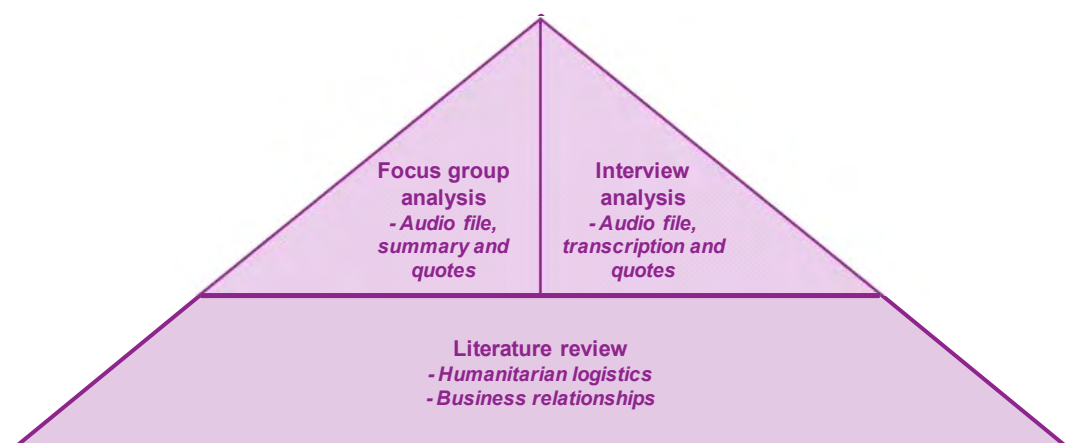


Figure 2 Qualitative data analysis. Source: Authors' own.

2.5.1. Focus group

Krueger (1994) (in Onwuegbuzie et al., 2009) suggests that it is ideal for the focus group to have a moderator team. We both took upon this role and divided the discussion in half and facilitated one part each. We choose to have topics, and let the participants discuss among them selves. Moreover, as suggested by Onwuegbuzie et al., (2009, 4) “the moderator might ask the members to engage in a specific activity”, where we had a poster with a time line, and asked the participators to put post-its representing resources and business relationship activities and so forth. This poster was used for analytical purposes and as the foundation and framework for analyzing the findings.

We chose to use the group as the unit of analysis, and focus on “quotations” and opinions expressed in the focus groups. Additionally, it is recommended that it is documented how many members provide substantive statements or examples that suggest a dissenting view. We have therefore created a matrix for assessing level of consensus in a focus group, based on literature. This matrix especially contributed to our analysis of the type of business relationship between the supplier and customer. The matrix is presented as the conceptual framework of this thesis, in chapter 3.3.

2.5.2. Semi-structured interviews

Analysis of qualitative data is different from quantitative analysis where one can code and analyze using software. We transcribed most parts of the interviews while interviewing, as we were two interviewers present; one asked the questions while the other one took notes. Further transcription was done post-interviews using the audiotapes. For analytical purposes we have made sure to make note of the interviewees body language and tone of voice.

2.6. Quality of the research

The quality of the research conducted is of high importance for the credibility of any study. Traditionally the quality has been judged based on concepts such as validity and reliability (Bryman and Bell 2011, Ellram 1996 and Mentzer and Kahn 1995). However, as research trends in logistics are shifting from a

quantitative approach to a qualitative approach, the quality criteria should be adjusted accordingly (Halldorsson and Aastrup 2003).

As this thesis is of a qualitative nature, we will assess the quality of our research based on the criteria suggested by Halldorsson and Aastrup in “Quality criteria for qualitative inquiries in logistics”. The authors present that the trustworthiness of research is the combined qualities of credibility, transferability, dependability and confirmability.

2.6.1. Credibility

In qualitative research, credibility is established on the notion that there is no single objective reality, and that the respondents themselves play a central role in addressing the picture of reality drawn by the researchers (Halldorsson and Aastrup 2003). Credibility therefore has to do with how believable the findings are and can be strengthened by increasing the degree of “match” between respondents constructed realities to those represented by the evaluator. One aspect we needed to take into consideration, to ensure credibility, was that the variation in position amongst the respondents was sufficient. We did this by including the customer, the suppliers and the facilitator between them; the chain is represented from several aspects. Furthermore, we had to be aware that some of the respondents’ answers during the focus group might be biased due to the presence of their customer/supplier/facilitator.

2.6.2. Transferability

Transferability has to do with the extent to which the study can be generalized into claims about the world (Halldorsson and Aastrup, 2003, 327). In our study we see that although time will change both the context and the individuals included, the knowledge acquired in this one context can still be relevant for other contexts or frames of time. For instance, by thoroughly documenting our entire process in detail, the study can be transferable to other products for humanitarian purposes, and/or to other networks in the humanitarian sector, dealing with the same challenges sector wide. The selection of people chosen to participate in the study

becomes crucial in this context. To ensure transferability, we have also documented the selection of participants as well as their profiles.

2.6.3. Dependability

Dependability has to do with the quest for trackable variance; meaning basically a less strict condition of stability of the data (Halldorsson and Aastrup, 2003). We have ensured dependability in our research by scripting detailed protocols during the process (Ellram 1996), in an attempt to make sure that if the study were to be repeated, it would yield similar results. However, our study is highly qualitative and in particular the use of a focus group as data collection makes the study replicable although the results most likely will not be exactly the same. Nevertheless, we have indeed ensured dependability of the process. The focus group preparations are well documented; data collection steps, questions asked in the procedure, assumptions made, limitations set and challenges met, as well as detailed information about the sources used are all examples of information that has been provided.

Furthermore, as a case study design includes the use of multiple sources, all of the printed documentation used as sources for the thesis is included in the case study database. An example of this can be printed material provided to us by the participants; such as WASH-kit specifications given to LUPRO by the NCA prior to product development, and internal notes and documentation made by LUPRO in the process. The on-site visits that we have done in our preliminary research phase are also described in the thesis, such as the trip to Genève in September 2013 and two trips to LUPRO in Roa, Lunner respectively in October 2013 and January 2014.

Additionally, the audiotapes of the data collection are available upon request if that were of interest to other researchers wanting to repeat our study.

2.6.4. Confirmability

Confirmability has to do with the emphasis on how the findings can be confirmed through the data itself, rather than the researcher's biases. In the thesis we have

ensured confirmability by 1) using multiple sources such as several informants, internal company documentation, direct observation and primary data collection in a focus group and in interviews 2) establishing and maintaining a chain of evidence throughout the study, from the formulation of the problem statement and to the concluding remarks and 3) draft reviews by key informants, most prominently NOREPS.

2.7. Limitations and possible challenges

One of our major challenges for the focus group was the fact that all the candidates are powerful and strong-minded actors each with their own critical role in the network, having strong opinions on a topic close to their hearts.

Moreover, it was quite challenging to have a focus group and get the members to talk specifically about subjects we want. It was tricky trying to balance time management and getting all topics covered sufficiently for analysis.

A limitation to our research is the fact that we only collect data from one humanitarian network.

3. Literature review

Based on the problem statement of our thesis we will review existing literature on the following two main topics, and three sub sequent areas:

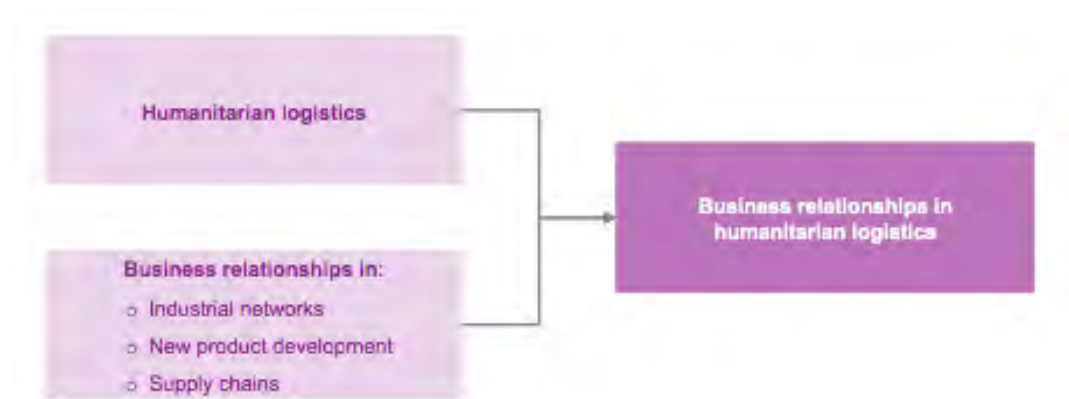


Figure 3 Structure of the literature review. Source: Authors` own

- 1) Humanitarian logistics
- 2) Business relationships
 - a. Industrial network approach
 - b. Business relationships in new product development
 - c. Business relationships in the supply chain

1) Literature on humanitarian logistics is an extensive research area to elaborate on, and therefore the entire first part of the literature review is devoted to cover this topic alone. Specific aspects will be discussed, such as the characteristics of humanitarian logistics (definition, scope, typical products etc), actors in the network of humanitarian logistics and challenges associated with all of the above. In particular, we will focus a section to actor coordination, as we find a gap in the literature on the relations among actors in the humanitarian industry. This is further elaborated in the second part of the literature review, on business relationships. As the terms humanitarian logistics and humanitarian supply chains are commonly known as synonymous, both these terms will be used.

2) As our main theme is business relationships, the second part of the literature review will cover literature on this topic. We have divided this section into three sub-sequent areas.

The first part of the literature review of humanitarian logistics emphasis on the issues of actor coordination and the importance of preparedness phase, however there exists no specific literature or theory on how to structure such a network. Since the main objective of this thesis is to identify and evaluate business relationships in the international humanitarian assistance network, we in accordance with Stock (1997) started looking for other theoretical fields whose knowledge could be applied to humanitarian logistics. This led to us finding literature on business relationships from three different areas of research that combined makes up for the process of the WASH kit; industrial networks, new product development and supply chain management theory.

In the final part of the literature review we offer a conceptual framework based on the literature review. Our thesis relies on being able to identify drivers and key success factors of business relationships in humanitarian logistics in order to answer the research question. The literature we have reviewed has been used to identify the relevant concepts to execute the case study, which will be used as a basis for further analysis of the case study we have chosen for our thesis.

3.1. Humanitarian logistics

As the number of natural disasters has largely increased over the recent decades, so has the amount of research. However, compared to research on traditional economic theory, such as finance and marketing, research in humanitarian logistics is fairly young. As late as 2006, Beamon and Kotleba acknowledged that only a limited volume of research existed, and no journals were dedicated to humanitarian logistics even though “the increasing complexity and magnitude of global emergency relief operations create a critical need for effective and efficient humanitarian supply chain management processes” (Beamon and Kotleba 2006, 1). Several scholars agree that many organizations continue to undermine the importance of logistics in disaster relief operations (Murray 2005), although “it is crucial to the performance (effectiveness and speed) of current and future operations and programs” (Wassenhove, 2006, 476). Luckily this has changed ever so slightly over the past years; an increase in awareness has led to a much-

needed increase in academic research into humanitarian logistics (Majewski et al., 2010).

3.1.1. Definition

In 2005 Thomas and Kopczak addressed the need for a commonly accepted definition of humanitarian logistics; a definition widely used by humanitarians in academia over the years to follow (Tomasini and van Wassenhove 2009, Schulz and Blecken 2010, Chandes and Pache 2010). Humanitarian logistics is defined as “the process of planning, implementing and controlling the efficient, cost effective flow and storage of goods and materials as well as related information from the point of origin to the point of consumption for the purpose of alleviating the suffering of vulnerable people. The function encompasses a range of activities, including preparedness, planning, procurement, transport, warehousing, tracking and tracing, customs and clearance” (Thomas and Kopczak 2005). It becomes clear from this well-known definition what the major difference is between humanitarian logistics and commercial logistics, namely the absence of profit.

According to Tomasini and van Wassenhove (2009) humanitarian logistics also differ from commercial logistics in the terms of “ambiguous objectives, limited human and capital resources, high levels of uncertainty, and the politicized environment” (Tomasini and van Wassenhove, 2009, 551). The authors state that ambiguous objectives from different actors, who often operate spontaneously, make it difficult to evaluate the level of commitment; limited human resources is due to high turnovers in the industry, and thereby a limited number of qualified personnel; capital resources are subject to variable donations that make it difficult for managers in the field to execute. Uncertainty has an impact on demand and supply considerations, and all this in combination is set in a politicized environment more intense than in commercial logistics. Humanitarian operations are therefore a matter more complex than mere logistics as it is commonly known (transporting goods from point A to point B); “It requires a supply chain management approach to effectively coordinate performance, eliminate redundancies, and maximize efficiencies in terms of costs and speed” (Tomasini and van Wassenhove, 2009, 549).

Furthermore, Van Wassenhove and Martinez (2010) suggest that the foundation of successful humanitarian operations implies being able to quickly build a supply chain. However, as money is a scarce resource in the preparedness phase, this proves to be quite challenging. A typical response includes: “assessment of needs, call for appeal, procurement, transportation and reception in the country, storage, set up of distribution points and handout to beneficiaries” (Van Wassenhove and Martinez, 2010).

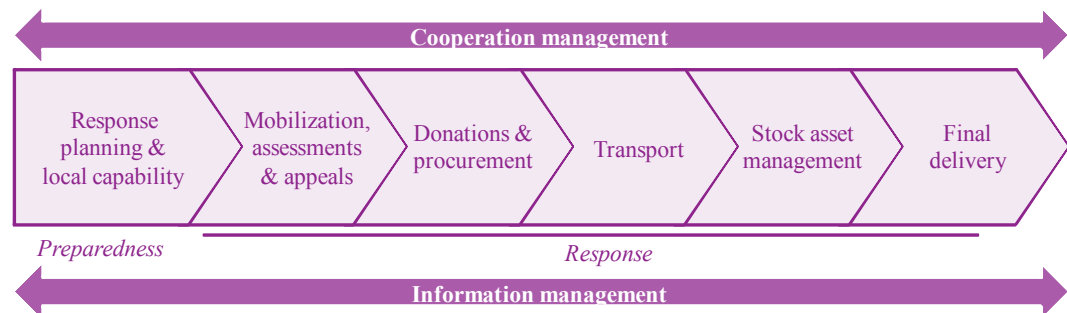


Figure 4 Relief supply chain. Source: Pedraza Martinez et al. (2010a), based on Thomas (2004), in Van Wassenhove and Martinez, 2010.

As we can see from the definition of humanitarian logistics as well as the presentation of simplified humanitarian supply chains; sales and profits are the major difference from commercial logistics. Sales are exchanged with negotiations, whereas “in lieu of profit, humanitarian organizations seek a balance between speed and cost in their supply chain” (Tomasini and van Wassenhove 2009, 550).

3.1.2. Scope

The shift of focus between speed and cost reduction is dependent on the different phases of disaster relief. Speed is prioritized in what is known as the immediate response phase (“ramp on”); cost on the other hand is prioritized in the later days post-disaster, in what is known as the sustain phase (Tomasini and van Wassenhove 2009). According to Wex et al., 2014, operations in disaster management are in the literature classified into the preparedness phase (period before the disaster), the response phase (period during and shortly after the disaster) and the recovery phase (period longer time after the disaster). More specifically, the preparedness phase covers activities such as planning, training,

prediction and the prepositioning of goods (Wex et al., 2014, Tomasini and van Wassenhove 2009). The response phase covers the help provided in the field of the disaster, such as providing water, sanitation, food, shelter (IFRC 2012). In the recovery phase, tasks related to infrastructure repair are central, and this phase lasts everywhere from six months to several years, depending on the actor (Inside Disaster 2011).

In literature on the topic scholars such as Kovács and Spens (2007 and 2009) and Tomasini and Wassenhove (2009), tend to emphasize on the preparedness phase rather than the two other phases, stating for instance that “when disaster strikes and the needs peak, it is already too late to develop solutions that were not in place before” (Tomasini and van Wassenhove, 2009, 554). This has mainly to do with the fact that to be better prepared will lead to deliver a better response. The Office for the Coordination of Humanitarian Affairs (OCHA) even explicitly state that “the key to effective response is the state of preparedness in advance of a crisis” (OCHA 2013), thus validating the focus in literature on the preparedness phase as the key factor of the effectiveness of humanitarian response to emergencies.

Van Wassenhove (2006) suggests that preparedness consists of five key elements.

I. Human resources; training and having a pool of people with knowledge and capabilities, willing to plan and coordinate when needed.

II. Knowledge management; transferring knowledge from previous disasters and experiences.

III. Process management; Prepositioning of goods, setting agreements and means in place in order to achieve effective delivery when the disaster strikes.

IV. Financial resources; Being able to afford preparation and initiation of operations.

V. The community; Making collaboration effective, for instance through mutual framework agreements with the other key actors in the network. The author states that the five elements all need to be in place and interconnected, as shown in the figure below, in order to achieve effective response.

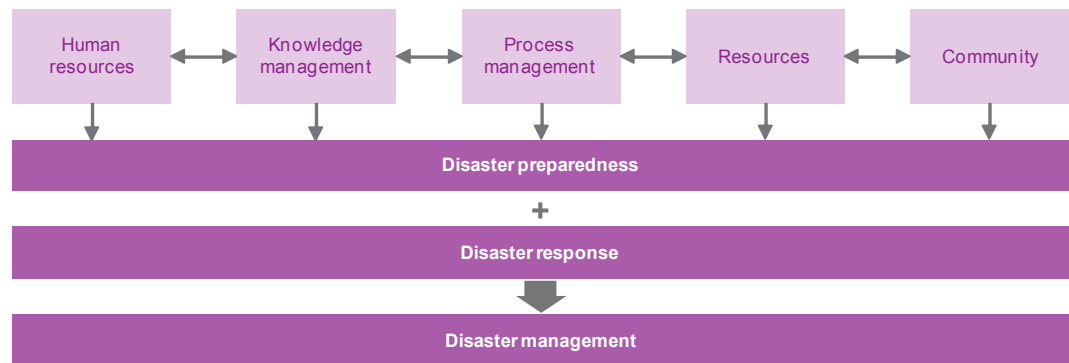


Figure 5 Five key elements to preparedness. Source: Van Wassenhove, 2009.

However, the preparedness phase has in practice often somewhat down prioritized. Scholars claim, “With too little money available for preparedness, relief chains usually focus on the stages of response.” (Van Wassenhove and Martinez, 2010) This has to do with the funding given for international humanitarian assistance; donations are often earmarked for emergency response, rather than to finance back-office operations (Murray 2005 in Kovács and Spens 2007) and the result is therefore that preparation and training phases are often neglected.

3.1.3. Products

Research has also been conducted on which supplies are most critical to provide in a crisis. According to Dignan (2005), the most commonly needed products in disaster relief are; water, medicine, chlorination tablets, tents, blankets and protein biscuits for malnourished children. Fontes (2011) claims that water and sanitation are the most crucial elements to provide during a crisis, followed by electricity and shelter. Finally, The ‘Humanitarian Charter and Minimum Standards in Disaster Response’, created by The Sphere Project in 2011 assess water, sanitation and hygiene promotion to be the most important factors.

The use of kits is becoming more and more used in the humanitarian industry and scholars argue that using standard designs adds value to humanitarian logistics. "An example would be keeping standard aid kits in regional warehouses and distributing them to local hubs at the onset of a disaster with minor adjustments depending on the local needs and specific demands of the disaster" (Van

Wassenhove and Martinez 2010, 313). Nevertheless, the author argues that this has the prerequisites of standardization and collaboration. Several scholars also mention that the use of kits is increasing in the industry stating that hygiene kits, flyaway kits, family survival kits, woman kits and shelter kits are being provided in emergencies (Kovács and Spens 2007, Davidson 2006, Beamon and Balcik 2008). However, the literature offers little information about this topic, in particular with regards to the complexity of providing them. The use of kits implies complex networks as a kit consists of several components often delivered by several suppliers that need to coordinate; an issue not deeply investigated in literature so far.

3.1.4. Actors and coordination

From the abovementioned definition of humanitarian logistics, we can see that many roles are to be fulfilled; hence any humanitarian supply chain will have a great amount of actors.

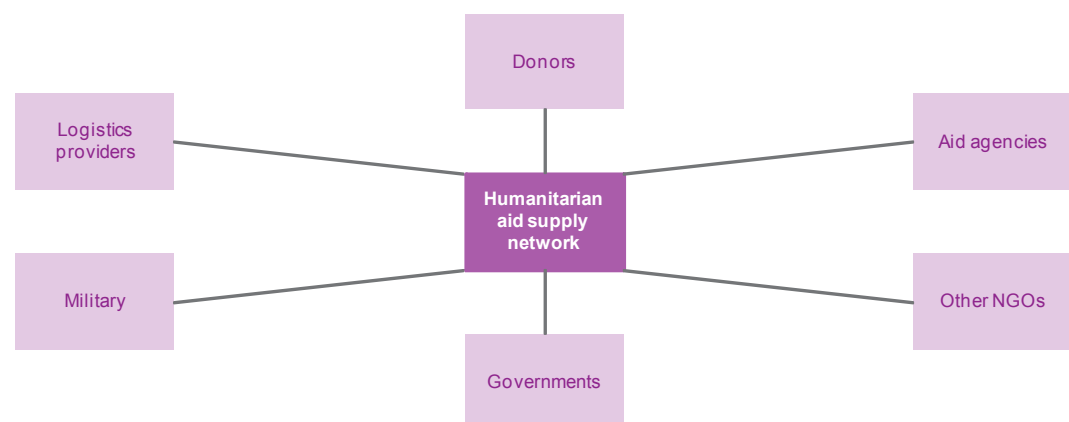


Figure 6 *Actors in the supply network of humanitarian aid. Source: Kovács and Spens, 2007*

Humanitarian relief environments include actors such as donors, the local governments, the military, international humanitarian assistance and private sector companies, “each of each of which may have different interests, mandates, capacity, and logistics expertise” (Balcik et al., 2009, 22). Typically, no single actor is able to meet all the needs required in a disaster situation.

There is a large amount of international humanitarian assistance providers; UN and all their sub-organizations such as UNICEF and UNHCR; IFCR; WHO; Save the Children; the list goes on and on. For instance, in Haiti alone, 21 Emergency Response Units (ERUs) supplying health care, water, sanitation, relief and shelter were deployed to the field (Inside Disaster 2011). Furthermore, within each of these organizations there are specific supply chains, with specific roles to be fulfilled; from planning production and raw material to end-customer, making the network even more complex. To further complicate the network, it has been reported particularly high rotation of personnel within humanitarian organizations. (Van Wassenhove and Martinez 2010)

Literature shows that actors in humanitarian supply chains are hard to coordinate. Scholars state: “Studies of humanitarian aid delivery have routinely concluded that these complex crises provide an inhospitable setting for coordination (...) in part due to institutional and managerial complexity” (Stephenson and Schnitzer, 2006, 212). Chandes and Pache (2009) state that humanitarian logistics have been hampered by a lack of coordination between actors, which directly affects performance in terms of reactivity and reliability. The authors further discuss how the large number of actors, all operating under different capacities and constraints, helps explain this challenge. According to Balcik et al., (2009) factors affecting coordination in humanitarian relief are mainly

- Number and diversity of actors
- Donor expectations and funding structure
- Unpredictability
- Resource scarcity/oversupply
- Cost of coordination

The cost of coordination proposes a vicious circle. On one hand, the lack of coordination is explained by the cost it requires; but at the same time it has been shown that the lack of coordination increases inventory costs, lengthens lead-time and compromises customer service (Simatupang et al., 2002). However, any improvement in the lead-time can have a significant positive impact for the end-

users (beneficiaries) in the humanitarian sector (Tomasini and Van Wassenhove, 2009). Furthermore, since logistics accounts for about 60% of relief operations (an average of the van Wassenhove, 2006 estimates of 80%, and the McClintock, 2010 estimates of 40%), “relief chain coordination is key to improving relief chain performance” (Balcik et al., 2009, 22). So it seems that in order to minimize the cost, and optimize the effect of relief operations overall, one has to improve coordination among actors. However, improving coordination among actors is too costly to implement.

Another issue in coordination is the lack of a centralized authority. Scholars state that “the humanitarian scenario is one of diffuse authority among a range of players unwilling, for a variety of often cogent reasons, to cede controlling authority of organizational action to any other single network player” (Stephenson and Schnitzer 2006, 214). The UN has attempted addressing this issue by establishing The Office for the Coordination of Humanitarian Affairs (OCHA), whose mission is to “mobilize and coordinate effective and principled humanitarian action in partnership with national and international actors in order to alleviate human suffering in disasters and emergencies” (OCHA 2013). However, research has shown that “despite its charge, OCHA does not enjoy command and control authority over the many UN entities often engaged in humanitarian relief, let alone over the other organizations involved in these emergencies” (Stephenson and Schnitzer, 2006, 213). Yet much has been improved over the recent years, with the “clusters” set up by OCHA, which comprise camp co-ordination, early recovery, telecoms and protection among others (McClintock 2010).

Ultimately, from the early days of research on the topic, it has been stated that coordination is the fundamental weaknesses of the humanitarian action (Rey, 2001). This issue is still present today, unfortunately, as evident in more recent literature; scholars Wex et al., (2014) for instance state that coordination issues such as allocation and scheduling of rescue units is one of the main issues in humanitarian logistics. According to Balcik et al. (2009) the key to improving relief chain performance is relief chain coordination. Several other researchers agree that improving coordination issues can improve effectiveness in disaster relief operations (e.g. Stephenson and Schnitzer 2006, Van Wassenhove, 2006,

and Chandes and Pache 2009); “however, the literature lacks studies that broadly and systematically address relief chain coordination” (Balcik et al., 2009, 22). Hence, there is a need for more understanding of relations and business relationships in the humanitarian industry literature.

3.1.5. Information management

Improving the lack of coordination among actors in the humanitarian network has been addressed over the recent years; matching needs of a disaster with the funds provided from donors; improving communication in the field as well as enhancing information sharing between all actors in the chain is being solved by the use of information management tools. According to Tomasini and van Wassenhove (2009) humanitarian organizations have increasingly implemented information management tools, in an effort to utilize more pull-driven (needs-based) operations. Furthermore, the authors state that these tools can help reduce the complexity brought about by the characteristic uncertainty that comes with disaster relief, by increasing visibility and foster transparency and accountability in the chain. “That is what several initiatives driven by the humanitarian agencies attempt to do through designing a common language, increasing visibility, and promoting collaboration.” (Tomasini and van Wassenhove 2009, 556).

3.1.6. Key takeaways from humanitarian logistics literature

First and foremost, our literature review reveals that the preparedness phase is most crucial in terms of efficient and effective operations i.e., planning efforts such as storing items close to potential disaster areas makes for better response when the disaster occurs. Furthermore, knowing what will be needed is an important preparation activity. Products that typically are most needed in disaster times are (in prioritized order); WASH, shelter, food and energy.

Secondly, there are a large number of actors involved in humanitarian operations and there is a huge challenge in coordinating them. An especially difficult challenge is the fact that there often is no clear authority to take coordinating orders from.

Finally, information sharing and communication thereby becomes one of the most crucial actions to emphasize in humanitarian logistics.

3.2. Business relationships

As we already have stated in the introduction of this chapter, we find reasoning in Stock's (1997) article for using literature from other areas discussing business relationship (especially; industrial network approach and new product development theory), as a starting point for developing a framework for business relationship in the humanitarian network. Stock (1997) identifies three benefits with this strategy. First, you learn from other's experience. Second, you acquire knowledge and understanding you probably not discover otherwise, probably in a shorter amount of time. Finally, applying theories from other field further enhances the linkages between logistics and those disciplines.

With this approach we see the opportunity to develop a better framework to analyze humanitarian business relationship, due to our better understanding of the area based on literature from other areas, which in fact have the same characteristics as humanitarian business relationship in our case study.

First, we explain the basis of industrial networks, and try to understand business relationships based on its main characteristics. Then we divide business relationships into a process of: new product development and in the supply chain, looking at drivers and key success factors in both. We believe it is important to cover Business relationship in particular these two processes, based on our findings in the literature review on humanitarian logistics. The evident challenge of coordination of actors combined with the importance of preparedness to achieve efficient and effective operations constitutes that also coordination in preparedness should be of equal importance and if addressed correctly ensures a huge step towards the main goal: efficient and effective operations. Therefore, we see it highly important to look into new product development, as well as the actual supply chain, because the literature of preparedness should also include new product development, which we believe to have impact.

Therefore, the rest of our literature review will cover these topics, and are illustrated in the figure below.

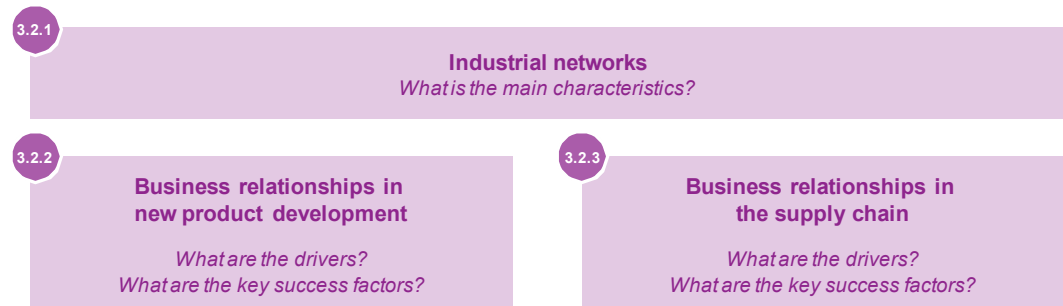


Figure 7 Topics covered in business relationships. Source: Authors' own.

3.2.1. Industrial network approach

A business network can be defined as “a set of two or more connected business relationships, in which each exchange relation is between business firms that are conceptualized as collective actors” (Emerson 1981 in Anderson et al., 1994). Furthermore, such “networks and relationships indicate that there is some kind of special organizational form at an aggregate level above that of individual companies” (Håkansson et al., 2002, 133). Definitions offered in this field describe business network as basically everything and everyone that can be connected, which has resulted in different scholars from several branches having their own interpretation on business networks. Whilst some of them understand network only on firm level (Porter, Barney and Mintzberg), and understand business relationships as only as something internal the company. Moreover, business relationships do not easily find a convincing explanation in the traditional and transaction-focused framework of economics that have been the inspiration of management studies for years. (Dyer 1997 and Williamson 1985) Unfortunately this theory constitutes a gap in the perception on economics, by not considering the whole picture and it's characteristics.

Fortunately, the IMP school put focus on a bigger picture and found empirical evidence on long-lasting business relationships that in fact acknowledge that “firm`s cooperate”(Håkansson and Snehota 1995). Further, they considered successful product development as an interaction process between the customer and supplier, well known as the network approach. The network approach considers industrial markets as networks of relationships and furthermore states that: “Cooperation is expected to be more or less the rule in a network, it will not

at all be seen as so special as in the “market” view of strategic alliances” (Håkansson and Sharma 1996, 116). The IMP researchers argue that business relationships between supplier and customer in industrial networks are characterized with mutual orientation, commitment as well as interdependence over a longer period of time. Moreover, Håkansson and Snehota (1995, 25) claim that mutual commitment and interdependence of companies in the industrial market constrains their behavior as much as it creates opportunities; relationships are mutually demanding besides being mutually rewarding. Furthermore, commitment and interdependencies over time results in the business relationship producing something unique, by interlocking activities and resources of the two companies. In fact, business relationships produce something that neither of the two can produce in isolation and something that cannot easily be duplicated.

Based on an empirical study a framework was developed (figure below) to help understand and analyze vertical collaboration, namely business relationships. This framework is based on three layers of connection in a business relationship: activity, resource, and actor that together form the ARA-model.

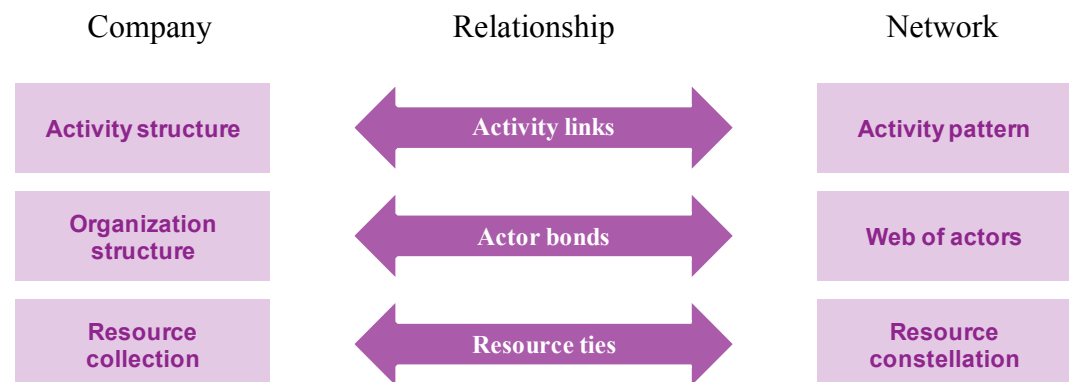


Figure 8 Scheme of analysis of development effects of business relationships.
Source: Håkansson and Snehota, 1995

The relatively simplified activities, resources and actors –model (ARA-model) is still to this day a very helpful tool for managers; not only in typical industrial markets such as forestry and car manufacturing, on the contrary the ARA-model is a powerful tool to all companies that are dependent and reliant on other actors in the network (for instance: supplier/customer), and are dependent on exploiting how their business units are connected in relationships, either through resource ties, activity links and/or actor bonds.

Activities

Companies often perform coordinated activities with others, as they are highly dependent on other actors and their activities. Activity links regard technical, administrative, commercial and other activities of a company that can be connected in different ways to those of another company as a relationship develops. Whereas, the degree coordination and adaption across firm boundaries are important for total cost reduction and as value drivers. A network analysis of the activity layer shows opportunities for how to reconfigure activities and thereby for achieving productivity in the chain of activities.

Actors

Actors are defined as whole companies, units or even individuals that mobilize other actors and positions in the network through new and existing relationships. How a company acts depends on its identity, i.e. beliefs, behavior, roles, position, power, capabilities and culture. Actor bonds connect actors and influence how actors perceive each other and form their identities in relation to each other. The bonds are created between firms through interaction and learning and the actors' identities are continuously confronted and adjusted accordingly. Actor bonds are created through; conflict and cooperation, power and dependence, trust and commitment. A network analysis of the actor layer shows opportunities and constraints for resource combinations and activity configurations through positioning.

Resources

A single company does not possess all resources needed and it is necessary to recombine resources through interaction with other firms. The resource ties connect various resources of companies and result from how the relationship has developed. Firms can recombine either physical or organizational resources, and utilize each other's strengths, to add value. Resources that can be connected are IT systems, facilities, components and equipment's, knowledge, competence, brands and reputation. Additionally, analysis of the resource layer could continuously reveal opportunities for resource utilization and recombination's, and thus for innovations. A tool for mapping, analyzing and categorizing resources is the so-called 4 R model. Baraldi et al., 2011 conceptualize and classify resources and

their interactions. The authors further go into a discussion on how resource interfaces enable companies to utilize, manage, and change their resources. In doing so the authors “provide a set of basic principles as to how resources interact at a network level, or how firms combine, develop, mobilize, and manage resources over time” (Baraldi et al., 2011, 266). The model divides resources into four main types, namely:

- Products
- Facilities
- Organizational units and
- Inter-organizational relationships also called business relationships

“Product development takes place through interaction across all four types of resources, as organizational units make use of inter-organizational relationships as well as facilities throughout such processes.” (Baraldi et. al., 2011, 268)

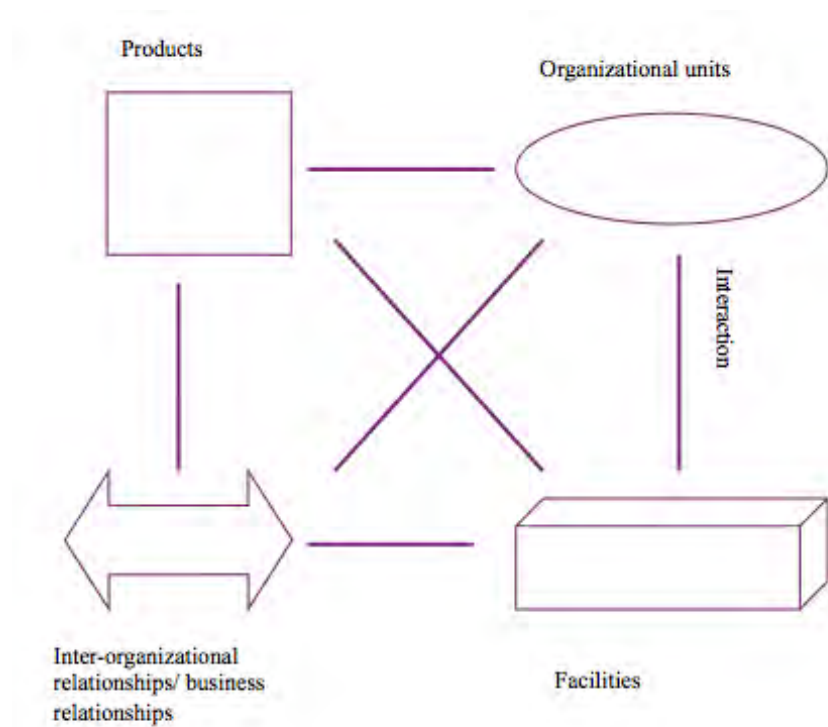


Figure 9 The 4R model. Source: Baraldi et al., 2011.

By classifying resources into these four groups, the model allows for a precise analysis of how two or more resources interact, and thereby strengthen the ability to manage their utilization. Products are defined as the “combination of goods and services that organizational units exchange with each other” (Baraldi et al, 2011, 268). Facilities are resources used for development, manufacturing and transportation of the products i.e. production equipment, storages, cross docking stations and trucks. Facilities are thereby tangible artifacts possessed by a company and differ from the skills and knowledge required to manage them. Organizational units are “resources which incorporate the knowledge, identity, and reputation of an organization” (Baraldi et al, 2011, 268) and also include routines embedded within the firm. In terms of resources, organizational units are not the same as an organization in the legal sense, but can rather represent parts of an organization such as a department or division, or even informal groups and individuals within the firm. Inter-organizational relationships are the emergence of interaction between two or more units, for instance memories and expectations.

The objective behind the ARA-model is that it should be analyzed as a complete system; including all three layers; activities, resources and actors influencing and affecting the company. This is important in order to create a complete overview of the current state of the company, but also to identify opportunities to reduce costs and/or create additional value through connection of activities and/or resources. For instance through mutual competence transfer between actors or decide on a close supplier relationship strategy.

From IMP point of view, we see business relationships as actors (companies) that engage in an interaction process over time, where connection of resources and activities are developed in order to produce mutual orientation and commitment. Moreover, this belief is not in fact exclusive for industrial network, but rather highly relevant in other types of networks with buyer and seller relationships.

3.2.2. Business relationships in new product development

As already pointed out networks consist of many other types of industries than car manufacturing or forestry that were the typical industrial networks of the 1970`ies (the main industry of IMP studies). However, business relationship is a big part of

new product development (NPD) (Petersen et al., 2005); the ability to innovate due to shrinking product life cycle and increasing global competition in recent years, is often what success or failure of companies mostly dependent on (Fagerberg et al., 2005). In addition, specialized skills and ‘tacit’ knowledge (Nonaka 1998), business relationships, especially regarding buyer-supplier relationships have become more and more important to the new product development process (NPD), as NPD is a core process that has a major role to play in achieving success in the global economy. (McIvor 2004)

There exists extensive literature about business relationships in product development, which all emphasis on the connection between supplier relationships and the product development process. Whereas some empirical studies have “failed to confirm a relationship between communication with suppliers and product development success” (McIvor 2004), the majority of the literature provide understanding and insight to important aspects of business relationship necessary to take into consideration. (Gadde et al., 2010, McIvor, 2004, Simchi-Levi et al., 2003, Petersen et al., 2003, Wynstra et al., 2000, Wynstra et al., 1999)

Product development is often called new product development in the literature (Petersen et al., 2005, Wynstra et al., 2000 and 2001), and is usually explained by a linear model such as the one below, consisting of phases from an “idea phase” to the actual “production of product”. Petersen et al., (2003) defines the NPD process by using 5 main phases in the process: idea generation, business/Technical assessment, concept development, product design, and prototype, before the company initiates a full-scale production.

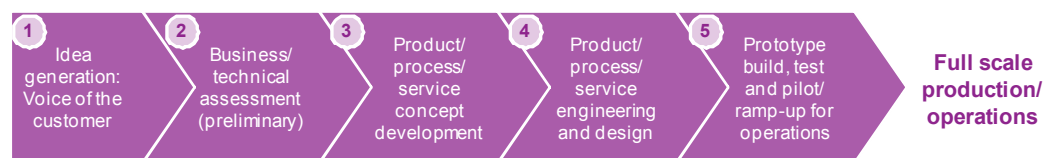


Figure 10 New product development process. Source: Petersen et al. 2005

Interestingly, this definition is contrary to a lot of the innovation literature, that in addition to NPD in addition emphasis on that product development is defined as

any change or development to a consisting product (Fagerberg et al., 2005 and Van de Ven 1999)

Drivers

In accordance to Wynstra, et al. (1999) there exist two main drivers of supplier relationship in product development: improving project effectiveness and improving project efficiency.

“The overall aims are to better leverage suppliers’ technological capabilities and expertise and to improve product development efficiency and effectiveness.” (Wynstra et al., 1999, 157)

Project efficiency is dependent on the total direct costs of development and the total lead-time from idea to a finished product. Suppliers have direct influence both development cost and time than the focal company, and Wynstra et al., (1999) list three specific ways supplier relationship, affect the efficiency.

First, supplier relationship can prevent, reduce or introduce design changes, which have direct affect on both the costs and time. Secondly, by facing and separating development activities between the actors, helps to solve capacity bottlenecks in the manufacturer’s engineering department. Third, when for each phase in a development process, “the responsibility is given to the most competent company of the two — the supplier or the manufacturer, efficiency is also promoted.” (Wynstra 1999, 158)

Project effectiveness however, considers the production costs and the quality of the finished product perceived by the customer. “This can be achieved by mobilizing and leveraging supplier expertise regarding for instance; Design for Logistics (DFL) such as standardization, the quality and reliability of component designs, alternative materials and possibilities for component standardization, joint product development.”(Gadde et al., 2010 and Simichi-Levi 2003) Besides improving (short-term) development project performance in terms of effectiveness and efficiency, the buying company could also achieve long-term benefits from having a business relationship with suppliers. “One common long-term goal involves getting (long-term) access to the competence and knowledge of suppliers.” (Wynstra 1999, 158)

Key success factors

Interestingly enough, within the large amount of studies conducted on business relationships in NPD, a handful of studies conducted found evidence on that supplier involvement in NPD in fact is not always beneficial to projects' effectiveness or efficiency. (Wynstra et al., 2000) On the other side, studies claim that business relationships in fact have positive impact on NPD, however it require some key success factors in order for business relationship to be valuable. Wynstra et al. (1999, 158) concludes that, "the lack of positive results of supplier involvement in product development is mainly an indication that such results cannot always be (easily and quickly) achieved."

Type of supplier involvement

It is evident from extensive literature search that supplier involvement in product development are very important, but however not a ting to undertake hastily (Petersen et al., 2005, Wynstra et al., 2000, Takeishi, A., 2001, Wynstra et al. 1999). Wynstra et al., (2000) have created a "Supplier involvement portfolio" (se figure below) that maps out 4 different types of supplier involvement in product development that in contrast to theory on Early Supplier Involvement (ESI) theory which emphasis on the importance on the supplier integration point of time. The Supplier involvement portfolio distinguishes type of product development dependent on degree of development responsibility by supplier and development risk.

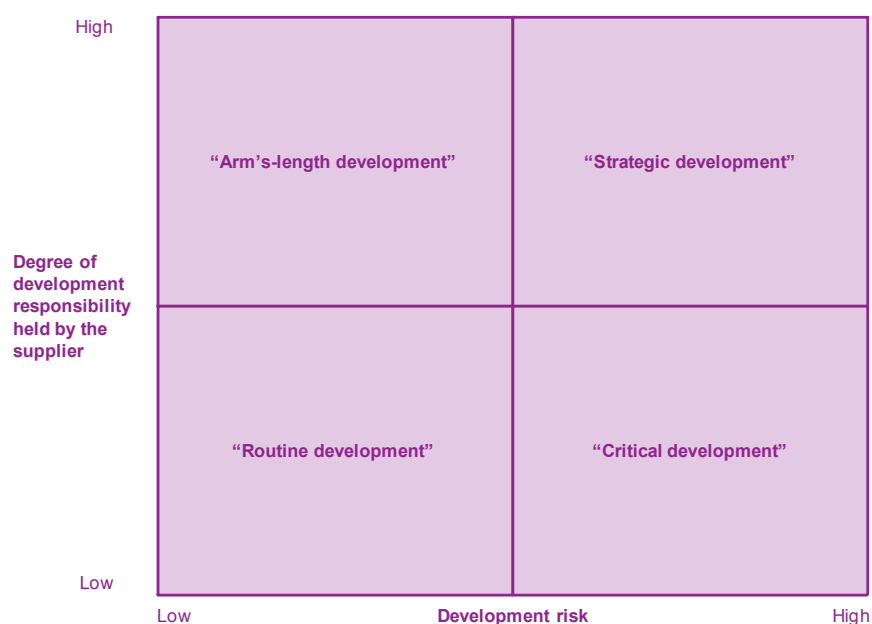


Figure 11 The supplier involvement portfolio. Source: Wynstra et al., 2000.

The degree of development responsibility of the supplier is related to the difference in expertise, such as: knowledge, know how and experience between the customer and the supplier, and the development risk is defined as the importance, newness and complexity of the (successful) development of the product. Based on these two variables, they identified four types of development types: Strategic Development, Critical Development, Arm's Length Development and Routine Development. The Supplier Involvement Portfolio and the supplier interfaces suggests in addition to give indications on how to coordinate early and extensive supplier involvement. Wynstra et al., (2000) concludes in their study that supplier involvement if the buying firm does not distinguish between types of supplier involvement appropriate to the characteristics of the product development “they may end up spending as much time on coordinating and managing supplier involvement as they save by giving suppliers more development and engineering responsibility” (Wynstra 2000, 55)

Petersen et al., (2005) study on the degree of supplier responsibility is coherent to Wynstra et al., (2000), and emphasize the criticality of the type of supplier involvement, “considering not only the capabilities of the supplier, but also the culture of the supplier, which will have an impact on the buying firm’s ability to interact with the supplier effectively.” (Petersen 2005, 385) Moreover, Birou et al., (1994) suggest that environments, which are conducive to highly co-operative relationships between buyers and suppliers, are more likely to lead to supplier involvement. Hence, “highly confrontational buyer–supplier relationships are less likely to result in the early inclusion of suppliers in the product development process.” (McIvor 2003) Interestingly, these findings also contradict preliminary theory on early supplier involvement (ESI), (that claims the point of integration has major impact on NPD efficiency and effectiveness. Hence, careful attention to these two specific factors is important regardless of the stage of the new product development cycle at which the supplier will be integrated, and regardless of the level of responsibility the supplier will be assigned in the project.

Trust and commitment

Walter (2003) emphasizes on the importance that a relationship with suppliers in product development is dependent on the degree of trust and commitment of the

supplier. He further suggests that efficient supplier involvement is dependent on two main factors: reduction in complexity in the network and process, and avoidance of customer ignoring the supplier's technical or manufacturing constraints. The first is consistent to the Wynstra et al., (1999) recommendation of having few suppliers in the case of close supplier involvement, as a large number of suppliers increase the complexity of managing supplier involvement in new product development.

Wynstra et al., (1999) also comments that trust is critical for business relationships, and argues that “ a lack of trust between the two parties may also hinder collaboration, as both parties will see large potential risks” (Wynstra et al., 1999, 159) Just as Helper (1996) identified that suppliers are more likely to participate in product development when an automaker (buyer) shows a certain commitment to the relationships. So that the supplier not feel afraid to loose their core competence or be to dependent on the buyer in close collaborative relationships. (Walter 2003) Furthermore, in order to sustain trust and commitment in the business relationship several authors agree on that it is important to treat the suppliers as partners and utilize their capabilities, skills and resources to ensure a more efficient and effective NPD (Walter 2003). Gadde et al., (2010) describe that the relationship with the supplier base represent one of the most important assets of a company, because the suppliers are critical to the quality of the technical development of the product.

Moreover, it is equally important to both, listen to the suppliers' advice and suggestion in the development process, and accommodate each other needs and wants.

Information exchange and communication

Brown and Eisenhardt (1995) study found that communication among the project team and with outsiders (including suppliers) stimulates the performance, and therefore increases the amount and variety of information that enhances product development performance. Type of Supplier involvement in new product development is different depending on several factors, but NPD is ultimately dependent on the establishment of information flows between them. (Walter 2003) These supplier specific adaption are defined as investments of a customer

in the supplier's knowledge, structures, and processes to make use of its resources. (Walter 2003)

Takeishi et al., (2001) study in the Japanese automobile industry found that product development of technical products requires frequent communication between the supplier and buyer. Since the supplier possesses a higher degree of specialized knowledge necessary for the buyer to understand in order to continue the new product development process. Moreover, the study found that the level of engineers' knowledge is positively related to component design quality, but are therefore more dependent on the willingness of frequent communication in order to achieve better performance. However, several studies also put attention on challenges of information exchange and communication, due to clear guidelines and mismatch in supplier and customer expectations', which implicates having a successful alignment of information exchange and communication. Diverse language, group thinking and mismatches in coding schemes between supplier and buyer could affect the product development process. (Walter 2003). Moreover, buyer's that are lacking the necessary knowledge of the supplier's components, but had the authority on making design decisions, caused communication problem in the development phase (McIvor 2003). Therefore, standardization efforts in NPD are hindered by outdated information.

Ultimately, a high level of trust enhances a greater information exchange and project goal clarification. Therefore, trusting partners feel less risks concerning (investment) decisions and activities connected with a technological partnership because they assume negative consequences to be less likely (Walter 2003). Consequently, it is important that the business relationship and the alignment of information and knowledge between suppliers and buyer will exceed the risks that anyone will share the knowledge with competitors. (Petersen 2005)

3.2.3. Business relationships in the supply chain

Literature seems to argue that *both* the internal physical supply chain and also the external business network are important for competitiveness and overall performance, particularly by recognizing factors in business relationship to be of

importance when designing for supply chain (Anderson et al., 1994, Harland 1996, Huemer 2006).

Supply chain management (SCM) theory explains how to most effectively manage a supply chain, and has interested both business managers and academics the past several years (Simchi-Levi 2003, Jahre et al., 2006 and Stock and Lambert 2011). Supply chain management is commonly defined as

“...The integration of key business from end user through original suppliers that provides products, services and information that add value for customers and other stakeholders.” (Lambert et al., 1998, 1)

Also, some scholars offer a more practical definition and view SCM just as *“integration with suppliers”* (Romano and Vinelli 2001, 446), which relates with the attention on actor coordination in supply chain.

The two definitions of supply chain management contribute to one common important observation: supply chain management is about efficient integration coordination of actors, resources and activities involved, at all levels: strategic, tactical and operational (Simchi-Levi 2003).

Drivers of business relationships

Supply chain performance

Gripsrud et al. (2006) describes this as a shift in business management the last decades. One significant change is that individual business does not compete as single actors, but however have competitions among supply chains. As Business management has entered an era of inter-business supply chain competition and the ultimate success of a firm will depend on the ability of integrating actors, activities and resources available in the network. (Drucker 1998)

Today almost every industry are faced with developmental trends such as: a continuous pressure to cut costs in order to stay competitive, enormous technology development that enable companies to share information in a new way and increased expectations from customers on deliveries and service, have forced companies to focus their attention and resources on supply chain performance

(Simchi-Levi 2003). Supply Chain performance are measured through the supply chain *responsiveness and efficiency*. How well the supply chain fulfil the customer demands and the ability to change to external factors make up the responsiveness. Whilst, all the supply chain costs, such as purchasing, warehousing and transport- costs affects the efficiency level.

Hence, designing and operating a supply chain includes many trade-offs focusing on the big picture and identifying drivers so that these total system wide costs are minimized and system wide service level are maintained are, results in companies to invest in business relationships and focus their attention on supply chain coordination in order to achieve this type of global optimization (Simichi-Levi, 2003).

However, scholars like Lee (2004) argues that the best supply chains have characteristics besides being efficient. It is necessary to exploit the actors, resources and activities in the supply chain further. The Supply Chains need to be *agile, adaptable* and the involved companies' interests need to stay *aligned*. Lee base this statement on a study several leading companies whose supply chains became more efficient and cost-effective, but in fact did not gain a sustainable advantage over their competitors. Rather, the performances of those supply chains evidently deteriorated.

- *Agility*
Responds quickly to short-term changes in demand or supply quickly.
- *Adaptability*:
Adjust the supply chain's design to meet structural shifts in markets, and modify the supply network to strategies, products and technologies.
- *Alignment*:
Create incentives for better performance of the actors in the supply chain.

The three characteristics have different focus and objective, however we believe the methods suggested for achieving the triple-A supply chain, in fact have some interesting common traits: they all depend on specific characteristics of the actors and the business relationships in the supply chain. To become agile and adaptable it is important to promote flow of information between the actors; end customer

orders should be known throughout the supply chain. Further, the study found that this is not possible unless collaborative relationships with the suppliers are developed.

The actors and business relationships are critical in regards to achieve the right alignment. First, information and knowledge should be exchanged freely among the actors. Secondly, lay down roles and responsibilities clearly in the supply chain. Finally, the actors are advised to share risks, costs and gains of improvement initiative. For example, when Seven-Eleven Japan spots business opportunities, it works closely with their suppliers to develop products and also shares revenues with them. Consequently, triple-A supply chains require that the actors “instead of looking out for their interests alone, take responsibility for the entire chain” (Lee 2004, 112).

Key success factors of business relationship

The right type of business relationship

Scholars have studied and explained types of business relationships in several different ways. Jespersen and Skjøtt-Larsen (2005) have identified 4 levels in Supply Chain cooperation (see figure below), determined by the degree of supply chain complexity and type of supply chain relations. The conclusion drawn by the author's is that the higher level of integration of business relationship correlates positive with increasing competence and payoff.

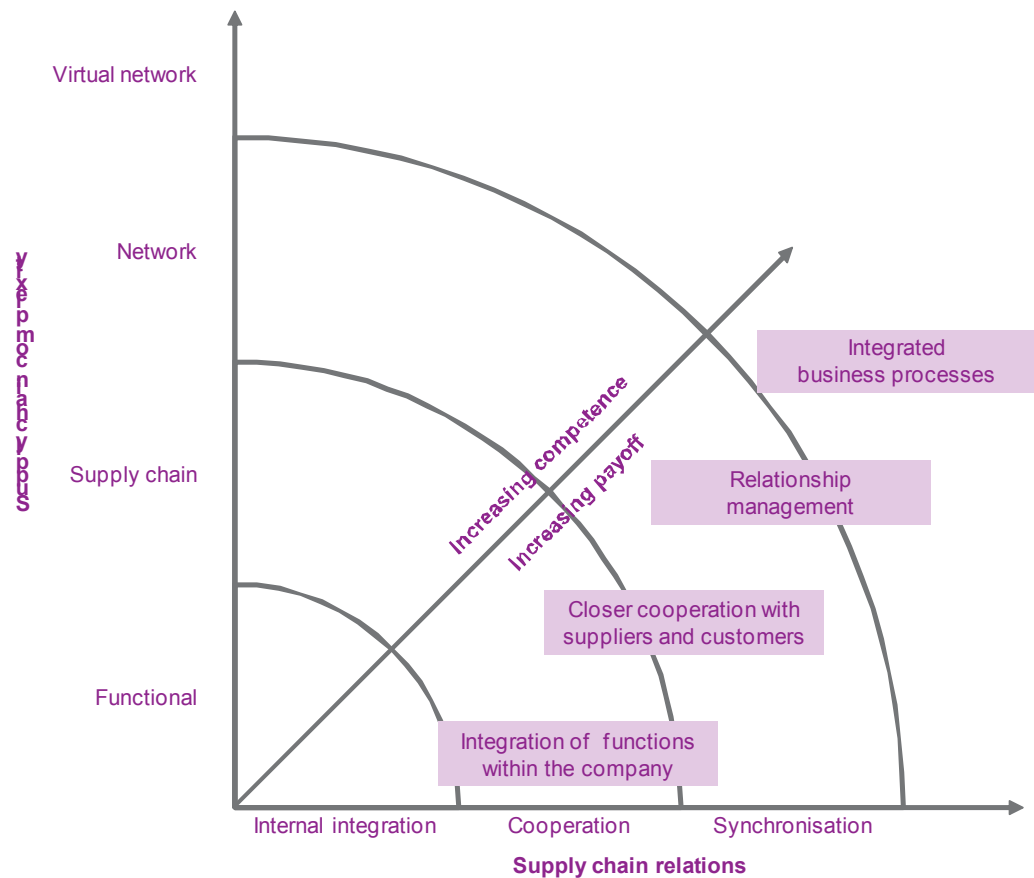


Figure 12 Integration levels in SCM cooperation. Source: Jespersen and Skjøtt-Larsen, 2005.

Level 1 includes integration and cooperation within the company at an operational level. Whilst level 2, also establishes more long-term cooperation with a few set of strategically important actors. Level 3, expands further and emphasis on activities close the actors core competence, and involve suppliers in product development processes to exploit their knowledge and competence. The highest level also includes binding investments in addition to information sharing. The boundaries between actors are fuzzy and all technology is integrated. However, it is important to highlight that supply chain integration will always be contingent on the specific situation, and the goal is not to have all business relationships at level 4. But rather for business relationships in a supply chain to find their best fit.

A comparative case study from the textile industry conducted by Romano and Vinelli (2001) on “Quality management in a supply chain perspective” compared how two different types of supply chain integration meet end-customer expectation. One case is managed with a traditional customer-supplier approach, which characterized by integrating upstream with the suppliers for production, and

downstream with the distribution chains. The other approach researched had a “coordinated” approach, where partnership with the actors in the supply chain: thread suppliers, textile suppliers and main customer. Coordination of the supply chain meant use of: communication/ decision/ negotiation mechanism, integration and information systems.

The research discovered that highly coordinated quality management practices are important in order for the supply network to “operate as a whole system” and add value for the final customer. The researchers also highlights’ that: ideas, suggestions and experiences of every actor should be shared and considered. The study concur with Gripsrud et al. (2006), and describe the final result of a coordinated supply system as where every “piece of clothing” is the sum of the different operating stages, carried out by legally separate firms, the competitiveness of which on the market is unique (Evans et al., 1993 in Romano and Vinelli 2001).

Furthermore, Harland’s (1996) research on different approaches to supply chain management identified also friendship-relationship (a long-term business relationship) and trust as highly important characteristics of business relationships. In cases where inter-personal relationship and trust with the supplier were non-existing, there was little evidence of socializing between the actors outside work. Also, in cases of “sold-out”, the customer would typically try another supplier until the product was back in stock. Moreover, the customer did not rely on the suppliers on technical information or advice. On the other hand, business relationships that relied on friendship relationship and trust also socialized outside work. The customer also trusted the supplier to find sub-suppliers in “sold-out” situations and the suppliers were also seen as providers of support and technical advice.

Jespersen and Skjøtt-Larsen (2005) have identified especially 2 specific characteristics of business relationships in addition to characteristics’ of the business relationship that they found most important in a successful supply chain. Trust and commitment, and frequent and reciprocal information exchange among actors are characteristics of a business relationship, in which ultimately “will become a decisive competitive advantage”.

Trust and commitment

Like the previous industrial network chapter already has identified: network perspective is “characterized by social embeddedness where norms for collaboration and participation in the network are key features for the network’s competitiveness.” (Huemer 2006, 139) But, network literature also emphasis on the importance of development of trust and reciprocity within business relationships, and that this is becomes easier in an integrated supply chain (Jespersen et al., 2005). Moreover, literature further argue that mutual trust amongst actors in the supply chain is very important in order to achieve a long-term cooperative and integrated relationship, and hence ultimately improving supply chain performance (Gripsrud et al., 2006, Huemer 2006)

“A mutual belief in the importance of collective goals or common interests means relational norms such as trust will play an important role in successful coordination.” (Huemer 2006, 139)

In coherence Takeishi et al., (2001)’s review found that “many auto industry studies showed that effective supply chain management, which has been most often observed in Japan, involved close, trusting relationships with long-standing suppliers. Moreover, long-term relationship with suppliers is likely to increase the degree of trust and commitment. (Gadde et al., 2011, Jahre et al., 2006, Dyer et al., 2000, Nonanka 1998). Likewise, suggests Lee (2000) that openness and sharing of common visions and objectives increases the organizational relationship linkages between actors.

Information exchange and communication

Literature argues how information flow has great influence on the supply chain effectiveness, since information exchange between the actors in the supply chain is “decisive if the development and adaption of cooperative resources and goals are to become possible.” (Jespersen et al., 2005, 139) Supply chains involves several activities with different types of actors, and therefore supply relationship efficiency is achieved through tight coordination based on information sharing through for instance sharing of design and manufacturing data and forecasting an delivery data between relevant actors in the supply chain. (Jespersen et al., 2005,

Romano 2003 and Gadde et al., 2002) Ideally, these types of information are available to all relevant actors in the supply chain.

Also, Lee (2000) (described in Jespersen and Skjøtt-Larsen (2005)) states that supply chain collaboration is dependent on the degree of information integration in business relationships, he refers to sharing of information and knowledge between actors in the supply chain. It is important to appreciate the different knowledge, capabilities and competence of other actors. Initiate platforms for network learning or have close communication, for training and knowledge transfer, which employees only learn through observations and training, (Nonanka 1998), where potential misunderstandings can be discussed and solved quickly, without creating too much difficulties as it would without a platform of communication.

3.2.4. Key takeaways from business relationships in NPD and SCM

Based on the literature review of business relationship, we believe that business relationship characteristics are in fact very similar in NPD and supply chain theory. Both of NPD and supply chain literature describe drivers and key success factors.

We find the drivers to be similar but named differently; Project effectiveness in NPD considers the production costs and the quality of the finished product perceived by the customer, whereas supply chain responsiveness focus on fulfilling customer demand that includes lead-time, but also the overall customer satisfaction, that ultimately are dependent on the quality of the product.

Efficiency is a driver for both; NPD emphasizing on all the costs and lead-time directly connected with the product development. On the other hand, supply chain efficiency are explained by all the supply chain costs. Interestingly, the efficiency of NPD and supply chain is different, but in both cases efficiency is highly dependent on the supplier(s).

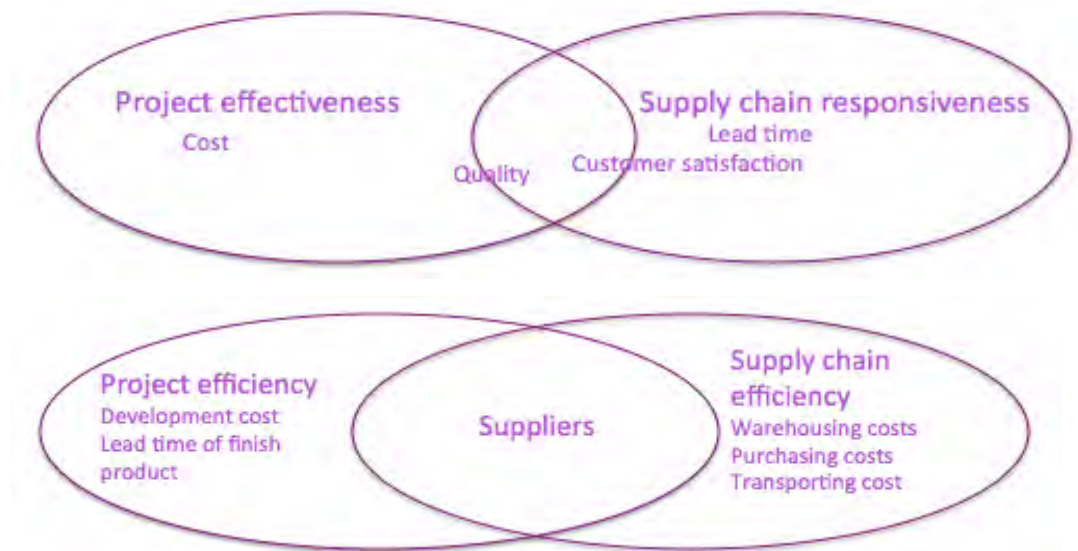


Figure 13 Drivers of business relationships in NPD and supply chain. Source: Authors' own.

Key success factors of NPD and supply chain are more alike and have a lot of the same objectives. Both NPD and supply chain literature emphasis on the importance of the right type of business relationship; which in NPD concerns how to involve the suppliers and in the supply chain how to coordinate all the actors in the supply chain. Therefore, it is important to consider factors of the situation, in order to find the right business relationship. Moreover, trust and commitment, information exchange and communication are common key success factors. In NPD these are important to develop a quality product by utilizing all the resources available. Whereas, supply chain performance and the actors competitiveness are dependent on the success of inter-business supply chains, -business relationship amongst actors.

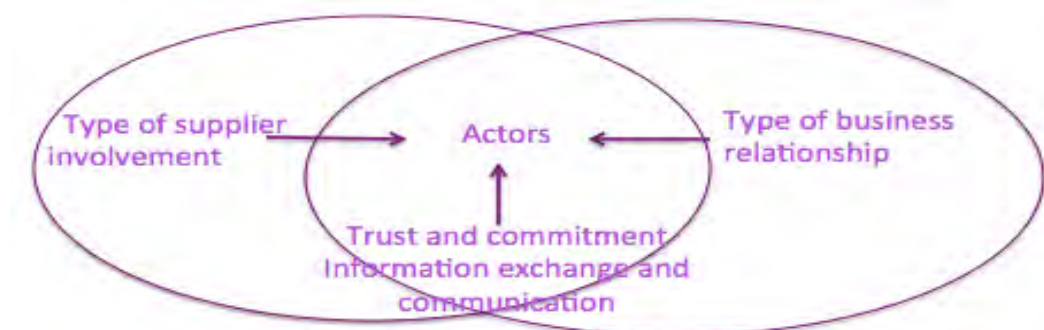


Figure 14 Key success factors of business relationships in NPD and supply chain. Source: Authors' own.

Consequently, as we found drivers and key success factors in both NPD and supply chain, we are able to analyze the complete WASH kit network and analyze at the similar drivers and key success factors jointly.

3.3. Conceptual framework

Our literature review has given us perspective and ideas on in what topics might affect business relationships in humanitarian networks. All of the topics presented in the table below will further be explored in our thesis.

We added two sub-questions in order to lead the further research of our thesis. The sub-questions are more detailed and distinct from each other and therefore allow us to collect data more efficiently by using two distinct techniques. The first sub-question will help us form the agenda for the focus group we will conduct. The second sub-question forms the interview guide for the semi-structured interviews.

The sub questions we want to answer are the following:

- What are the main features of the WASH-kit network?
- What are the business relationship characteristics, such as the drivers and key success factors in NPD and in the supply chain?

In general we see from the literature review that although some literature exists on the issues of coordination of actors in the field, and on the major importance of the preparedness phase: there however seems to be a gap in the literature on coordination among actors in the preparedness phase. In order to fill this gap in literature, we want to research the characteristics of business relationship among actors in an international humanitarian assistance network that usually involves a process consisting of both NPD and thereafter supply chain.

Literature on business relationships offers concepts for understanding business relationship through ARA in addition to important characteristics such as drivers and key success factors.

The conceptual framework for our thesis is presented in the matrix below.



Figure 15 The conceptual framework for our thesis. Source: Authors' own based on the literature review.

4. Case presentation

4.1. Introduction

In this section we will present the findings related specifically to the case study of the WASH kit. These findings are based on two field observations (Geneva and Roa) as well as the focus group we conducted. In addition, certain parts of the interviews will be presented here as well.

The field observations were conducted in order to observe the entire network as an entity, as more or less all the relevant actors would attend. We also wanted get an overview of the process of the WASH-kit, and get to know the different actors.

The focus group was conducted mainly to manifest what we had heard during the field observations regarding the process. We also wanted to gather the actors to be able to observe group dynamics and cover potential gaps in our own understanding. It was crucial for the thesis that all actors were represented in the focus group, as we wanted to cover the process from all aspects and viewpoints. All the participants are currently or have been a part of the WASH kit network, and hence involved in the process. Based on our literature review, we created an agenda for the focus group, which we structured into four main parts (see appendix 1 for focus group agenda). We divided the process of the WASH kit into new product development and supply chain, both which are based on the ARA-model. This was used in order to get a general overview of the business relationships between the actors and was based on the WASH-kit network and its actors, resources and activities.

In this section we will firstly present our findings on the WASH-kit itself such as what it consists of and how it works. Then, we will present the case study findings from the data collection based on the ARA model; Actors, Resources and Activities.

The following section - section 5 - will cover the analysis and discussion with regards to business relationships in the process, particularly using the findings from the interviews, supported by findings from the field observations and the focus group data collection.

4.2. The WASH-kit

The WASH kit closely fits the specifications outlined in the Global WASH Cluster Emergency Materials Project. The project has the aim of placing the right materials in the right place, and in time. Each kit has a capacity to provide for approximately 5000 people and consists of three main product categories: water, sanitation and hygiene (See appendix 4 for Category Equipment Catalogue for specifications). The objective of the kits content is to

- Clean and distribute water (Water)
- Establish sanitary capacities and prevent waste spreading (Sanitation)
- Train personnel and distribute items for personal hygiene which also prevent infection (Hygiene)

The WASH cluster and UNICEF have conceptually developed the kits in collaboration with NCA, as a development from and combination of the already existing WATSAN products. The kits are developed by Sphere-standard specifications.

There are approximately 60 different items in each kit, most of which are provided in multiple numbers, i.e., eight water pumps, two tank transport bladders etc., a total of 187 items. The products are for example faucets, water purification equipment, hygiene promotion kit, bars of soap, plastic toilet facilities (squatting plates), water testing kit, as well as the necessary tools to assemble each single part.

Additionally added into the kit are different standards for some of the equipment, i.e., the fittings for the hoses used to fetch water from rivers/lakes etc. These are meant to accommodate all the different organizations in the field that might get use of the kit, as actors such as IFRC, UN, MSF all have their own German/English/French systems to be attached to. Another part of the kit is a hygiene promotion kit with the intention of hygiene awareness in the field. For instance, the promotion kit contains educational coloring books for children,

banners, bright color crayons etc., all meant to increase awareness. Thus, the WASH-kit contains *all* necessary products delivered as one complete package.

Below follows a few pictures of some of the products part of WASH-kit content. The items are the following;

Picture 1: Several of the kit-parts are boxed together for practical reasons. The boxes are earmarked with NCA's logo. There are discussions on whether the logo should or should not be on the boxes.

Picture 2: Buckets. There are currently 2000 buckets in a WASH-kit. The purpose of these is for individuals to carry water from point A to point B.

Picture 3: Water purification equipment. This is a technical pump that purifies surface water and generates drinking water. There are discussions on the development of equipment that can purify sea water (salt) as well.

Picture 4: Different standards for fittings, used on of water hoses. As mentioned, different humanitarian organizations in the field have their own equipment, and the purpose of sending multiple fittings is that any organization can take them into use for their respective equipment standard.

Picture 5: Hoses for water transportation that can be used to fetch water from lakes and rivers etc.

Picture 6: Bars of soap with the purpose of individual personal hygiene.

Picture 7: Hygiene promotion kit containing items for increased awareness of hygiene as explained above.



Picture 1: Parts of the kit boxed



Picture 2: Buckets



Picture 3: Water purification equipment



Picture 4: Different standards of fittings Picture 5: Hoses for water transport



Picture 6: Bars of soap

Picture 7: Hygiene promotion kit

All of the products in total fit into a 40 feet container with a total weigh of approximately 10 000 kg. The water purification equipment is able to 95 % of all

surface water with a capacity of purifying 4000 liters per hour. The kit is currently stored in strategically located warehouses such as Oslo, Spain, Dubai, Malaysia and Panama, managed by the UNHRD. At the present time the kit is provided both in the Philippines (3 kits) and in Syria (2 kits). The supplier guarantees delivery within three months within order date. From the point of arrival the supplier also guarantees clean water on day two.

4.3. Actors

There are several important actors that contribute in the WASH-kit network; both in regards to product development and also the supply chain. The actors directly connected with the WASH kit are few, however but of great importance. It has become evident that due to the WASH- kit's characteristics and complexity, quite a large number of actors is involved and necessary in order to be able to cover all the aspects of the NPD and the supply chain in this network.

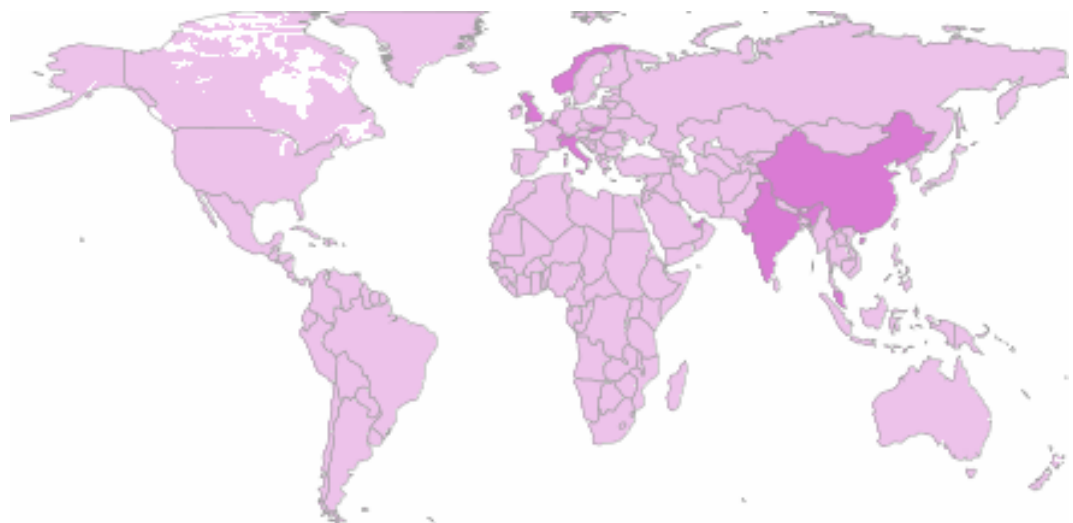


Figure 16 The WASH-kit network. Source: Authors' own.

We have identified the actors listed below as the key actors both influencing and contributing to the network surrounding the WASH kit.

Norwegian Church Aid (NCA)

NCA provides emergency assistance during disasters and work for long-term development in local communities. The organization has three main focus areas; emergency preparedness and response, long-term development aid and advocacy.

“We provide emergency assistance in disasters and work for long-term development in local communities. In order to address the root causes of poverty, we advocate for just decisions by public authorities, business and religious leaders.” (NCA 2008)

Norwegian Church Aid was begun in 1947 as a small fundraising drive by Norwegian churches. Today NCA is one of the Nordic countries largest International humanitarian assistance actors, having 138 employees in Norway and 768 worldwide. NCA is also a member of the ACT alliance, one of the world's largest humanitarian alliances, working to create a positive and sustainable change in the lives of poor and marginalized individuals.

Norwegian Church Aid objective is to strive to deliver the required aid at the right time, and provide the support that is most required at any given time. In addition, NCA strive to strengthen the ability of the local communities to handle crises and preserve their dignity. Norwegian Church Aid's emergency preparedness division coordinates and directs such effort.

NCA specialize in water, sanitation and hygiene, psychosocial work and logistics and procurement. NCA purchases the WASH kits, hence giving them the owner position in the network. They have a long-term contract with the supplier of WASH kits, which is based on industry standards and product specifications. Since 2010 NCA has played an essential role in the WASH-network, contributing to the cluster's initiative of improved and standardized WASH kits. Furthermore, in an emergency situation, NCA staff (usually WASH engineers) can be dispatched to the field instantly. Also, the team can enlist extra personnel from a separate emergency roster, meaning that extra resources are available when the need arises.

In our focus group Harald Glevoll and Luke Dokter represented NCA, although Luke Dokter has past experience from the supplier side as well.

Name: Harald Glevoll

Organization: Norwegian Church Aid

Experience: The Norwegian Army

WASH since: 2010

Bio

Harald is Advisor for International Logistics in the Norwegian Church Aid, a position he has held since 2007. He has broad international experience regarding logistics and crisis management during emergencies, as well as experience from United Nations peacekeeping missions from his time in the Norwegian Army. Harald has been involved in the WASH project since 2010.

Name: Luke Dokter

Organization: Norwegian Church Aid

Experience: Engineers Without Borders
Norwegian Red Cross
A-Aqua
GWC

WASH since: 2007

Bio

Luke is an experienced engineer with expert competence within water and sanitation. He has extensive experience with disaster management from various organizations. He has represented NCA in the development of the WASH kit content within the WASH-cluster.

Lunner Produkter (LUPRO)

LUPRO is a Norwegian manufacturer, which was established in 1992 to provide work to “persons who suffer from disabilities and thus would face several challenges entering the labor-market, locally as well as nationwide” (LUPRO 2013, “About LUPRO”). Lunner Produkter is a total supplier of products such as; tool kits, WASH kits, fuel tanks in different sizes, body bags for different use such as disasters and transportation, and goods protection pads. LUPRO contributes with positive local activities such as operating and running a second hand store and waste disposal station.

The company has around 20 employees, where a large number of the employees are persons who suffer from disabilities and thus would face several challenges entering the labor market, locally as well as nationwide. LUPRO has also played an important role facilitating apprenticeship, and also hosting students who would like to have practical training for a limited period. LUPRO has since 2003, been a local partner to Norway’s major employer organization (NHO) in providing structured and relevant schemes for students practicing with LUPRO.

LUPRO supply non-governmental organizations (NGOs), such as NCA and Norwegian Red Cross with products, hence giving them the supplier position in the network. LUPRO produces some of the components for the kit internally, but also purchase the major part of the components used to produce the WASH kit. They use both Norwegian and international sub-suppliers from for instance countries like India and China. Since 2010 LUPRO has supplied NCA with several components for the kits and in 2013 they become the one-stop supplier, having won a three-year contract with NCA, ensuring procurement and production of components, packaging and logistics of the kits.

In addition to production and packaging, a large part of the work that LUPRO does includes procurement of products from several sub-suppliers worldwide. LUPRO uses 12 individual main sub-contractors for the WASH kit, for different type of products and components (see appendix 5). These products are very important for the WASH kit, hence LUPRO are heavily dependent on their sub-suppliers. Consequently the sub-suppliers are essential for ensuring delivery on

time. The delivery time estimate from the sub-suppliers to LUPRO, is ranging from 1 to 8 weeks, whereas UK sub-supplier PALINTEST (water test-equipment) and Norwegian supplier FISKARS (tools) require 1-2week and Indian sub-supplier Priyanka (Towels/buckets/soap) requires up to 10 weeks.

Name: Steinar Langedahl
Organization: LUPRO
Experience: Scandinavian Water Technology
WASH since: 1990s

Bio

Steinar has over 20 years experience with logistics and since 2006 he has been the Chief Operating Officer for Aid & Development at Lunner Produkter AS. Prior to this he held a similar position at Scandinavian Water Technology AS for 13 years.

Name: Stein Midtlund
Organization: LUPRO
Experience: A-Aqua AS
 Scandinavian Water Technology
WASH since: 2007

Bio

Stein is the Export Manager at the Aid & Development section at Lunner Produkter AS. His specialties are water and sanitation, where he has over ten years of experience and he is a trained delegate from the International Federation of Red Cross and Red Crescent Societies in the field.

Norwegian Emergency Response System (NOREPS)

NOREPS is a partnership between the Norwegian Ministry of Foreign Affairs, the Directorate for Civil Protection and Emergency planning, the Norwegian Red Cross, NGO's and Norwegian companies, that enables and facilitate an active forum and partnership. NOREPS was established in 1991 in response to the great number of humanitarian emergencies of that time and the lack of adequate standby emergency response capacities between UN and other international humanitarian assistance organizations.

NOREPS prepare for international humanitarian disasters by ensuring and improving propositioning of relief items in international warehouses and fostering innovative solutions responding to the demands of the UN and the humanitarian agencies. (NOREPS 2014) The area of expertise is water and sanitation, shelter and protection, health and communication (NOREPS 2013).

Moreover, the NOREPS thus network prepare for disasters by establishing and facilitate close relations and access to products, service packages and personnel between the different actors in the network (suppliers, NGOs, UN agencies and the Norwegian government). In the WASH- network they function as the facilitator between the actors, especially between NCA (the customer) and LUPRO (the supplier).

“...an unique Norwegian network where businesses, governments and NGOs constitute an active forum and partnership, administered by Innovation Norway. The service includes marketing consulting to individual companies as well as a number of joint initiatives in terms of marketing and sales trips, theme meetings, newsletters and participation in key meeting and networking sites” (NOREPS 2014)

NOREPS is also the principal for the research we conduct in this thesis.

Name:	Vidar Ellingsen
Organization:	NOREPS
Experience:	Innovation Norway UNPD Accenture
WASH since:	2010
Bio <p>Vidar serves as a special advisor and is the manager of NOREPS. He holds extensive management and logistics/procurement experience from seven years at Accenture, followed by seven years at the United Nations Development Programme.</p>	

UNHRD (UN Humanitarian Response Depot)

UNHRD has emergency response storage facilities placed in strategic locations. The main goal of UNHRD is to ensure more rapid deployment of physical and/or virtual stocks during disasters and realize cost-savings through pre-positioning or dispatching of the most urgently needed humanitarian assistance to the disaster locations (UNHRD 2013). In 2010 it was decided that the WASH-kits were to be stored at UNHRD two global storing facilities in Dubai and Subang, Malaysia. At this point of time, UNHRD store the WASH kit in Birindsi, Italy, in addition to Dubai and Subang. (UNHRD 2014)

The Global WASH cluster (GWC)

GWC is an open and formal platform where humanitarian actors to work together to evaluate the WASH kit and address key weaknesses in the WASH sector as a whole. “The purpose of GWC is to ensure the predictability, timeliness and effectiveness of a comprehensive WASH response to all humanitarian crises.”(Global Wash Cluster 2011) GWC is designed to facilitate the achievement of this purpose in a transparent and efficient manner. GWC is responsible for establishing partnerships and facilitate activities in areas such as;

standard and policy setting, building response capacity and operational support (Wash Cluster 2012). The cluster is the key initiator behind the decision of merging water, sanitation and hygiene products into a single kit, a development of the already existing WATSAN.

The Global WASH Cluster (GWC) was formed in 2006, building upon the successes of an existing Water, Sanitation and Hygiene (WASH) humanitarian sector working group (Wash Cluster 2012), mainly managed by UNICEF.

A-aqua, (earlier Scandinavian Water Technology)

A-Aqua is a Norwegian manufacturer, and was a sub- supplier to the WASH kit from 2004-2008, at which some of the time they operated under the name ScanWater. They supplied some products to the WASH Kit, together with other sub-suppliers such as products in the water category.

4.4. Activities

Activities of a company can be connected in different ways to those of another company as a relationship develops. A network analysis of the activity layer shows opportunities for how to reconfigure activities and thereby for achieving productivity in the chain of activities. Looking into the activities as they manifest themselves throughout our data collection sessions enables us to map the WASH-kit network as a whole. According to theory activity links regard technical, administrative, commercial and others, and in the following section they are presented specifically for the WASH-kit network.

The WASH kit process

After having conducted extensive data collection we have attempted to draw up the process of the WASH-kit we see it. The timeline starts in 2005, as that was the beginning of the concept of WASH as a total kit, although much of the content of the kit was developed almost a decade earlier, and provided through WATSAN; a kit not containing hygiene items. The figure is meant to give a general overview of the entire process; clearly the process is in reality highly complex and contains loops and overlaps. We wish to illustrate the simplified version of reality here.

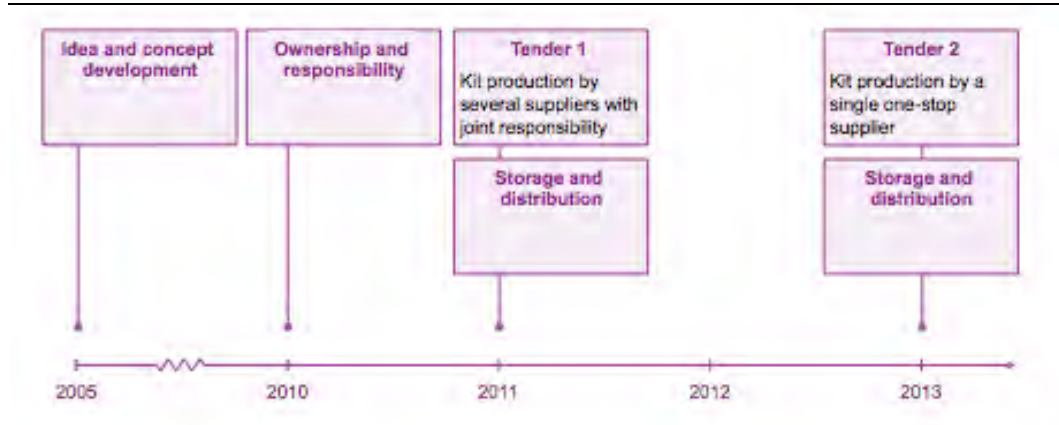


Figure 17 The process of the WASH-kit. Source: Authors' own.

Idea and concept development 2005 - 2010

The very first discussion during the focus group was when “the dawn of time” really was. It was evident that the participants did not share a collective impression of a strictly linear development, but rather had different opinions of the timing of development phases. This has most likely to do with the fact that the different actors joined the process at different timings. For instance, Steinar Langedahl, COO at LUPRO expresses that “much of the technology for purifying water today, has actually been in existence from the early 1990s, when I was part of the Scandinavian Water Technology team, developing the same technology that is used in today’s WASH-kits”.

Furthermore, NCA explains that the development of the WASH concept has been in the loop for many years, and the initiation of including hygiene products to the existing WATSAN kits started in 2005 by the WASH humanitarian sector-working group (from 2006: The Global WASH Cluster). Until this time the storages of these items functioned as a picking facility, and the organizations assembled specific kits according to specific emergencies. The IFRC also had an initial role in the kit development through their previous expertise in providing water and sanitation products to emergency areas. Through collaboration in the WASH-cluster, early versions of the kits were established, although not standardized.

“The majority of the products in the kit already existed, it was now just a matter of matching the right products to one another and making a complete kit. Before, I would sign off on specific items I wanted added, and they (ed. Note: at the

picking facility) did not always want to comply with my suggestions, because the packages were meant to be sent out quick, not spending time on optimizing them. Therefore we (ed. Note: NCA) now wanted to see an optimized, standardized version of a complete kit that covered basically all needs. If they (ed. Note: in the field) didn't use 10%, well then they didn't use 10 %, but that's not such a big deal compared to the need you would meet with the kit" (Luke Dokter, WASH-engineer, NCA)

At this time, it was also highly emphasized by Humanitarian Logistics Coordinator in UNHRD that the standardized kits were "a gap in the shelves" (Harald Glevoll, NCA). Around 2007 it had been expressed a need to fill the gap of standardized and complete kits, containing all three major types of components, prepared in advance and ready to be shipped to emergencies.

The next steps included activating NOREPS' role. In 2010 there was an active collaboration with the cluster in order to look for new innovations to make the standardized kits happen. At this time Innovation Norway and NOREPS started looking into funding and storage possibilities of the WASH-kits and established contact with UD (Utenriksdepartementet – Department of Foreign Affairs) and UNHRD. It was decided that UNHRD two global storing facilities would host the kits in the beginning, respectively in Dubai and Subang in Malaysia, as these were considered central locations for global emergencies.

Both the buyer and supplier explain that the NPD process interestingly was to some extent consistent with the theory presented in our literature review; the WASH kit process consists of several steps, over a long period of time. But rather, instead of one company having the responsibility of the phases in NPD, the buyer (NCA) explains that their role as a "product owner" started later in the process (2010) (as the literature review explains) after idea and concept development from the WASH Cluster is concluded.

This process of developing the WASH kit was described as "coming to a stop" after the WASH cluster had developed the idea, made the technical assessment and outlined the product concept specifications. The reason behind this was that it was up to the humanitarian organizations to take this further, however as this

demanded resources. NCA was the first humanitarian organization taking the WASH kit to the next phase by taking ownership and responsibility for its development and production

Ownership and responsibility 2010 - 2011

As we can see from the process figure above, it took quite some time between WASH was developed as a concept with full product specifications until it was clarified who would take responsibility to actually produce and distribute the kits. In 2010, NCA stepped up and took ownership and responsibility as the key provider of WASH-kits.

“He (Luke Dokter) was a member of the WASH-cluster with UNICEF at this time, and they had started looking into the configurations of a predefined package to be utilized in most immediate emergencies. Luke, who was at the time also employed as WASH-engineer at NCA, initiated the systemization of the kits” (Harald Glevoll, NCA)

The next step was to look into potential suppliers based on the more or less full product specification (see appendix 4 for extract of Emergency Equipment Catalogue), made by a collaboration within the WASH-cluster, edited by WASH-engineer Luke Dokter and others at NCA. At this time there were only a few one-stop suppliers with capacity to produce the content of the kits. NOREPS stepped in to support NCA in finding the right suppliers through their network and portfolio. By looking for suppliers who were “willing, able and ready”, NOREPS contacted all relevant members of their portfolio, announcing that NCA had been awarded 7.5 M NOKs by UD and NOREPS mainly for procurement and storage of 10 WASH-kits and were now looking for suppliers (source: mail sent out from NOREPS to member companies in spring, 2011).

Tender 1 2010- 2011

Through the NOREPS portfolio NCA started looking for domestic suppliers as well as international ones, in case the domestic ones did not have the capacity to develop the entire kit in total. At this time the product specifications used for the kit were basically identical to the one provided by the WASH-cluster earlier and edited by NCA. Only minor edition were made continuously, as the fundamental

technology was in place. A tender was sent to four international suppliers; two English ones (Oxfam and Butyl) and two Norwegian ones (ScanWater (later A-Aqua) and LUPRO). A collaboration of the different four was set in place in order to put together the kit. 60% of the order went to the domestic suppliers and 40% to the English ones.

“Everyone had the same specifications with regards to size and packaging, and this was done on the four first kits produced. For the second order we (ed. Note: suppliers) got permission to think more for ourselves. We then re-packaged so the content fit a container more optimally.” (Steinar Langedahl, LUPRO)

The product specifications had not been provided to the suppliers (LUPRO) as an absolute demand, it was open for discussion and alteration. As mentioned previously, the fundamental technology was in place, but several minor editions were made throughout the process and are still made today. The major changes during the process did not have to do with the actual products, but rather the packaging and the logistics aspect of the kit. During the second order of kits (aka kit number 5) the suppliers decided more of the packaging and systems within the container kits, i.e. by finding their own sub-suppliers.

“As long as the end-product contains the necessary specifications, we’re basically free to do as we see most fit” (Steinar Langedahl, LUPRO)

Tender 2 2012

Product specifications are continuously being edited by LUPRO based on their experiences with humanitarian logistics in the field, as well as their expertise with the WASH products. NCA continuously makes minor suggestions and editions to the product specifications as well. Most edited parts have been edited in minor ways, where the customer NCA can barely notice a difference, such as switching from one supplier for squat-plates to another. In other cases such as with the test-kits, the suppliers explain that larger alterations have been made.

After this tender was sent out, LUPRO won the tender and in early 2013 signed a three-year contract as the sole supplier of WASH to NCA. All of A-Aqua’s responsibility regarding the kit was sold to LUPRO and they became NCA’s one-stop provider.

Other activities

The participants described in the focus group that they have a continuous, open communication, where “you can just pick up the phone and ask your questions” (Harald Glevoll, NCA). The customer, the supplier and the facilitator explain how they have certain gatherings almost monthly, and how they also often see each other at collective gatherings, as they are all part of the same tight industry. NOREPS furthermore also focus a lot of energy on continuously informing and keeping their portfolio member companies in the loop on different happenings, and continuously communicate to both parts by i.e., sending out joint newsletters to everyone in the network.

4.5. Resources

Finance in humanitarian logistics has a different objective than in commercial logistics. Rather than to make money, the objective is to provide the best possible products and services while at the same time keeping costs at an absolute minimum. Moreover, resources in the world of humanitarian assistance, as in the commercial world, exceed merely financial funding. It includes the combination of goods and services exchanged (products), tangible artifacts such as production equipment, storages and trucks (facilities), human resources such as departments or divisions, or even individuals which incorporate knowledge and skills, and also includes routines embedded in the firm (organizational units) and expectations and memories within (inter-organizational relationships). In the network of the WASH-kit we have witnessed that some of the most valuable resources are in fact intangible. Experience in the field and common sense weigh heavy in developing the best possible kit for emergencies.

As NCA is the customer in this network; one obvious resource is finances. They purchase the kits from their suppliers, and distribute them to emergency areas. Beyond this traditional resource, NCA and the other actors in the WASH-network possess many other resources.

Products

LUPRO is the main provider of products in this network. In many cases they have developed the technology that is used in the kits, such as the water purification

equipment. In other cases, they order components, parts and full products from sub-suppliers. They are also responsible for the packaging of the kit as a whole, and thereby responsible for the end product.

Facilities

LUPRO is also the main provider of the facilities in the network. They have the equipment for production of many products in the kit at their head quarters in Roa, Norway. Additionally, LUPRO stores some of the products temporary in a specially made cooling area at the HQ.

UNHRD is responsible for the storage of the total kits. These storages are placed in different strategic locations in the world, where the kit stands ready for deployment. The storages per today are located in Dubai, Subang, Malaysia and Birindsi, Italy.

Organizational units

Within NCA

Another resource NCA has is the competence to distribute the WASH-kit, as they have several years of experience as a humanitarian organization providing humanitarian assistance in emergencies. Furthermore, their position in the industry contributes to the organizations ability to deliver products efficiently and effectively.

During the time they had Luke Dokter employed, they also had a great deal of WASH specific technical knowledge as a resource as well, however, after he left it almost seems as he took most of NCA`s technical knowledge with him.

“After Luke left NCA it took us some time to be able to answer some of the very technical issues. It was clear that if something came up, Stein for instance would have to figure that specific issue out. We have thereby had a great deal of knowledge transfer among the group, especially in this time. They (ed.note: the suppliers) had had most of their technical discussions with Luke, the WASH-engineer, and not the rest of us at NCA” (Harald Glevoll, NCA)

As a result, NCA has employed 5 new engineers during 2014 to improve the gap in technical competence they might feel they have experienced the past years. They are also currently expanding their team by employing several WASH-specific engineers to their team.

Within LUPRO

As the supplier in this network, one obvious resource is the technical skillset. However, the supplier's skillset in this case goes beyond book-learned skills, but includes also skills acquired through years and years of experience working with the product both with technical and logistical development and through experience from the field.

Within NOREPS

As NOREPS key role in this network is to facilitate, one obvious resource is their capabilities as a facilitator. For many years, NOREPS has focused on matching Norwegian suppliers with customers both domestically and internationally.

“Being the link between the organizations and the companies (ed. Note: member companies in their portfolio, i.e., suppliers) has been the role NOREPS wants to fill. To see how the resources within the companies can be extracted to its fullest, since suppliers often have extensive experience and knowledge to the product itself” (Vidar Ellingsen, NOREPS)

Inter-organizational relationships

There are clear inter-organizational relationships in this network, particularly between NCA and LUPRO, NCA and NOREPS and NOREPS and LUPRO. Additionally, there are relationships between LUPRO and their many sub-suppliers.

Between NCA and LUPRO there exists relationships that have lasted for many years. Harald Glevoll and several other employees at NCA have been acquainted with Steinar Langedahl at LUPRO for many years and thereby developed a set of memories and expectations to his work as a supplier.

Between NCA and NOREPS, the relationship has also developed over several years as NCA has been a member of the NOREPS company-portfolio. The same goes for LUPRO. In addition, several of the employees in the different companies in this network have continuously changed positions between them. For instance, Steinar Langedahl was previously employed in ScanWater, which later became a part of A-Aqua, before he changed positions to LUPRO in the more recent years. Luke Dokter, now employed in A-Aqua has previously been employed by NCA and has been a part of the development of WASH-kits since the beginning. These positional changes within the firms have set the stage for certain expectations of the work delivered by each party.

5. Analysis and discussion

The purpose of this section is to analyze and discuss our research, based on the literature review in chapter 3 and the case study findings presented in chapter 4. We will first present the main characteristics of the WASH-kit network, consisting of the activities, actors and resources and discuss the findings in the light of theory. Secondly, we look at business relationships in depth and discuss the drivers and key success factors, based on the literature review and the empirical findings. Finally, we will provide an overall conclusion to our main thesis research question: Which business relationships exist in humanitarian logistics and how can these be exploited?

5.1. The WASH-kit network

From the literature review we see that although much literature exists on coordination in the field, and on the major importance of the preparedness phase, however there seems to be a gap in the literature on coordination in the preparedness phase. We have therefore attempted filling this gap by thoroughly researching the business relationships in the WASH-kit network in order to be able to see how actors work together in preparation for emergencies. To be able to research the network, we are also looking into the activities and resources, as we believe this will help to show the overall picture. The findings in this regard have been presented in detail in chapter 4, whereas the main points will be presented in this section with the purpose of discussing them in light of theory. The WASH-kit is a complex product, containing a large number of smaller products that in total needs to be delivered and assembled as fast as possible, so that all of the products can be put to use. Because of this characteristic, there exists dependence of a network in order to ensure development and supply. According to the network approach that view industrial markets as a network of relationships, we find our case study to in fact be a network of relationships between very different actors.

5.1.1. Actors

In the case presentation chapter (4) we saw that the WASH-network consists of several actors, all with very different roles. The different actors are the concept developer GWC, via the enabler and facilitator NOREPS to the customer NCA and the supplier(s) LUPRO (and A-Aqua in the past), as well as the storage responsible UNHRD. The actors have all entered during different timings in the process. Furthermore, instead of one company having the responsibility of all of the NPD phases, the buyer (NCA) explains that their role as a “product owner” started later in the process (2010) (as the literature review explains) after idea and concept development from the WASH Cluster is concluded. In general, most of the actors re-occur several times in the process, rather than having roles with distinct start- and endpoints, as illustrated in the figure below.

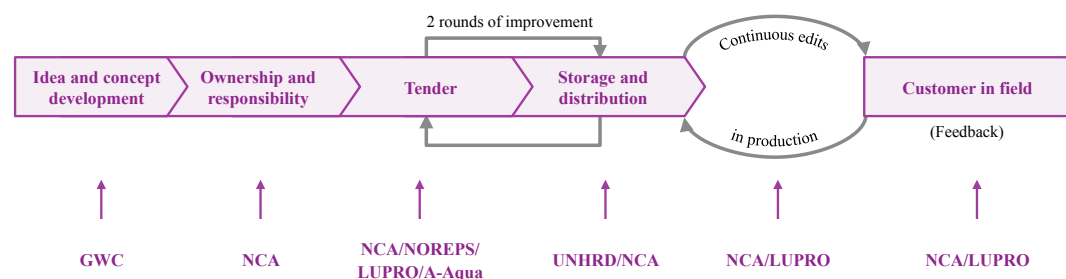


Figure 18 Actor appearances in the process (re-occurring). Source: Authors' own.

According to our literature review actors are defined as whole companies, units or even individuals that mobilize other actors and positions in the network through new and existing relationships. The role of NOREPS in this case is exactly this; they facilitate new and existing relationships and enable them to develop. Furthermore, the agreement between UNHRD and NCA regarding storage is based on an existing relationship as well. Even the relationships between the past suppliers ScanWater and A-Aqua and the current supplier LUPRO is based on existing relationships, as individuals in the different firms have known each other for a long time and even switched roles within the different companies.

The bonds in the WASH-network are created between firms through interaction and learning and the actors' identities are continuously confronted and adjusted accordingly, through continuous information sharing and communication. The

actor bonds in the WASH-network are created through conflict and cooperation around the products contained in the kit, power and dependence on one another as they need each other to fulfill the network and be able to deliver a best possible kit, as well as trust and commitment among the actors. As we can see, the reality of actor interaction goes much in hand with the theory suggested by Håkansson and Snehota 1995. The fact that this theory can be adapted to all types of business relationships, both in the commercial world and the humanitarian one, might explain the high correlation between reality and theory on this topic.

5.1.2. Activities

In order to be able to answer our overall research question, we firstly investigated how the process of the WASH-kit actually has evolved. We found out that the different companies in the network perform coordinated activities with others, as they are highly dependent on other actors and their activities, much in line with the theory presented on activities by Håkansson and Snehota (1995). Furthermore, we found that the activity links in this network consists of technical activities in terms of technical development of the items contained in the WASH-kit; and administrative activities in terms of coordination among actors in order to obtain the best possible kit for emergencies as well as funding and financing of the kits. In terms of commercial activities there are not particular efforts made to promote the kits to the public per say. However, we did find that the WASH-kits are up for this year's TV Aksjonen; an effort made to increase the awareness of issues regarding WASH in disaster areas of both man-made and natural types. The theory on commercial activity links is based on the commercial world rather than specifically the humanitarian one, which might explain the lack of typical promotion and marketing efforts, as we know them from commercial products. On the other hand, the TV Aksjonen will not only increase awareness, but also funding of the WASH-kits and thereby enable NCA to purchase and distribute more kits to different disaster areas in the world. The commercial aspect in that regard does resemble the commercial world's.

With regards to the process of development of the WASH-kit, we found out that it has followed a linear development in the beginning phases, but actually includes several loops and overlaps in the later phases. In the data collection sessions we

have discovered that the new product development does not ever come to a full stop, but rather loops back again through continuous improvements and edits of the products in the kit. Furthermore, we can see that in reality it is not a start to the supply chain when the new product development stops – the two parts of the process in reality overlap, as attempted illustrated in the figure below.

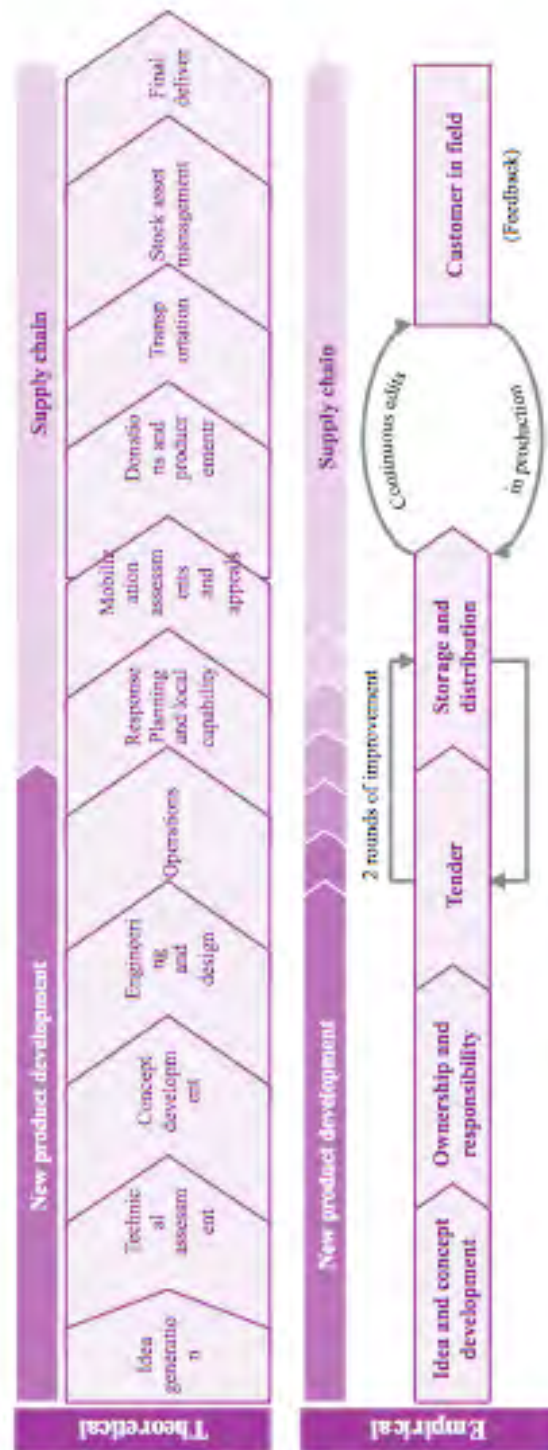


Figure 19 The theoretical process vs. The empirical process. Sources: Authors' own.

According to new product development theory there are distinct phases of development following each other in a linear matter. In the case of the WASH-kit we can see that the phases concerning idea generation and concept development indeed have been linear. However, then there were several rounds of improvements to the product specifications, and in fact continuous edits also after the product specifications had been concluded and the product tried out in the field. LUPRO tells us that minor edits to the different products actually are made after basically every field mission. This dissimilarity to the theory can be explained by the fact that the process of WASH has been an atypical process because of several reasons;

1) The “product” is in fact several products in a kit, and there is thereby not a simple process to explain the technical development of the product per se, but rather a reconfiguration of existing products.

2) Several of the products in the kit have been fully developed and have existed for many years i.e. the technology for cleansing water. It is thereby not a “new” product development.

5.1.3. Resources

We have seen in the case presentation that all the different actors in the WASH-network contribute with different resources. NCA has both the finances and the distribution skills as well as the position in the industry to act as the owner of the kits. LUPRO has the technical skills, knowledge and competence needed to produce the kit itself. NOREPS facilitates the relationship between the customer and the supplier, and also manage the funding.

According to our literature review, a single company does not possess all resources needed and it is necessary to recombine resources through interaction with other firms. We can see that in the case of the WASH-kit network resources this is quite in line with the literature. Looking into the resources each single actor possesses enabled us to discover the resources embedded in the WASH-network as a whole. As far as resources go, it is quite evident from the data collection that this particular network is quite dependent on knowledge transfer

among the actors. As the different actors recombine either physical or organizational resources, they utilize each other's strengths, and thereby add value to the network as a whole.

Furthermore, the literature offers the 4 R model as a tool to categorize resources into four main categories; products, facilities, organizational units and inter-organizational relationships. However, "it is not always easy to distinguish the four resources in an empirical study" (Baraldi et. al., 2011, 269) which we also experienced with the WASH-kit network. Nevertheless, from the case presentation (chapter 4) we can see that two main resources are prominent in the WASH-kit network. These are the organizational units and inter organizational relationships/business relationships. Baraldi et al., 2011 suggest, "The organizational unit resources mobilize inter-organizational relationships, rather than the other way around". By extracting the benefits of business relationships, this network is dependent on inter-organizational relationships as a resource, as presented in the theory regarding the 4 R model. We can see that there are strong business relationships between the actors in the network, further elaborated in section 5.2 and 5.3. We have also seen how the WASH-network have "combined, developed, mobilized and managed their resources over time" (Baraldi et al., 2011), and thereby been able to strengthen the ability to manage their utilization. However, there is room for improvement with regards to utilizing the supplier's opinions and expertise in order to be able to deliver the best possible product.

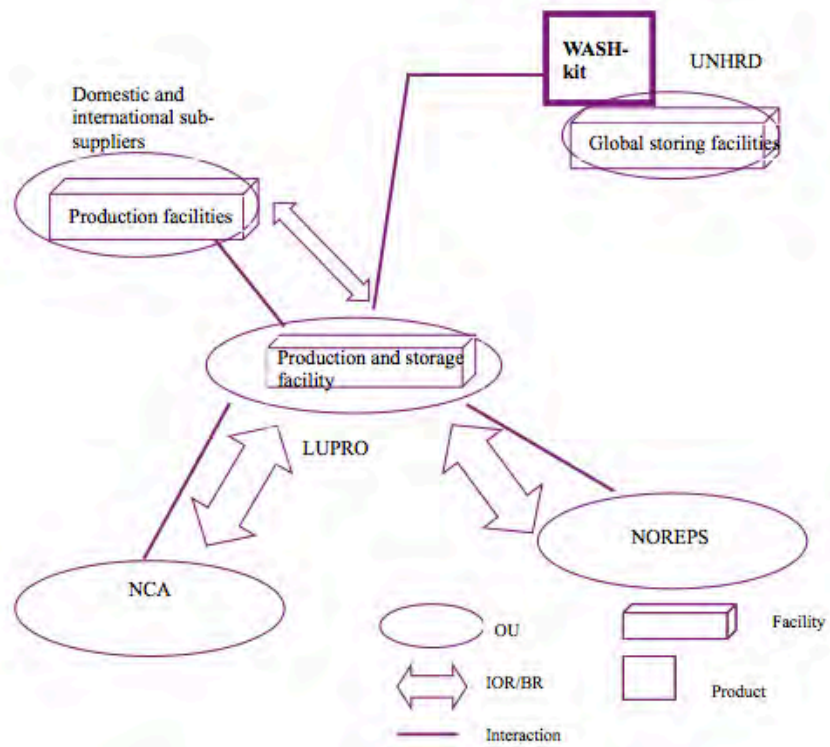


Figure 20 The 4R model applied to the WASH-kit network. Source: Authors' own based on Baraldi et al., 2011.

5.2. Business relationships in new product development

The business relationship in the product development of the WASH -kit is not limited to a specific timeframe but rather a continuous process, which further expands into the preparedness phase and therefore has significant impact on this phase in particular. The NPD literature (Petersen et al., 2005, Wynstra et al., 2000 and 2001), argues that business relationship are important in particular to the phases of product development prior to full -scale production. Contrary to the actual product development of WASH-kit, which in addition to the development phases also involves edits during the full-scale production. However, these edits, (rather than purely NPD) involves business relationships.

5.2.1. Drivers

Project efficiency and effectiveness

There is one main driver behind business relationship in the WASH process, from NCA (buyer/owner) view point: *“Efficient and effective focus of efforts”*, consisting of three important sub drivers;

- Demand for a good logistical product,
- Position in the international humanitarian assistance market and
- Characteristics of the supplier.

It was made very clear from the beginning that the nature of the business relationship in the product development of the WASH kit, between the buyer and supplier were not driven by mere profits as typical businesses often are. Here, the focus is put on the efforts in an efficient and effective manner above all. The key point is spending the funds on the right things, rather than profiting as in the commercial world. The main driver of business relationships in product development of the WASH kit: “*Efficient and effective focus of efforts*”, are consistent with the driver behind business relationship in NPD:

“The overall aims are to better leverage suppliers’ technological capabilities and expertise and to improve product development efficiency and effectiveness.”
(Wynstra et al., 1999, 157)

However, based on the data collection we also found that the main driver consist of three sub-drivers, that have important impact on the structure of the network. This offers some complexity to the theoretical meaning behind efficient and effective focus of efforts.

Demand for a good logistical product

Harald Glevoll, explains “*NCA believed that there was a demand for a kit solution in international humanitarian aid*” and applied for resources from NOREPS to continue the process after the WASH cluster, by developing and producing a kit that includes water, sanitation and hygiene products. This consequently resulted in NCA being the “first-mover” among the humanitarian organizations to provide this product, and thereby getting a strong position as the WASH-expert among the organizations.

Nevertheless, NCA are dependent on a supplier to produce, purchase and pack all the items required in the WASH kit, in order for NCA to focus on their core

competence in the context of the WASH-kit network, which is to “*develop, distribute and apply the WASH kit as a complete kit solution*” (Harald Glevoll, NCA). He eagerly elaborated that the WASH kit is important because of “all about the software (ed.note: solutions) around each of the items in the WASH kit”. Both NCA and LUPRO mentioned several examples of good logistical products that are edited/ developed for the WASH kit:

- Gender sensitive solutions such as the women’s toilets are separated from the men’s, and can be locked from the inside to ensure safeguarding of women.
- Illumination of the water stations that also have an easy “press function” and will work basically anywhere. The illumination is obviously not a critical part of the water station in terms of getting water to the people, however as Stein Midtlund, (LUPRO) puts it “*how could the people get water if they have no vision and see where it is pouring from?*” The illumination add-on is meant as a precaution to areas where the infrastructure has been damaged and street lightning no longer has a function (Picture 3 and 4).
- Grids for support of the water station have also been added into the kit. These are meant to support the legs of the water station in areas where the ground is rocky and unstable (picture 4).
- Product solutions are in general compliant with the culture of the host country. For instance “squat plates” are completely normal and often used in some cultures also before the emergency strikes; whereas in others it is almost unimaginable to use anything other than latrines where one can sit. For instance in 2013/2014 there were sent WASH kits to Syria; however one soon realized that squat plates were not the norm in this culture, and for the rest of the shipments, the order was changed to include latrines instead (Picture 2).
- The WASH kit includes several water-pipe fittings, so assembly is always possible regardless of the type of machine used in the field. In the case presentation we explained how the different organizations in the field have each their own water- systems to build, rather than any one single standard

used by all organizations. The WASH-kit thereby includes different fittings so the water- system can be used by any of the humanitarian organizations present (Picture 1).



Picture 1: Water fittings



Picture 2: Squatting plate



Picture 3: Water tap



Picture 4: Water station

The logistics advisor also explains that developing complete kit solutions would change the supply chain design and facilitates as a crucial component for preparedness. It has shifted from the picking facilities, to having WASH kits stored at UNHRD storing facilities around the world, ready to be expedited and forwarded within 48 hours (NOREPS 2013).

In addition to water and sanitation being categorized by the IFRC as the most important products, also research argues (Tomasini et al., 2009) that speed is highly prioritized, in what is known as the immediate response phase, and can be considered as the major concern and objective of the preparedness phase. In relation to our case study, we find the WASH kit to be a good logistical product for international humanitarian assistance market, for two main reasons: First, since Water, sanitation and hygiene being prioritized by IFRC, it is therefore in our opinion necessary that humanitarian organizations such as NCA put focus on this product area and develops it further. Secondly, it is a complete kit of important products that is already pre-stocked at several UNHRD depots around the world. Kits reduce the lead-time, since no “picking time” is necessary as the kits are pre-packed and ready to be distributed. Moreover, the WASH kit contains everything needed, including tools and user manuals so that the kit should be operational within 48 hours of arrival.

However, based on the experience and response from the field it is known that not 100% of the WASH kit products are used every time, a rough estimate is that 10 % of the products are lost due to the fact that there is not a demand for every product in the WASH kit. In accordance with literature on supply chain responsiveness that it is important to meeting customer demand, this could be defined as a negative impact on the supply chain performance. On the other hand, responsiveness also consider the ability to change to external factors; hence taking the specifics of the humanitarian logistics in to consideration (that are external), having a good logistical product adapted to the international humanitarian assistance market is more important than having a product meeting the demand 100%.

Position in the international humanitarian assistance marked

It was very important for NCA to not only be a “*product owner, but rather having a clear position as a provider and developer by finally formalizing the WASH kit*”. Harald Glevoll, explained that NCA wanted a supplier that could be an “one stop agency”, after having two suppliers of the products in the first tender in 2011 since such a supplier was not available in the market at that point of time. It was very important for NCA to not have 20 different suppliers to handle, but rather having 1 one-stop supplier that had all the responsibilities surrounding the WASH

kit. These responsibilities of the supplier concerns having the capacity to purchase, produce and packing the WASH kits in accordance to the specifications outlined by the WASH cluster in, at a competitive price and in accordance to the time frame decided.

Additionally, NOREPS contributed in the tender process and approached several Norwegian suppliers that already were part of the NOREPS supplier network to participate and give an offer on the tender. Gunn Wenche Andersgaard in NOREPS facilitated by directly sending out mails in to different suppliers (Stein Langedahl got the e-mail), explaining the potential important supplier role;

“To prevail it is a requirement that relevant Norwegian suppliers establish cooperation, so that they are able to provide a full service package. NOREPS will take a leading role in gathering interested companies and facilitate for a division of roles between the companies. The most important thing will be finding a company that are ‘willing, able and ready’ to take the leadership.”

NCA have taken the clear position as a provider and developer of the WASH kit to disaster areas, as there was no other humanitarian organization that formalized the WASH kit in accordance with the product specifications from the WASH cluster. Interestingly this is opposed to literature, where it is stated that that issues regarding coordination often is due to the lack of a centralized authority. Scholars state that “the humanitarian scenario is one of diffuse authority among a range of players unwilling, for a variety of often cogent reasons, to cede controlling authority of organizational action to any other single network player” (Stephenson and Schnitzer 2006, 214). NCA in this case directly opposes literature on the topic.

Specific characteristics of the supplier

Beyond LUPRO providing a reasonable price for the WASH kits, interestingly, Harald Glevoll explained that LUPRO did not possess specific experience of delivering kits for the international humanitarian assistance market as a one-stop agency. But since NCA already knew of supplier employee Steinar Langedahl’s “technical competence and prior knowledge” from earlier business relationship

with ScanWater, which “*were very important reasons behind NCA signing a three year contract with LUPRO, as a one-stop provider*”.

Specific characteristic of the supplier (LUPRO) was additionally drivers to cost for NCA to sign a contract with LUPRO as the one-stop provider for the WASH kit, in specific: known technical competence and the supplier being a part of the NOREPS network. Interestingly, proving the existing of network and that supply chain cooperation are important for the WASH kit process.

5.2.2. Key success factors

Type of supplier involvement

Development responsibility of supplier

Descriptions from both the buyer (NCA) and supplier (LUPRO) reveal that they have had a business relationship for many years already, even if the supplier was involved at a “later stage” in the development process, after winning the production tender. But NCA explain that the supplier have the complete responsibility to deliver the WASH kit as requested. In addition, the supplier explains that they today continuously do small development edits of the WASH kit that they see appropriate. Based on many years of experience, NCA seems to have faith that the development edits done are appropriate and still accordance to the product specifications. NCA further say, “*LUPRO contribute to development responsibility within certain frames agreed on in the contract*” The supplier exemplified that they decided to pack several different types of water fittings in the WASH kit, due to the challenge of different water pump models in the field. As mentioned earlier, the different organization such as IFRC/UN/MSF all have their own standard, not corresponding to those of the other organizations. “*It is better to get water, than no water because of the wrong fittings*”, explained LUPRO the reasoning behind packing so many different ones.

Development risk

The development risk of the WASH kit is explained to be fairly small, since the idea the WASH cluster already did idea generation and concept development. However, NCA’s logistics advisor elaborated on the risk that humanitarian products developed as kits, such as the WASH kit, are not 100% utilized, because

some of the products in the kit could end up not being used or even stolen. Since kit solutions, such as the WASH kits is primarily developed to be prepared for any emergency and distribute within 48 hours, not as a permanent solution therefore

“...Not everything is needed every time. This is a common situation, which we do not have any possibility to control. But, we believe that the alternative is much worse.” (Logistics advisor in NCA, Harald Glevoll)

In accordance to the Supplier involvement portfolio (Wynstra et al., 1999) the WASH kit development is defined as in between of “Routine development” and “Arm’s-length development”.

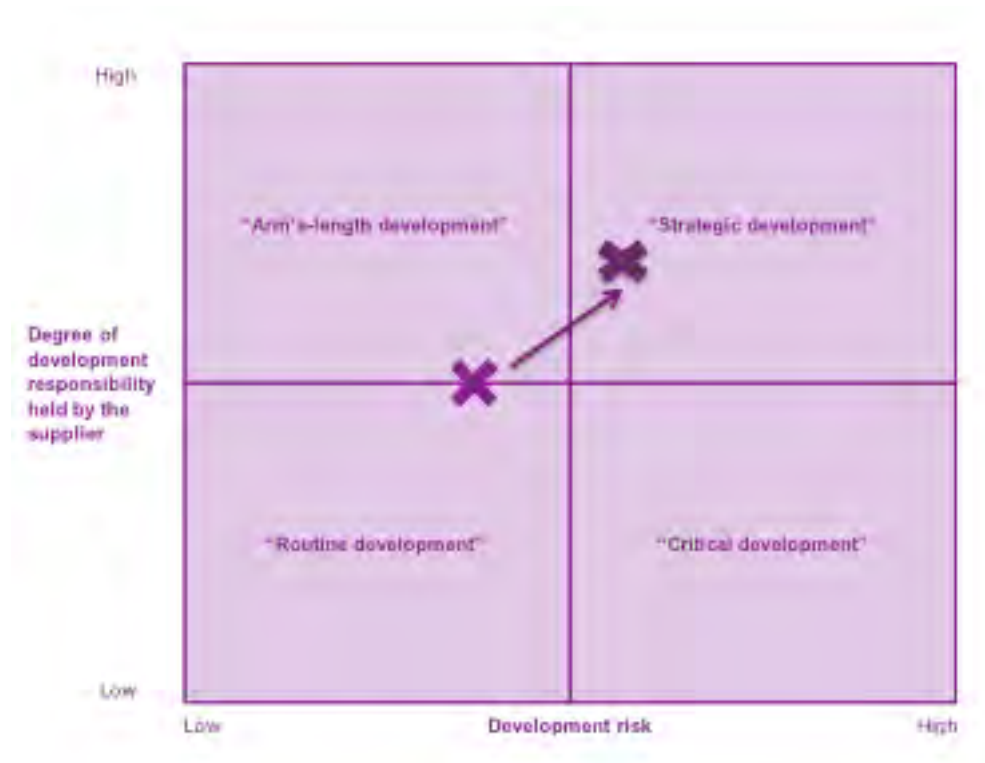


Figure 21 LUPRO involvement portfolio. Source: Based on Wynstra et al., 2000.

However, since the supplier has rather little development responsibility and low development risk, does not define the development of the WASH kit less of a strategic or critical development. Considering NPD for the international humanitarian assistance market to consist of different drivers than usual business, this type development risk is more normal to this type of industry. Therefore, contrary to the literature which define development risk as the direct risk related to the development, the risk regarding the WASH kit are not limited to the

development phases, but still a risk. Hence, that combined with the development responsibility of LUPRO, in fact pushes the responsibility against a “strategic development” contrast to the literature, but justified by the specifics of the WASH kit network.

It is further important to emphasize that an increase in development responsibility of LUPRO, that possesses a lot of competence and knowledge after several years as a supplier to the International Humanitarian assistance industry, could in accordance with the literature findings increase the project development efficiency and effectiveness.

Trust and commitment

NCA acknowledge that specific logistical and technical specifics are not NCA core competence, and the responsibility for these things is on the supplier. The suppliers, on the other, expresses that in some cases, the competence of suppliers are not fully appreciated, nor leveraged enough, by the international humanitarian assistance organizations in general;

“Not in specific, but rather in general, we as suppliers have in the past felt that perhaps the technical competence we have, based on among other things; our experiences from the field, has not been utilized as it should by the different organizations. In addition to having the knowledge we have based on our skillsets, we also have knowledge of what our other customers, and thereby other organizations in the industry, are doing. This has significantly improved during the last few years” (Stein Midtlund, LUPRO).

However, the supplier explains that their business relationship has progressed into LUPRO feeling more appreciated over time by their buyers in general. In particular, we get the impression that the degree of trust and commitment have are increasing, especially since the business relationship evolved into LUPRO being the one-stop supplier.

Today, the buyer (NCA) leaves all the WASH kit responsibility to the supplier, and trusts them to make decisions that are aligned with both NCA’s wishes and expectations and aligned with GWC suggestions for the WASH kit. However, it is

interestingly to see that the degree of responsibility is as already identified above is carefully regulated by NCA and in particular the product specifications of the WASH kit. Ultimately, the suppliers do not take any sole product development decisions, but rather respond to the buyers' requests by doing minor edits. However, the suppliers also express that the humanitarian organizations do not seem to utilize the resources that the suppliers in fact possess. Furthermore, the supplier describes themselves to be very committed to the international humanitarian assistance industry, and explain that “...we are in this type of business because we are genuinely interested. –We are a bit odd type of people!”

Compared to Wynstra et al., (1999) who recommend having few suppliers in the case of close supplier involvement, we find having one-stop supplier (LUPRO) have in fact contributed increased the trust and commitment, from both of the actors.

Moreover, having a supplier expressing such a commitment opens up a closer cooperation than we find to be the case in this business relationship. The literature explains “a lack of trust between the two parties may also hinder collaboration, as both parties will see large potential risks”, which can result in the supplier not feel afraid to lose their core competence or be too dependent on the buyer in close collaborative relationships. (Walter 2003). However, we also see the potential of allowing more supplier responsibility and consequently trust, beyond the WASH kit product specifics, and thereby utilize the supplier (LUPRO) that Gadde et al., (2010) describe as the “most important assets of a company, and ultimately increase the opportunity to ensure the quality of the technical development of the WASH kit. Furthermore, an even higher level of trust between the actors, have the potential to enhance a greater information exchange and project goal clarification.

Information exchange and communication

The buyer appreciates the technical competence that the supplier possesses and explains that NCA often calls them with questions that their internal WASH-engineers cannot answer or fully understand themselves.

“If any requests regarding the WASH kit emerge, such as change in the content or demand for change. We only make a phone call to LUPRO and they usually understand and make the necessary changes” (Harald Glevoll, Logistics Advisor NCA)

Literature emphasis particularly on two main areas regarding supplier involvement: appreciating and investment in the supplier's knowledge, capabilities and skills. In order to organize structures and processes to ultimately make use of the supplier's resources.

5.3. Business relationships in supply chain

The WASH-kit supply chain is a subsequent phase of the product development process, and we see that the business relationships consists of the same actors, but however different activities that introduces also others features of drivers and key success factors.

5.3.1. Drivers

Supply Chain performance

There are many sub-suppliers that are supplying LUPRO with key products to the WASH kit, and therefore are extremely essential for the WASH-kit network. Firstly, the WASH kit is very complex and contains a wide range of products that clearly goes beyond LUPRO core competence. Secondly, in order to make the WASH-kit at a reasonable cost, which is a critical issue for humanitarian organizations in general, it is necessary to buy non-critical products, such as soap and buckets, from low-cost countries such as India.

Drucker (1998) claims that the ultimate success of firms is dependent on their ability of integration of actors, activities and resources, and therefore acknowledging their participation in a network. Still, it clearly that having so many sub-suppliers also introduces additional complexity and challenges. LUPRO explains that they have experienced delays and some misunderstanding and problems with the sub-contractors, which ultimately affects the supply chain efficiency. In particular, if any delay occurs, that affect immediately LUPRO's delivery ability. LUPRO needs to have all the products, before the WASH kit can

be packaged and sent. However, such issues are common when having sub-contractors all over the world. Cultural differences' and longer physical transportation are in fact inevitable.

NCA expresses a suggestion that LUPRO could also store more of the products in the WASH kit in their locations in Norway. In order to respond to the delivery risks present when ordering products from several sub-suppliers, each time, and furthermore reduce the buyer's risk of not be supplied with WASH-kits. However, the supplier is faced with hesitation as this solution could be transferred to LUPRO, as more products in stock increase the capital tied up. Whereas the literature (Simchi-Levi 2003) argues the importance of actors investing in business relationships and focuses their attention on supply chain coordination in order to achieve global optimization. This equips them with a proactive approach rather than reactive. This supports NCA's suggestion of LUPRO investing in the WASH-kit supply chain by stocking more products, and reduces the lead-time and consequently the possibility to also improve the supply chain performance. However, Lee (200) offers a suggestion of alignment within supply chains, particularly how important it is to create incentives for better performance of the actors in the supply chain. This provides understanding from the supplier point of view, which might view such a suggestion as merely an extra cost. By introducing incentives for the suppliers directly related to the resulting better performance in the supply chain, hence the suppliers also see the benefits not only the costs.

5.3.2. Key success factors

The right type of business relationship

The business relationship between NCA and LUPRO is described to be fairly stable and good, both in regards to development and the supply chain. Moreover, the business relationship has naturally developed in a more positive direction over the years. Which is consistent with the literature that argues that business relationships are context specific and develops over time.

Additionally, the business relationship is characterized by friendly and informal thanks to NOREPS, which accommodates such a business relationship. Harald Glevoll, NCA even describe LUPRO as:

“Co-workers that are integrated with NCA, not a transaction based relationship where every answer or advice from the supplier would result in an extra charge.”

This particular description give indication that the WASH-kit supply chain is to some extent coordinated, and LUPRO highly integrated. However, further analysis (presented in the next two sections below) suggests that the supply chain in fact potential to increase the degree of coordination, in particular through communication, decision, and information flow.

Supply chain relations:

The business relationship between LUPRO and NCA can be characterized as cooperative such that the supplier are notified if changes are needed, and are consistently in the field themselves in order to ensure the necessary competence as a one-stop supplier to the international humanitarian assistance market. The supplier describes the business relationship between them as the following:

“We do want to make money on our side too, off course, the organizations do as well, but the key point here is that we all want what’s best for the situation at hand. I have to admit, we are a somewhat odd gang (laughter). None of us are interested in only earning the most, but rather doing the best” (Stein Midtlund, LUPRO)

Supply chain complexity:

Moreover, as both the actors described the business relationship as relatively close but informal that has existed for many years already. The wash process is a classic supply chain, as described in the case presentation, except from two important traits, which are more in agreement to a network complexity: First, having NOREPS as a network facilitator for the actors, hosting meetings and other activities enable for close and personal business relationship. Secondly, the informal and friendly business relationship that both NCA and LUPRO describe as getting closer and more cooperative is consistent with a network approach rather than a supply chain.

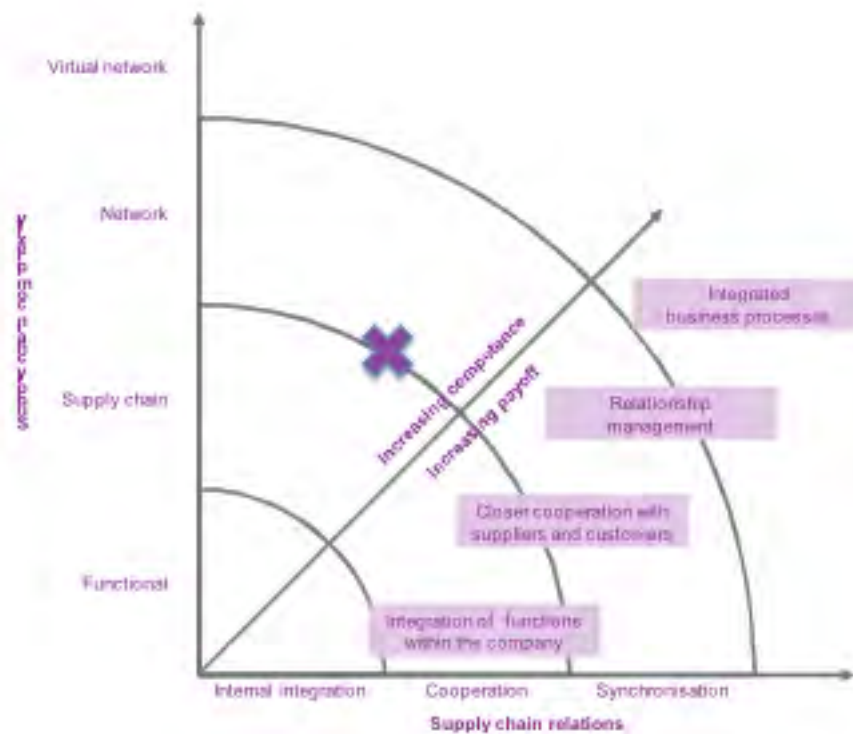


Figure 22 Integration level between NCA and LUPRO. Source: Based on Jespersen and Skjøtt-Larsen, 2005.

Therefore, applying Jespersen and Skjøtt-Larsen (2005) to the case specific particularities, the WASH-kit network are integrated in accordance with an early network level, still having cooperative business relationship, rather than a synchronization and fully integrated business relationship. However, the degree complexity is more alike the network traits, especially because of NOREPS facilitator role, rather than supply chain.

Trust and commitment

As suppliers in the WASH-kit supply chain, LUPRO are trusted with the same as in NPD. Specifically, they are trusted to produce, purchase and pack the WASH-kit “best as possible”, in terms of total cost, technical requirements and quality.

NCA are very satisfied with the supplier commitment to their responsibility as “assembly trainers” in addition to the supplier role. LUPRO provides assembly and “hands-on” training that has been completed four times in different places (both in Norway at LUPRO’s facility and at several field locations), LUPRO says that they really appreciate this agreement so that they can increase their

competence as suppliers by actually understanding the challenges facing the assembly personnel in field, and also be directly in the field. Furthermore, NCA admits to having somewhat high rotation of some of their employees, so that they experience difficulties having dedicated and qualified persons handling the WASH-kit.

Having the supplier expressing and prove such a commitment and dedication towards international humanitarian assistance, the literature argues that there exists opportunities to come together on collective goals and common interests to achieve successful coordination (Huemer 2006). Moreover, if also NCA put focus on prioritizing and investing in having skilled personnel over a longer period of time working on the WASH-kit, ultimately contributes to the supply chain performance.

Information exchange and communication

Moreover, both buyer and supplier indicated through personal small talk before the focus group and interviews, that they describe their business relationship are “friendly”, characterized as close and personal, strengthen through different social activities.

As already described above, the supplier is responsible for WASH kit assembly and “hands-on” training, which is critical for NCA in order to increase the WASH kit competence amongst their employees. LUPRO explain that these trainings are vital exchange of competence, in order for the WASH kit to in fact be “up and running” after 48 hours of arrival.

The actors have usually not a lot of daily communication about the wash kit is necessary, since the contract specifies every little aspect of the WASH kit and LUPRO have delivered the WASH kit for some years now. However, as already discussed in *“information exchange and communication in NPD”* the most common communication reason are small edits request’s from NCA. On the other hand, LUPRO explains that these developments edits request, have occasionally been difficult to accommodate. One example they offered was a request from NCA on doubling the number of plastic buckets (from 1000 to 2000), which surprisingly offered a package problem:

“In this particular case, we could not pack the WASH kit into the standard 40 feet container as usual, so that gave us a challenge that we finally solved by using an larger container” (Stein Midtlund, LUPRO).

In accordance to literature it is very important for supply chain performance that the actor's recognize other actors in the supply chain as resources and furthermore adapt these cooperative resources and produce common goals. (Jespersen et al., 2005) Obviously, NCA recognize the competence, knowledge and capabilities in-house LUPRO. Little daily communication, yet, NCA utilizes LUPRO as advisors on technical product specific questions (as also previously discussed). However, there is a clear potential for NCA and LUPRO to better combine their internal resources, work towards common goals that are known to all actors, and potentially avoid challenges like this example.

Moreover, Lee (2000) also advocated that collaboration is dependent on the degree of information integration in business relationships. In the WASH-kit network, we see that there exists potential to enhance the degree of information between the actors, so that potential supply chain issues can be avoided in the future. In the previous mentioned bucket example, integration of demand information downwards the supply chain, would give the suppliers this type of information at an earlier stage and consequently could according to literature contribute to avoiding this type of issue, or at least solve the problem much more effectively and efficient.

6. Conclusion

6.1. Practical implications

For the WASH-kit network, our thesis can contribute to increase awareness of importance and possible utilization of business relationships. Although the actors seem to appreciate the existence business relationships, there is room for improvement from a theoretical point of view. The research presented in our thesis might offer guidance for several reasons.

First, business relationships are evident in international humanitarian assistance network. Actors have an impact on each other, and coordination is highly necessary already in the preparedness phase in order to provide the best possible response when a disaster occurs. The network as a whole can benefit from increasing the level of utilization of business relationships, in particular: even more degree of trust and commitment can contribute to more information exchange and communication around both possible development changes Also creates common supply chain goals and objectives.

Second, our thesis provides a thorough descriptive presentation of an international humanitarian assistance network and a specific process, including *both* NPD and supply chain, not previously offered. Looking at the interfaces of NPD and SC as a whole, instead of as separate operations functioning as isolated bulks.

6.2. Theoretical implications

There exists extensive research on humanitarian logistics and much literature on business relationships, however there is little literature on business relationship in international humanitarian assistance network. With this thesis we have contributed to filling this gap, by looking at the business relationship in a specific international humanitarian assistance network.

Parts of the theories studied in this thesis suggest the same basic principles for humanitarian logistics as for commercial logistics. In particular it is shown that the more prepared one is, the better the end result becomes. In humanitarian

logistics this is quite crucial as the implications are human lives. We have added to the existing literature by explicitly applying business relationship theories, and the industrial business network approach to a humanitarian assistance context.

Our research shows that the challenges in actor coordination in the response phase also somewhat exist in the preparedness phase. We therefore can draw a direct connection between the challenges in actor coordination in the response phase and the important key success factors in new product development and supply chain (preparedness phase), namely trust and commitment. By being aware of the key success factors and aiming to achieve them in the preparedness phase, the actors in the network can address the potential challenges associated with the response phase. This enables them to be proactive rather than reactive.

We can conclude that this particular international humanitarian assistance network consists of business relationships. Moreover, we see that the literature on business relationships can be adapted to our international humanitarian assistance case study. The case of the WASH-kit network is of such complexity that it has implications on the degree of utilization of business relationships, in particular with regards to the policies and requirements set by the industry. This makes NPD opportunities more difficult in practice than the literature advocates for. Ultimately this leads to the NPD literature having to be adapted to humanitarian logistics in specific.

6.3. Addressing limitations and suggesting further research

Our thesis has investigated business relationships in humanitarian logistics.

We have explored a particular international assistance network.

A clear limitation, which occurs with the use of a single case study, is the inability to compare networks and thereby offer best practices for the overall international humanitarian assistance industry. However, our thesis offers a thorough research on characteristics in this particular network, which can be used as a basis in a comparative case study, as further research.

Another limitation to this thesis is the lack of investigation on technical aspects. Since the WASH kit consists of many items, with various technical considerations

that impact how good the kit is seen from a logistical standpoint. A suggestion for further research is thereby to measure the key performance indicators (KPI) of the WASH-kit.

A third and final limitation is the lack of access to primary data from the actors indirectly linked to the WASH-kit, such as: LUPRO's sub-suppliers, UNHRD and GWC. These can be added in a more elaborate study in order to gain a more complete network picture.

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Documents provided to us by the different actors

NOREPS email to potential suppliers of the WASH-kit. Sent out in 2011.

NCA application to NOREPS for funding. Sent out in 2011.

Appendices

Appendix 1: Focus group agenda

Fokusgruppe med aktører rundt WASH-kit

I forbindelse med vår masteroppgave ønsker vi velkommen til fokusgruppe om nødhjelpslogistikk, på Handelshøyskolen BI.

<u>Tid</u>	Mandag 28. april 2014, kl. 11:00-13:00
<u>Sted:</u>	Handelshøyskolen BI, Nydalsveien 37, Oslo, Institutt for Strategi og Logistikk, 4. etasje i area A
<u>Arrangører:</u>	Ena Babic and Benedikte Heie
<u>Deltakere:</u>	Corinna Schuttler-Kvarme (NCA)
Dokter (A-aqua)	Andreas Koestler (A-aqua)
	Stein Midtlund(LUPRO)
	Steinar Langedahl (LUPRO)
	Vidar Ellingsen (NOREPS)

The purpose of this study is to present the results, findings and insights gained from investigating business relationships in the humanitarian sector. In particular we want to look into the actors involved in the process - of new product development as well as the supply chain- surrounding the WASH-kit. By using the WASH-kit as a case study, we hope to accomplish presenting traits of business relationships in a humanitarian supply chain.

Agenda

- 1. Introduksjon av Ena og Benedikte**
Deltakerne presenterer seg selv.
- 2. Diskusjon om aktørenes (organisasjonenes) roller og samarbeid rundt WASH-kitet**
Vi ønsker en åpen fokusgruppe for å få et innblikk i de ulike aktørers (organisasjoners) roller og samarbeid på ulike tidspunkter/faser i prosessen. Vi har delt inn i følgende overordnede emner;
 - i. Aktørers rolle og ressurser
 - ii. Aktørers samarbeid i ulike faser av prosessen
 - iii. Utfordringer underveis
 - iv. Muligheter videre
- 3. Avslutning**
Oppsummering

Vi ønsker alle velkommen! Skulle det være noen spørsmål, må dere ikke nøle med å ta kontakt.
Med vennlig hilsen, Ena (93024148) og Benedikte (45207644)

Appendix 2: Focus group summary - Key take-aways**Actor positions and resources**

Ongoing and complex process of product need in international humanitarian assistance. Product development has been ongoing since the 90s, and parts related to water and sanitation was produced in combination as WATSAN.

The global WASH-cluster concluded that hygiene should be included.

Systemization as a single kit with hygiene included, was initiated by NCA's WASH-engineer in 2009, facilitated by NOREPS from 2010. NCA took a clear position as the provider and developer of the WASH kit at this time. NOREPS connected NCA to local suppliers in Norway. NCA's WASH-engineer developed the product specifications (equipment catalog).

A-Aqua and LUPRO supplied to the WASH-kit from the beginning, having won a tender in 2010 (winner amongst four international competitors).

Actor collaboration (activities)

Tender 1: There has been a continuous buyer-seller relationship from 2009-2013 between NCA and suppliers LUPRO and A-Aqua through facilitation of NOREPS.

In 2010 LUPRO and A-Aqua (previously ScanWater) together with an international supplier had joint responsibility of producing WASH-kits.

NCA quote: "No one stop supplier at the time was the reason why we went with two".

On the kit itself, little change was made to the product specifications, previously provided by the WASH cluster and edited by NCA's WASH-engineer. This decision was made by NCA, as people in the field were familiar with the tools.

The suppliers had the liberty of tweaking the product as they saw fit, from shipment 2 in 2011 (due to competence), as long as they delivered a product that was in line with the overall agreement (tender Request For Quotation). Example of change/tweak from the supplier: First shipment of the kit was challenging; there was not enough space in a single container and the suppliers made a decision to switch to a different one in shipment 2. Furthermore, LUPRO engaged their own sub-suppliers in order to optimize the kit.

Tender2: In 2013, LUPRO signed a three-year contract with NCA as the sole (one stop) supplier of WASH-kits. The liberty of tweaking the product remained.

Suppliers continuously optimize the kit based on their own competence, knowledge and experiences. Several “redefinitions” of parts are taking place as well.

LUPRO quote: “We have also made some pretty big redefinitions to parts of the kit”.

The supplier, LUPRO, also provides training and assembly courses in the field as well as in Norway.

NCA quote regarding degree of supplier involvement (B: gjør de mye selv, blir det for teknisk for dere (not core competence of NCA): “De gjør jo ikke noe som ikke vi er enige i, ellers så har de jo ingen å selge det til” (describes the relationship as a mere business transaction). However, NCA acknowledge that logistical and technical specifics are not NCA core competence, and the responsibility for these things is on the supplier.

The suppliers, on the other, expresses that in some cases, the competence of suppliers is not appreciated, nor leveraged enough, by the organizations (customers)

The facilitator (NOREPS) on their side, acknowledge that this is indeed *their* competence; matching the right suppliers, which have the right competence, with the right customers.

NCA expresses that in-house competence is crucial as a customers, especially in technical products.

Challenges

From customers side, in general: Response and feedback on the product from the supplier, not just a “yes, we can” attitude and ja det godtar vi som leverandør, heller en open dialogue.

From supplier's side, in general: Questions about the product from the customer is often non-intelligent and show lack of knowledge, when the questions are "straight from the book".

From supplier's side, specific: Unpredictable changes in specific parts from customer have an impact on the entire delivery. It becomes challenging for the supplier to complete the order in accordance with the agreement.

From supplier's side, specific: Cultural challenges with sub-suppliers.

From supplier's side, specific: The product-specifications are *very* specific and in some cases even do not exist anymore, or is only provided by one single sub-supplier in the world.

Opportunities

All actors: Could implement more environmental friendly solutions; for example not gas driven engines, but rather solar panels. Supplier has a solution to this issue.

Appendix 3: Interview guide, semi-structured**Interview guide for Supplier (LUPRO) and buyer (NCA)**

- Dato/plass:
- Intervjuobjekt:
- Ansvarsområde, utdanning og erfaring:

WASH kit prosessen:

Denne fasen er beskrevet som hele prosessen frem til dags dato, hvor vi ønsker svar og eksempler fra start til i dag. Vi vil starte med å rette spørsmål mot starten av samarbeidet og utviklingen av WASH kit. Deretter spørre spørsmål og daglig samarbeid og kontakt.

a) Drivere for business relationships:**NPD relaterte spørsmål:**

- a. (Kun til KN) Når ble Kirkens Nødhjelp involvert i WASH kit prosessen?
- b. Hvorfor?
- c. Beskriv deres rolle?
- d. Hvilken kompetanse besitter dere?
- e. (kun LUPRO) På hvilket tidspunkt i utviklingsprosessen ble LUPRO involvert i WASH kit prosessen?
- f. (kun til KN) Beskriv kort hvorfor LUPRO ble valgt som leverandør?

Supply Chain relaterte spørsmål:

- g. Hvordan vil du beskrive forholdet mellom LUPRO og KN til daglig? (Endring av ordre, gjennomføring)
- h. Beskriv det daglige samarbeidet?
- i. Beskriv deres/LUPRO sin rolle i verdikjeden? Er denne annerledes/utvidet fra en normal leverandørposisjon?

b) Suksessfaktorer for business relationships:**NPD relaterte spørsmål**

- a. Hvordan vil du beskrive ansvaret leverandør hadde/har gjennom utviklingen?
- b. Hvilken grad av utviklingsrisiko var forbundet med WASH?
- c. Hvordan vil du beskrive samarbeidet mellom LUPRO og KN gjennom produktutviklingen av WASH både tidligere og utvikling som skjer nå?
- d. Hva bidro LUPRO/ (leverandøren) med i produktutviklingen?
- e. Hva har vært konkrete suksessfaktorer fra deres side?
 - a. i produktutviklingen
 - b. i verdikjeden, spesielt med tanke på hendelser i forhold til LUPRO/NCA aktiviteter

Supply Chain relaterte spørsmål

- a. Hva er viktig for dere som kunde/leverandør av NCA/LUPRO? Hva er forventet av samarbeidspartneren?

-
- b. Beskriv kommunikasjonen/informasjonsflyten mellom dere?
 - c. Som kunde og leverandør, besitter dere ulike ressurser; slik som kunnskap, kontaktnettverk osv.?
 - a. Deler dere noen ressurser mellom dere? I så fall, på hvilken måte?
 - d. Har dere tilpasset dere på noe vis for å imøtekomme LUPRO sin kapasitet/ KN sitt behov?
 - e. Har dere tilpasset produktene på noen måte for å takle de kjente koordinasjonsproblemet i feltet?
 - f. Ser dere forbedringspotensial med noen av produktene slik disse er i dag?

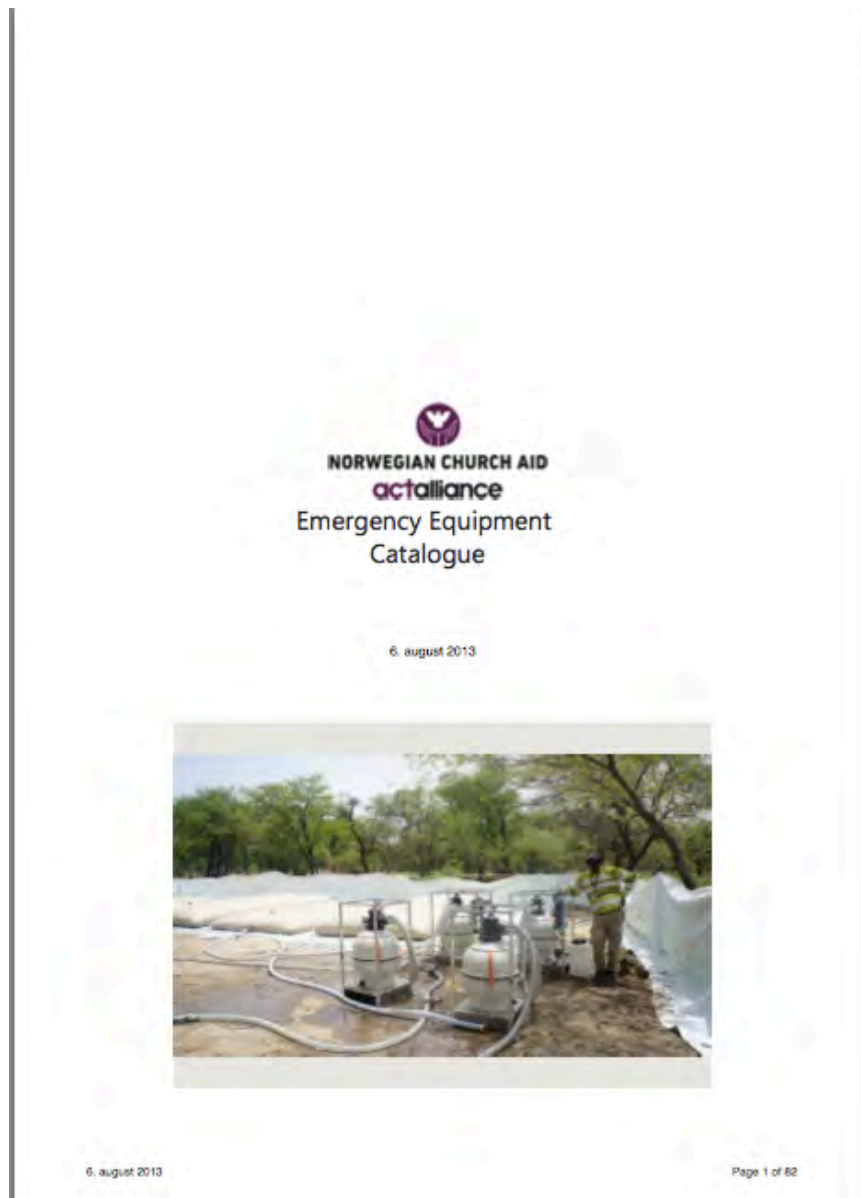
c) Utfordringer

- a. Hvilke utfordringer har dere opplevd?
 - a. i produktutvikling
 - b. i verdikjeden, spesielt med tanke på hendelser i forhold til LUPRO/NCA aktiviteter
- b. Hva har vært grunnen til at det ikke har fungert?

d) Fordeler

- a. Hvilke fordeler har dere oppnådd relatert til forholdet til NCA/LUPRO?(Case spesifikt)

Appendix 4: Extract from Emergency Equipment catalogue



Introduction

This catalogue has been compiled by NCA Oslo and represents equipment and materials available to NCA Head Office, NCA Representations, Emergency Operations, ACT Partners and any other relevant organisations. The catalogue has been compiled through many years of experience in emergency operations worldwide, but is under continual review. The aim of the catalogue is to make NCA staff, logisticians, resident representatives and partners aware of equipment available to them either in an emergency or during normal operations. The catalogue is current as of the date printed on each page and equipment that is ordered using the NCA Codes may differ slightly from those listed. Your comments on the contents and layout of this catalogue are very welcome. Please send any comments to: beredskapsseksjonen@nca.no

Global WASH Cluster Stockpile Project

The store has been arranged to fit closely to the specifications outlined in the Global WASH Cluster Emergency Materials Project. This aims to place the right materials in the right place and in time. The store does not comply fully for the specifications laid out in the project most notably in the area of NFIs where NCA has reduced the quantities to facilitate air freight. Details of the WASH Cluster Project can be found on the following webpage:

<http://www.operresponse.info/>

What do the codes mean?

Each item in the catalogue has a corresponding code. These codes are for marking of equipment prior to shipping to allow for easy identification. The codes represent the following information:

Example:

10101-1/1

1 - Main category indicator (e.g. 1 = Water)

01 - Sub category indicator (e.g. 01 = Pumping)

01 - Item number (is a sequential item number)

1/1 - Number of individual packages the item is made up from.

Main Categories

1	Water
2	Sanitation
3	Hygiene

Sub Categories

01	Pumping
02	Distribution
03	Treatment
04	Storage
05	Tools
06	Trucking
07	Kit
08	ExcretaDisposal
09	NFI
10	Reference


**NORWEGIAN
CHURCH AID**

Equipment Catalogue

1 - Water

01 - Pumping

1 - Water
01 - Pumping

Unit Code:	10101-1 / 1
Unit Description - Short:	Water Pump - Diesel
WASH Cluster Code:	W1; T1
Module / Phase:	Water Supply / Start Up
# units per Module:	4
Capacity	500 litres/min


User Notes:

High pressure, centrifugal, self-priming 2" pump

Packaging/Marking

 Packed in plywood case with
spares and fittings (no oil)

Special Notes:

 0,6L of engine oil is needed before operation (preferably SAE
10W-30) and this is not included in the kit.

Kit Contents

ID #	Item Name	Qty	#	Unit
674	Socket Wrench 6/8 Point 10mm	1		pcs
289	Pump, water, Honda WH 200GX, diesel	1		pcs
675	Screwdriver PH1	1		pcs
556	Spark plug (for Honda WH 200)	4		pcs
53	Air Filter	2		pcs
448	Plywood box	1		pcs
245	Thread seal tape, PTFE	5		pcs
382	Non Return Strainer, 2" w Guillen coupling	1		pcs
34	Hose 2" suction w/ 2" Guillen couplings	2	8	m
259	Gasket, priming plug	5		pcs
185	Plug, drain/primer plug	5		pcs
61	Socket Wrench 6/8 Point 14mm	1		pcs
307	Jerrycan, 20L, plastic, with funnel	1		pcs
60	Socket Wrench 6/8 Point 12-13mm	1		pcs
271	Guillen coupling, alum, 2" male, w/ clinch ring	2		pcs
676	Screwdriver PH2	1		pcs

 Current Item ☒

 Owners Manual URL: <http://www.honda.co.jp/ownersmanual/HondaMotorE>

6, august 2013

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**NORWEGIAN
CHURCH AID**

Equipment Catalogue

1 - Water

04 - Storage

04 - Storage

Unit Code:

10401-1 / 1

Unit Description - Short:

Tank, storage, bladder, 10m3

WASH Cluster Code:

T7; D1

Module / Phase:

Water Supply / Start Up

units per Module:

4

Capacity

10 Cubic Meter



1 - Water

User Notes

Flexible bladder tank with accessories for storage of drinking water.

Special Notes:

Inspection 4" flange w/PVC lid Filling - 2" connector w/ Guillemin male adapter, 4x7 meter

Packaging/Marking

Wooden case

Kit Contents:

ID #	Item Name	Qty	#	Unit
34	Hose 2" suction w/ 2" Guillemin couplings	3	8	m
300	Instruction Manual	1		pcs.
455	Rope, polypropylene, 6mm, twisted	50		m
73	Ball valve, 2", brass, female/female	1		pcs
277	Guillemin clinch wrench 2" to 3"	2		pcs
713	Ground sheet for tank	1	1	pcs
601	Tee equal, 2", female, galvanized	1		pcs
270	Guillemin blank cap, alum, 2" w/ chain	1		pcs
271	Guillemin coupling, alum, 2" male, w/ clinch ring	6		pcs
268	Guillemin coupling, alum, 2" female, w/ clinch ring	2		pcs
198	Elbow, 2", PVC, female/female	1		pcs.
711	Pillow shaped bladder tank (PVC) 10m3 w/2" Guillemin Coupling	1	10000	liters
493	Repair kit	1		pcs.

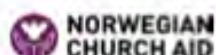
Current Item

☒

[Owners Manual URL:](#)

6 august 2013

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NORWEGIAN
CHURCH AID

Equipment Catalogue

1 - Water

05 - Tools

05 - Tools

Unit Code:	10501-1 / 1
Unit Description - Short:	Toolkit, engineers
WASH Cluster Code:	W6; T4; D8
Module / Phase:	Water Supply and Sanitation / Start Up
# units per Module:	3
Capacity:	-

**User Notes**

A general purpose toolbox with tools appropriate for most occasions.

Packaging/Marking

Wooden Box (Lockable)

Special Notes:

This content list contains 2 pages!

Kit Contents

ID #	Item Name	Qty	#	Unit
246	Thread seal tape, PTFE	5		pcs
410	Padlock, with 2 keys	1		pcs
243	Folding measuring rod, 2 m	1		pcs
277	Guillemin clinch wrench 2" to 3"	2		pcs
195	Easygrip strapwrench 20 x 110 mm	1		pcs
483	Rapid staple gun, Hammer type R-54	1		pcs
573	Staples Rapid 140/14 mm. Pack of 2000	10		pcs
578	Steel point, square blade (Awf)	1		pcs
65	Allen key set, 3 - 10 mm	1		pcs
91	Black electrical tape, rolls	2		pcs
344	Measuring tape, 20 m, fibreglass	1		pcs
788	Silicon Tube	1	1	pcs
821	Toolbox, plywood	1		pcs
193	Duct tape 10 m x 50mm	1		pcs
280	Hacksaw frame, 12"	1		pcs
130	Clawhammer, with steel shaft	1		pcs
438	Passon wrench, for 2" - 3"	2		pcs
318	Knife, with sheath, general purpose	1		pcs
535	Sidecutter, 6"	1		pcs
282	Hacksawblades, 12", bimetal 24T	10		pcs
361	Metal files, 10", round, halfround and flat, 2nd c	1		pcs
527	Set of screwdrivers, 7 pieces, flat, Pz and Ph	1		pcs
49	Adjustable wrench, length 6"	1		pcs
649	Water pump pliers, 250 mm	1		pcs

6. august 2013

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**NORWEGIAN
CHURCH AID**

Equipment Catalogue

3 - Hygiene

09 - NFI

Unit Code:	30905-1 / 1
Unit Description - Short:	Cloth Multipurpose
WASH Cluster Code:	H4
Module / Phase:	Hygiene / Operation
# units per Module:	1
Capacity	



Packaging/Marking
 Pallet

User Notes
 Mainly supplied for the purpose of women sanitary protection

Kit Contents

Special Notes:

ID #	Item Name	Qty	#	Unit		
833	Multi Purpose Towelling, cotton, 50x90 cm	500		pcs		

Current Item ☒

Owners Manual URL:

6. august 2013

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Appendix 5: List of sub-suppliers to LUPRO

Leverandør	Land	Produkt	Lev.tid
PALINTEST	UK	Testutstyr	1 uke
Hind Pharma	India	Klor, ORS-salt, Water Maker	2-5 uker
WWT	Mauritius	Deler vannrense-utstyr	4-6 uker
GMP	Italia	Pumper	2-4 uker
Butyl Products	UK	Handwashing container, NaDcc	2 uker
Hansen & Krogh	Norge	Tools	2 – 3 uker
Even Products	UK/China	Latrine equipment	6-8 uker
Monarflex	Slovakia	Presenninger	2 – 3 uker
Priyanka	India	Towels/buckets/soap	8-10 uker
Alfaflex	Belgium	Hoses/couplings	1-3 uker
Astore	Italy	Valves/connectors	2-3 uker
Fiskars	Norge	Tools	1-2 uker

Appendix 6: Preliminary thesis report

Student number: **0855380 Ena Babic**

0877446 Benedikte Heie

Preliminary Thesis Report

BI Norwegian School of Management

- Logistics in humanitarian product
development -

A case study of the WASH kit

Exam code and course:

GRA 19003- Preliminary Thesis Report

Thesis supervisor:

Marianne Jahre

Hand-in date:

15.01.2014

BI Oslo

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Summary

The purpose of our preliminary thesis report is to present the research area we wish to contribute to, as well as to present how we want to execute our research. Furthermore, it is meant as an illustration of how far we have come so far in the process, and what remains to be done.

Firstly, we have presented the background for our choice of research area, as well as the problem statement, which is as follows; “ Which logistical elements are necessary to consider in an innovation process for future product development within the humanitarian field?”

In the second chapter we have presented theories from literature relevant to our research. The literature review is divided into three main topics; disaster relief and humanitarian logistics, logistics and product development and innovation and innovation processes.

Thirdly, we present the relevance of this thesis from an empirical viewpoint. We present the case study we will use to conduct the research in our thesis upon, namely the water, sanitation and hygiene (WASH) kit. In this regard we also present the central actors related to the network around our case, as well as our research field. Finally in this chapter, we present the purpose of our thesis, which is based on the theoretical and empirical relevance to our study.

In the fourth chapter, we present how we wish to conduct our research; our strategy, our design and how we will collect and analyze data. We have emphasized the important aspect of ensuring quality while conducting our study, and how we aim to do so.

Finally, we present a project plan for the remaining time until the delivery deadline on 1st of September 2014.

Abbreviations

GWC: Global Wash Cluster

IFRC: International Federation of Red Cross and Red Crescent Societies

LUPRO: Lunner produkter

NCA: Norwegian Church Aid

NOREPS: Norwegian Emergency Preparedness Systems

UN: United Nations

UNHRD: UN Humanitarian Response Depot

WASH: Water, sanitation and hygiene

1.0 Introduction

1.1 Background

In November 2013, Typhoon Haiyan (also known as “Yolanda”), an exceptionally powerful tropical cyclone, hit Southeast Asia. Particularly the Philippines suffered great losses with over two million families affected across 41 provinces (International Federation of Red Cross and Red Crescent, 2013). The Joint Typhoon Warning Center (JTWC) assessed the system as a category-5 equivalent super typhoon on the Saffir-Simpson hurricane wind scale (National Hurricane Center, 2013). Mighty winds, substantial rains and seawater led to a massive humanitarian impact as these have devastated infrastructure and the majority of the population’s everyday life.

At the time of writing, typhoon Haiyan is the most recent natural disaster of this scope; however the need for humanitarian aid has been comparable to earlier natural disaster such as Haiti earthquake (2010) and Indian Ocean earthquake and tsunami (2004). The number of natural disasters as well as the number of people affected by these disasters, have both increased almost five-fold between 1975 and 2011 (EM-DAT, 2011).

In disaster situations like the ones mentioned the need for humanitarian aid is often extensive. Majewski et al., (2010) highlight that the increasing magnitude, complexity, and unpredictability of these emergencies have made it very difficult for humanitarian organizations to provide effective relief to the victims. Due to these difficulties, several scholars have pointed out the importance of logistics in order be able to provide efficient help. Furthermore, research has suggested that there is a need to consider logistic aspects already during the phase of product development, in order to optimize lead-times and efficiency. Early in the process, one should consider attributes with the product specifically aimed at the situation it will be e.g., transported, distributed and stored in. For example it would be beneficial to consider the disassembly of the product, already in the development phase.

In disaster situations, items related to relief (food, non-food, cash), shelter, health and hygiene promotion, water and sanitation are central to provide as early as

possible and are provided by a large number of non-profit organizations. However, products related to water, sanitation and hygiene in specific are prioritized as the most critical products to provide during a crisis (Fontes, 2011, Dignan 2005, The Sphere Project, 2011). Over a period of time it has, in the industry, been decided that water, sanitation and hygiene (WASH) products should be combined into a single big kit and sent together, to areas in crisis. More than 3.4 million people die each year from water, sanitation, and hygiene-related causes (WHO, 2008), a number, which signifies the magnitude of this issue. Also in the media, the issue has gained substantial attention. The Norwegian annual, nation-wide fundraising event, “TV-aksjonen”, has for 2014 been rewarded to The Norwegian Church Aid, with the aim of raising enough money to ensure clean water for 1 million people (NCA, 2013).

1.2 Problem Statement

As natural disasters have five-fold over the last few decades, there is an emerging need to improve disaster response. In order to improve the response, scholars have emphasized the need of taking logistical considerations, and focusing on logistics in order to improve efficiency of the operations. In particular it has been suggested that logistical considerations are to be made early in the process; in fact as early as in the product development phase. Based on this apparent focus in the humanitarian field, we have accumulated onto the following problem statement;

“ Which logistical elements are necessary to consider in an innovation process for future product development within the humanitarian field?”

1.3 Limitations

In accordance with our problem statement we so far have only the following limitation.

- We will not cover the technical specifications with product, but rather focus on the logistical aspects and the innovation process.

2.0 Relevant literature and theory

Based on the problem statement of our thesis we will review existing literature on the following topics; disaster relief and humanitarian logistics, innovation and the processes, and logistic with regards to product development.

2.1 Literature review

Humanitarian logistics and disaster relief

As the number of natural disasters has largely increased over the recent decades, so has the amount of research. However, compared to research on traditional economic theory, such as finance and marketing, research in humanitarian logistics is fairly young. As late as 2006, Beamon and Kotleba acknowledged that only a limited volume of research existed, and no journals were dedicated to humanitarian logistics even though “the increasing complexity and magnitude of global emergency relief operations create a critical need for effective and efficient humanitarian supply chain management processes” (Beamon and Kotleba, 2006, 1). Furthermore it has been estimated that 80 percent of humanitarian operations costs are related to logistics activities (van Wassenhove, 2006), further proving the importance of logistics in humanitarian operations.

Yet, scholars argue that many organizations continue to undermine the importance of logistics in disaster relief operations (Murray, 2005).

Consequently from the recent increase in awareness about the importance of logistics in disaster relief operations, has led to a much-needed increase in academic research into humanitarian logistics (Majewski et al., 2010).

Humanitarian logistics is defined as “the process of planning, implementing and controlling the efficient, cost effective flow and storage of goods and materials as well as related information from the point of origin to the point of consumption for the purpose of alleviating the suffering of vulnerable people. The function encompasses a range of activities, including preparedness, planning, procurement, transport, warehousing, tracking and tracing, customs and clearance” (Thomas and Kopczak, 2005).

The definition described above illustrates a number of potential challenges related to logistics in humanitarian aid. Dignan (2005), the author of “Tricky currents; tsunami relief is a challenge when supply chains are blocked by cows

and roads don't exist" points out that logistics in disaster relief has its very specific challenges, that are not seen in the commercial world of logistics. Scholars such as Kovács and Spens (2009) and Tomasini and Wassenhove (2009) have in particular highlighted the importance of general preparedness activities in this regard. Tomasini and Van Wassenhove (2009) further state that *any* improvement in the supply chain lead-time can have a significant positive impact for the end-users (beneficiaries) in the humanitarian sector.

Chandes and Pache (2009) have studied the issues associated with humanitarian logistics overall and found that humanitarian logistics operations have been hampered by a lack of coordination between actors, which directly affects performance in terms of reactivity and reliability. In a disaster relief situation, there are often many actors to coordinate, all with different areas of responsibility.

Scholars Kovács and Spens (2007) argue that the tools and methods necessary for actors in disaster relief can be adapted from business logistics. They further developed a framework for disaster relief logistics, which is illustrated below:



The authors focus on the need to look into two perspectives, both the regional and the extra-regional perspectives, arguing that this previously has not been combined in a single framework. It is emphasized that different actors have different perspectives on humanitarian logistics and prepare and execute disaster relief operations differently (Kovács and Spens, 2007). The framework is divided into three phases of a disaster relief situation; preparation, immediate response and reconstruction as well as the perspectives. The phases are described in terms of time respectively as: prior to, immediately during and long-term during a crisis.

The framework illustrates the dynamic context between the disaster relief process and the different actors' responsibilities. It further illustrates the applicability of business logistics terminology into humanitarian context. This article presents business logistics primarily as a part of the immediate response phase, and less so in the two other phases.

Existing theory has also focused on the logistic challenges and issues met in all the different phases in disaster relief (Majewski et al., 2010, Tomasini, and Van Wassenhove 2009 and Kovács and Spens 2009). Kovács and Spens (2007) further claim that existing academic literature on humanitarian logistics have a tendency to focus on the preparation phase of disaster relief. However, as donors insist that their money goes directly to the immediate response phase and to help victims directly, rather than “to finance back-office operations” (Murray, 2005 in Kovács and Spens, 2007, 110), it turns out that preparation and training phases are often neglected.

Tomasini and Van Wassenhove (2009) state that any improvement in the supply chain lead-time can have a significant positive impact for the end-users (beneficiaries) in the humanitarian sector. This validates the focus on supply chain management as a key factor in the overall effectiveness of any humanitarian response (Tomasini and Van Wassenhove, 2009). Additionally, McClintock (2009) claims that there is a need for an integrated view on the humanitarian supply chain. The author considers that awareness of traditional logistical aspects, such as transportation, distribution and warehousing, will lead to improved performance.

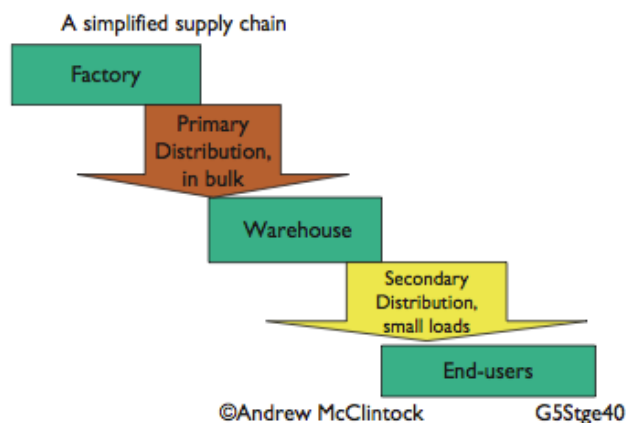


Figure 2. A Simplified Supply Chain.

Murray (2005) claims that experts stress the need for more agencies to treat logistics as a strategic function at the heart of their operations. The speed of humanitarian aid after a disaster depends “on the ability of logisticians to procure, transport and receive supplies at the site of a humanitarian relief effort” (Thomas, 2003, 4)

Finally, research has been conducted on which supplies are most critical to provide in a crisis. According to Dignan (2005), the most commonly needed products in disaster relief are; water, medicine, chlorination tablets, tents, blankets and protein biscuits for malnourished children. In addition, The ‘Humanitarian Charter and Minimum Standards in Disaster Response’, created by The Sphere Project in 2011 assess water, sanitation and hygiene promotion to be the most important factors. Finally, the Fontes report from 2011 “FN-nødhjelpsmarkedet – vann, sanitær, energy og shelter” also reports that water and sanitation are the most crucial elements to provide during a crisis, followed by electricity and shelter.

Logistics and product development

Supply chain management is defined as “the integration of key business from end user through original suppliers that provides products, services and information that add value for customers and other stakeholders.” (Lambert et al., 1998,1) Logistical characteristics and their performance implications in a supply chain have been studied to a great extent (Simchi-Levi et al., 2000, Jahre et al., 2006 and Stock and Lambert 2011).

Stock and Lambert (2001) present a model consisting of logistics activities within logistical management (attachment 1), and their resulting outputs. These logistical aspects are important performance indicators for the supply chain.

Also, there exists a system view of logistics considering the cost trade-off between several logistical aspects (Jahre et al., 2001). This model emphasis (attachment 2) on the dynamic dependence between the following logistical elements and total logistics cost: Place/customer service level, transportation cost, warehousing cost, order processing and information cost, lot quantity cost and inventory carrying cost. The main idea is to reduce overall total logistics cost by viewing logistics as

an integrated system and minimizing total cost given the customer service objective.

Brekke et al., (2006) discuss logistical dimension as, in which way, how much and in which dimensions, a resource have been designed in order to function well from a logistical perspective. Further, it is argued that there are always some logistical aspects to be considered when designing products, and that the design of the end-product must be possible to transport and store. The scholars have applied empirical cases such as: The roll rack for milk distribution and IKEA product: lack table in order to identify and discuss important logistical dimensions around product design such as standardization, adaption versus adaptability, modular design, shape and volume and how these characteristics adds value and influence the supply chain considering: distribution, transportation, handling, flexibility, storing, service level and total costs.

Simchi-Levi et al., (2004) highlight's a change in supply chain focus going from the assumption that product design decisions were already made by the time the supply chain is designed, to realizing that by taking supply chain concerns into account in the product and process design phase, it results in a much more efficient supply chain. Design for logistics (DFL) discuss a series of concepts that suggests product and process design approaches that contribute to control logistics costs and increase customer service. Concepts such as: economic packaging and transportation, concurrent and parallel processing and standardization, each affects directly inventory or transportation costs and service level. Furthermore, a study in The Global Procurement and Supply Chain Benchmarking Initiative at Michigan State University found that firms realize great benefits such as cost reduction and quality improvement, from involving suppliers in the design process.

Innovation and innovation processes

In the early works of Joseph Schumpeter "The Theory of Economic Development" from 1912, the author defines innovation as to consist of any of the five following phenomena: "(1) The introduction of new goods, (2) new methods of production, (3) the opening of new markets, (4) the conquest of new sources of supply, or (5) the carrying out of a new organization of any industry" (Schumpeter 1912, 66). Early literature such as Penrose (1959) argues that the value of a resource (e.g.:

product) is a function of the way in which the resource is used. Jahre et al., (2006) suggest that the main implication of this approach is that resource development and innovation not only take place by means of investment in new resources. On the contrary, to a great extent, for example by exploiting the unused features of individual resources, and/or combining them in new ways.

Researchers, such as Asheim, further suggest that innovation is “at the center of economic growth and view innovation as the single most important driver to create growth and increase in employment” (Asheim, 2012, 65) and stay true to the early definition of innovation made by Schumpeter, as it is quite broad.

Innovation is an emerging field and many articles have been written to describe the development. Studies have been conducted to explain different characteristics and importance of innovation in new focus areas such as business departments and centers (Kline and Rosenberg 1986, Fagerberg et al. 2005 and Fagerberg and Verspagen 2009). It is argued that innovation is uncertain, disorderly, complex and consists of continuous changes throughout the process. Rosenberg and Kline (1986) define the process of innovation as “a series of changes in a complete system not only of hardware, but also of market environment, production facilities and knowledge, and the social contexts of the innovation organization.” (Kline and Rosenberg, 1986, 274)

Nonaka (1998) emphasis on the importance of the “knowledge creating company” in which, is known by a firm’s ability to quickly respond to their customers, create new markets, develop new products, and dominate emergent technologies by continuously utilizing knowledge within the company. Knowledge is explained to be either explicit, (formal and systematic and easy to communicate) or tacit (personal and difficult to communicate). Understanding knowledge creation and the structures and procedures of the dynamics that makes tacit knowledge-explicit, is important in order to translate a company vision into innovative products.

Van de Ven et al., (1999) conducted longitudinal case studies and identified a generic innovation journey that organizations undertake they event, develop and implement a new product or service. Generic innovation is based upon 4 traits, claiming that the innovation 1) Consists of a purposeful, concentrated effort to develop and implement a novel idea; 2) is of substantial technical, organizational and market uncertainty; 3) entails a collective effort of considerable duration; 4)

requires greater resources than are held by the people undertaking the effort. (Van de Ven et al., 1999, 22) The study found that innovations are developed in a non-linear sequence and is highly complex and unique. However, the research further concluded with three common elements during an innovation process: initial period, developmental period and implementation/termination period.

First of all, the firm experiences an initiation period. According to the literature, an innovation is not a spur of the moment happening, but rather happens over an extended gestational period consisting of coincidental occurrences over a longer period of time. However, concentrated effort initiate innovations, but are often triggered by external shocks. In this initial period plans are developed to present the idea in order to engage important actors, such as partners and investors.

Secondly, developmental period is described to start when ideas proliferate into activities. During this period setbacks and mistakes are common, and needs to be tackled in order to adapt the innovation accordingly. So, the criteria of success and failure often change due to natural loops during this period. Additionally, innovation personnel participate in more fluent ways, doing everything in regards with the innovation. This period of the process requires developing relationship with different actors, both to enable to innovate but also in order to create necessary industries/communities/clusters.

Finally, the implementation period occurs throughout the previous period. By linking and integrating the innovation to either the “new” with the “old”, or by reinventing the innovation to fit the local situation. Lastly, the innovation is described as to stop when either the implementation period is over and the innovation has become commercialized, or when resources run out and consequently the innovation journey is immovable.

As we can see from the literature review, there exists a large amount of theory on each of the three subjects in isolation, but not much research focuses on logistics in the product development phase, and particularly on not logistics in product development for humanitarian purposes in specific.

3.0 Practical relevance; case presentation and purpose of the thesis

In this section we will present the reasoning behind our thesis, based on the literature review done as well as the empirical evidence available to us.

3.1 Case presentation

In preparation for the thesis, we attended a Norwegian Emergency Preparedness Systems (NOREPS) conference with focus on “Innovations from Norway” in Genève in September 2013, in order to assess the need for research and respectively choose an appropriate case study. After consultation with both NOREPS-associates and other attendees (in particular Norwegian Church Aid (NCA)), we were encouraged to look into the innovation process of humanitarian products, using the product “Water-sanitation and hygiene kit” (WASH kit) as an empirical example. In addition, since water, sanitation and hygiene are recognized by literature, as the most crucial types of products, a theoretical contribution to this area seems appropriate.

The WASH kit is a result that closely fits the specifications outlined in the Global WASH Cluster Emergency Materials Project. The project has the aim of placing the right materials in the right place, and in time. The kit consists of three main product categories: water, sanitation and hygiene. There are approximately 40 different products (see attachment 3 for examples) such as faucets, water purification equipment, hygiene promotion kit, plastic toilet facilities (squatting plates), water testing kit, as well as the necessary tools to assemble each single part.

All of the products in total fit into a 40 feet container with a total weight of approximately 10 000 kg. The kit contains necessary water, sanitation and hygiene products to provide for 5000 people. The water purification equipment will clean 95 % of all surface water with a capacity of purifying 4000 liters per hour. The kit is currently stored in strategically located warehouses such as Oslo, Spain, Dubai Malaysia and Panama, managed by the UN Humanitarian Response Depot (UNHRD). At the present time the kit is provided both in the Philippines (3 kits) and in Syria (2 kits). The supplier guarantees delivery within three months within order date. From the point of arrival the supplier also guarantees clean water on day two.

3.2 Actors in the network

There are several important actors in the humanitarian network; we will present the key actors that are specifically interesting with regards to our area of research as well as to the case study chosen. Actors include;

- Norwegian Emergency Preparedness Systems (NOREPS) is a partnership between the Norwegian Ministry of Foreign Affairs, the Directorate for Civil Protection and Emergency planning, the Norwegian Red Cross, NGO's and Norwegian companies. NOREPS responds to the emergency relief needs through a combination of products, personnel and logistics. Their area of focus is the prepositioning of relief items and life-saving equipment. The area of expertise is water and sanitation, shelter and protection, health and communication (NOREPS, 2013).

NOREPS is also the principal for our research area for this thesis.

- Norwegian Church Aid (NCA) provides emergency assistance in disasters and work for long-term development in local communities. NCA have three main area of focus: Emergency preparedness and response, Long-term development aid and Advocacy. NCA is also a member of the ACT alliance, one of the world's largest humanitarian alliances. NCA procure and own WASH kits.
- Lunner Produkter (LUPRO) is a Norwegian manufacturer, which was established to provide work to "persons who suffer from disabilities and thus would face several challenges entering the labor-market, locally as well as nationwide." (LUPRO, 2013. "About Lupro") LUPRO is a total supplier of products such as: tool kits, WASH kit, body bags and goods protection pads, provided to non-governmental organizations (NGOs), such as NCA and Norwegian Red Cross.
- UNHRD (UN Humanitarian Response Depot) have emergency response storage facilities in strategic locations. The main motivation is to ensure more rapid deployment of physical and/or virtual stocks and cost-savings in pre-positioning or dispatching the most urgently needed humanitarian aid to the disaster locations (UNHRD, 2013).
- The Global WASH cluster (GWC) is an open and formal platform for humanitarian WASH actors to work together to address key weaknesses in the WASH sector as a whole. GWC is responsible for establishing

partnership bases and facilitating activities in areas such as: Standard and Policy setting, Building response capacity and Operational support (Wash Cluster, 2012). The cluster is the key initiator behind the decision of merging water, sanitation and hygiene products into a single kit.

3.3 Purpose of the thesis

As we can see from the literature review conducted, there exists much theory on each subject in isolation, humanitarian logistics and disaster relief, logistics and product development and innovation and innovation processes, but not much emphasis on logistics in product development for humanitarian purposes. There seems to be a gap in the existing research in this particular area, which will be our aim and main objective of this thesis and contribute by developing a logistical framework. The combination of having a product that is good in it self, and at the same time created in such a way that it makes logistics easier, might improve the efficiency of the humanitarian supply chain. The framework will be developed based on the mapping of innovation process behind the WASH kit.

The desired practical outcome of this thesis is to identify and describe the innovation process of the WASH kit with correspondingly necessary logistical elements. By achieving this, we will contribute to NOREPS' "aim to strengthen relief agencies' operational capacities and to enhance the efficiency of international emergency relief efforts, in order to help as many victims as possible" (NOREPS, 2013 About Noreps "The objectives") by making our findings useful in future preparedness activities such product development. In addition, from Fontes report (2011) there was a suggestion for further research to "better analyze equipment used in the last 5 big catastrophes and related challenges to delivery, or improvements". A map of the innovation process of the WASH kit can be considered as improvement regarding product knowledge.

4.0 Research Methodology

In this section we will present the research methodology, however the very specifics will be decided continuously as the research process is going forward.

4.1 Research strategy

According to Bryman and Bell (2011), the meaning of a research strategy is to generalize and orientate the business research. Primarily, there are two different ways of conducting a research; quantitative and qualitative. In order to answer our two folded preliminary research we need to apply both a quantitative and qualitative approach that Bryman and Bell (2011) refers to as a mixed strategy.

As out literature review prevailed there exists no research directly on our topic, therefore have we primarily conducted an initial research, and mapped out all actors and their relationship relevant for our network. This is necessary to firstly take a qualitative approach to identify the innovation process of the WASH kit, which requires a detailed understanding of the situation.

Secondly, we wish to quantify both the logistic consideration acquired and wanted in a humanitarian specific innovation process. This is a very helpful approach when developing a logistical framework. The previously qualitative approach will be helpful insight to the type of quantitative data we need when measuring the logistical consideration already adapted.

Finally, a qualitative approach will ensure a deeper understanding of logistical aspects that are required for the framework.

Our preliminary research topic is both deductive and inductive due to its two-folded nature. A deductive research is associated with the quantitative approach and is carried out by using existing theory to develop a hypothesis and collect data to observe and prove if it is right or wrong (Bryman and Bell, 2011). But we do not necessarily have to test a hypothesis for it to be deductive, as long as we employ existing theory. On the contrary, the inductive research strategy is associated with the qualitative approach and it runs from observations and findings to theory. But it does not necessarily need to develop a theory (Bryman and Bell, 2011). Developing a framework of logistical consideration in an innovation process require many factors to be considered, and product specific qualities together with humanitarian logistical traits must be collected.

4.2 Research design: Case study

The most appropriate research design for our research seems to be a classic case study design. In a case study, “the case is an object of interest in its own right and the researcher aims to provide an in-depth elucidation of it” (Bryman and Bell, 2011), which is the case with our choice of the WASH-kit. As we have presented earlier, the kit contains a large number of products put together and its innovation process is therefore quite intriguing. In our choice of cases, the WASH-kit was presented to us as a suggestion and a request from NOREPS. It immediately caught our interest and was therefore settled for quite early in the process.

Stake (1995) distinguishes between three different types of case study; intrinsic, instrumental and collective cases. In our study we will conduct both an intrinsic and an instrumental study. Intrinsic cases are done in order to gain insight into the particularities of a situation; as we will gain insights into the product development of the WASH-kit. An instrumental case study is one where the focus of the study lies in using a certain case as a means of understanding a broader issue. We will use the WASH-kit as a case to understand how the innovation process, of products used for humanitarian purposes, is undertaken; from the first tender or request for the product all the way to the stage where the product is ready for use. The author himself states that the boundaries often are blurred when trying to distinguish the three types from one another.

Ellram (1996) summarizes the most frequently used types of research methods, synthesized from Yin. Crabtree and Miller, Strauss and Corbin, Marshall and Rossman Miles and Huberman (Ellram, 1996, 98). In our thesis the objective is of an exploratory nature. We seek to find answers to questions of the form “how, why, how often, how much, how many, who, what, where”, and in this regard the use of a case study seems appropriate. Furthermore, Bryman and Bell (2011) point out that exploratory case studies have a tendency of being conducted as preliminary research prior to wide-scale surveys to map out the themes for the subsequent research. This very much seems to be the case in our research proposal. We will firstly conduct the exploratory case study of the WASH-kit and then see the themes for the subsequent research that follows.

In contrast to descriptive research, which aims to find out how things are, the objective of normative study is to define how things should be (Routio, 2007).

4.3 Data collection

As we have chosen a single case study as our research design, it seems appropriate to firstly collect secondary data, both quantitative and qualitative, to analyze the needs for primary data. Primary data is collected by the researcher her/himself, whilst secondary data involves exploring existing materials (Bryman and Bell, 2011).

1. Secondary data

The purpose of collecting secondary data is to ensure important knowledge about existing literature as well as to get a deeper understanding regarding the research area. The main topics of secondary data for this thesis are: Disaster relief and humanitarian logistics, innovation and innovation processes and logistics and product development.

We will collect secondary data mostly from books, reports, research articles and electronic web pages. The following examples of reports have been collected and are of particular interest:

- *“FN-nødhjelpsmarkedet- vann, sanitær, energy og shelter”* conducted and written by Andreas Koestler, Fontes AS in 2011.
- *“Emergency appeal Philippines”* published by the International Federation of Red Cross and Red Crescent Societies in 2013.
- *“Humanitarian Chapter and minimum standards in humanitarian response”* third edition, developed by the Sphere Project in 2011.

2. Primary data

Firstly, one instrument we will use for collecting primary data is depth-interviews, in order to be able to summarize and develop a logistical framework, mainly based on the product development of the WASH-kit. This is also described to be the most common way of collecting data for research (Bryman and Bell, 2011), as depth-interviews can be quite flexible and unstructured. We have chosen a semi-structured design to map the innovation process of the WASH-kit. Using a semi-structured interview means that we will use a list of topics and questions as a guide for the interview. It is important to collect enough information to map out the innovation process and logistical consideration and therefore it is important that the interviewee has a great deal of flexibility when he/she replies the

questions. Often questions that are not included in the guide will still occur during the interview (Bryman and Bell, 2011).

It is important to prepare well before the interview by making the interview guide as good as possible. Bryman and Bell (2011) offers some guidelines to prepare better. We firstly need to construct a certain amount of order on the topic areas. Although this is intended to make the interview flow naturally, we must be prepared to alter the order of the questions during the interview. Another important aspect is to formulate the questions so it will ensure us an answer to our overall problem statement, and use a language that is comprehensible and relevant to the people we are interviewing. We must therefore prepare to be able to explain different concepts if it is needed. Lastly, it is important that we do not ask leading questions since this will affect our research.

During the interviews we will use a tape recorder to be sure that we retrieve all the information we want. This will help to remember correctly what interviewers say in a more thorough and correct way as well as *how* they said it. It also enables other researchers to evaluate our analysis, as a secondary analysis, and thereby it is possible to justify that the results are not altered by our (the researchers) own values. The data we collect can also be reused in other ways, e.g. in the light of new theoretical ideas or analytic strategies. Furthermore, it is important to make notes after the interviews; notes of how the interview went, where it took place, and feelings and thoughts we might have about the interview. This is to be able to get a better analysis in the analyzing phase. (Heie et al., 2013)

Our sample for interviews will be key individuals in organizations and companies important in the innovation process such as the WASH cluster, NCA, UN, LUPRO and NOREPS. We see that a challenge would be to identify the right people to interview in order to obtain the necessary, but also correct information.

Another instrument we will use to collect primary data is questionnaires.

Secondly in our data collection process, we will use questionnaires to identify the logistical aspects in the innovation process. Moreover, we will most likely use a combination of close-ended (Likert scale) and open-ended questions. We wish to identify both which logistical aspects that have already been considered, but also those required and desired by the different actors. We will therefore need to send our questionnaire to actors involved in the entire innovation process of the WASH kit. When the sample size increases, errors in accordance to sample will decrease

(Bryman and Bell, 2011). Therefore we would optimally like to interview several employees at the organizations and companies involved in the innovation process.

Bryman and Bell (2011) distinguish between two types of questionnaire; Self-completion and postal questionnaire. Postal questionnaire requires the respondents to actively send the questionnaire back to the researcher, e.g. by answering e-mail or posting the questionnaire in the mail. Self-completion versions, on the other hand, are much more user friendly for the respondents. We will conduct a web survey that we will send to our respondents by e-mail. This e-mail will contain a link to our survey, and the respondents only have to answer the survey online, without any further hassle. This will hopefully decrease our non-response error (Bryman and Bell, 2011). One advantage of doing the self-completion questionnaire is that it is much quicker to administer, as well as much more convenient for the respondents. However, some of the negative points of using this type of data gathering is that one cannot collect additional data, while at the same time the fear of non-response makes it challenging to ask the amount of question one initially would like to ask.

Our sample for the questionnaires will mainly be the same as for the interview. However, this will be decided after completing the interview. We will possibly add field- personnel that have product assembly experience.

3. Data analysis

One of the central approaches to the analysis of the interviews will be to summarize each interview, modifying it and extracting general and unique themes in order to code the answers (Bryman and Bell, 2011). Moreover, most of the data from the questionnaires (from Likert scale) will be numbers and can be plotted into a statistical program for analysis. It is quite likely that we will use SPSS for analysis, due to our prior experience with this particular program.

4.4 Research design quality

According to Bryman and Bell (2011) there are three criteria that have proven to be most prominent for the evaluation of business and management research; reliability, replication and validity.

1. Reliability and replicability

Reliability refers to whether a measure of a concept is stable or not (Bryman and Bell, 2011). It basically asks the researcher to make sure that if the study were to be repeated, it would yield the same results. In a case study, there are two important aspects to reliability; the use of a protocol and the development of a database (Ellram, 1996). In the WASH-kit case study, the product development process will be investigated in different phases, yearning from the evolution of the request from the WASH-cluster, and all the way to the stage where the product is ready for distribution in a disaster. Each phase of the product development process will be described in detail as well as the observation we make while investigating, in order to ensure repeatability. Data collection steps, questions asked in the procedure, assumptions taken, limitations made and challenges met, as well as detailed information about the sources used are all examples of information that will be provided. All of this will be presented in the thesis in a structured and detailed manner, in order for other researchers to be able to repeat the study.

The case study protocol attached to our thesis will include an interview guide and the procedures that will be followed in this research. The case study database will include completed interview guides, any additional notes taken outside the interview guide as well as a detailed summary write up. Furthermore, as a case study design includes the use of multiple sources, all of the written documentation used as sources for the thesis will be included in the case study database. An example of this can be printed material provided to us by the participants; such as WASH-kit specifications given to Lupro by the NCA prior to product development, and internal notes and documentation made by Lupro in the process. The on-site visits that we have done so far in our preliminary research phase will also be described in the thesis, such as the trip to Genève in September 2013 and two trips to Lupro in Roa, Lunner respectively in October 2013 and January 2014.

2. Validity

According to Bryman and Bell (2011) validity is concerned with the integrity of the conclusion that is generated from a piece of research. Furthermore, Ellram (1996) distinguishes the criteria of research validity into three areas; external, construct and internal. Internal validity is mainly correlated with explanatory

research where one studies the impact of an independent variable and the effect as the dependent variable; thus it is not relevant for our thesis.

External validity is concerned with the degree to which a study is generalizable to other situations. The selection of people chosen to participate in the study, becomes crucial in this context (Bryman and Bell, 2011), and will therefore be described in great detail in the thesis.

Construct validity addresses establishment of the proper operational measures for the concepts being studied (Ellram, 1996). In the thesis we will ensure construct validity by 1) using multiple sources such as several informants, internal company documentation, direct observation and written questionnaires, 2) establishing and maintaining a chain of evidence throughout the study, from the formulation of the problem statement and to the concluding remarks and 3) draft reviews by key informants, most prominently our thesis supervisor Marianne Jahre.

5.0 Project plan

5.1 Future time disposition

	May '13	June	July	August	September	October	November	December	January '14	February	March	April	May	June	July	August	September
Define research area																	
Literature review																	
Define research question																	
Decide on methodology																	
Extensive literature review/field trips																	
Hand-in preliminary																	
Produce questionnaire																	
Send out questionnaire																	
Follow up on respondents to secure answers																	
Data analysis, questionnaire																	
Select potential interview objects for in-depth interviews, negotiate access and arrange meetings																	
Conduct interviews																	
Data analysis, interviews																	
Writing up 1st draft																	
Writing up 2nd draft																	
Final draft and hand-in final thesis																	

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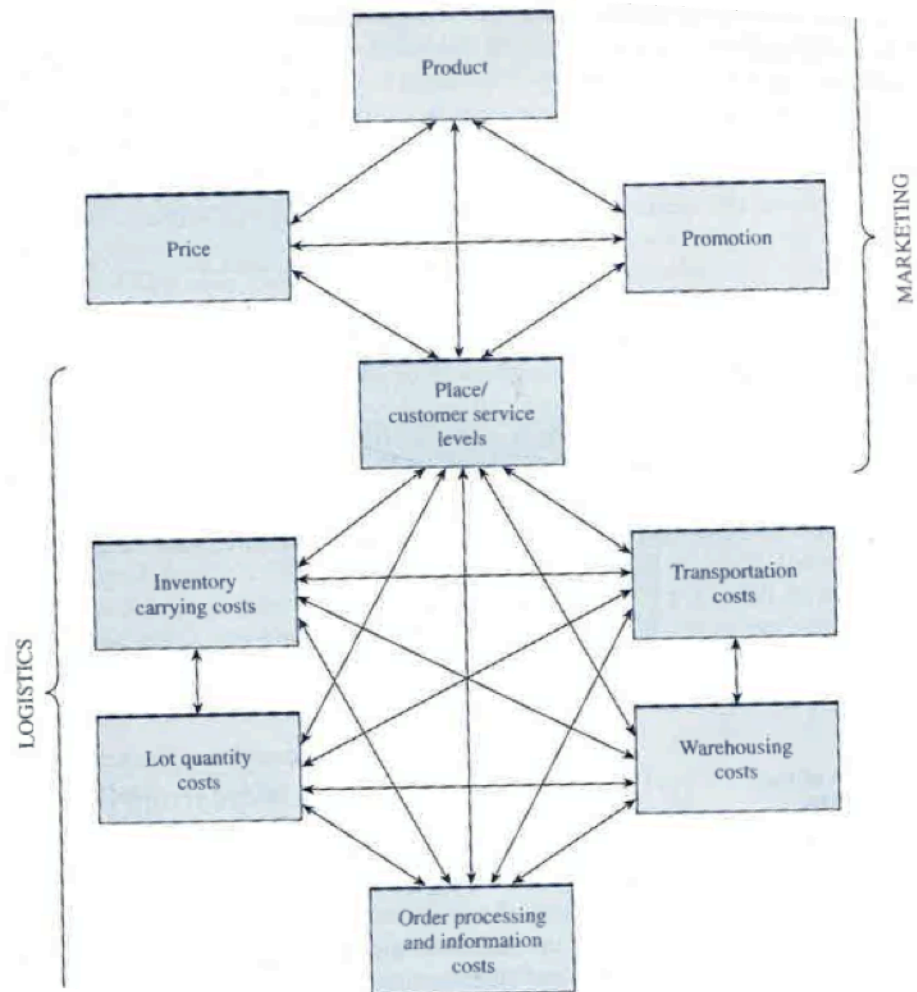
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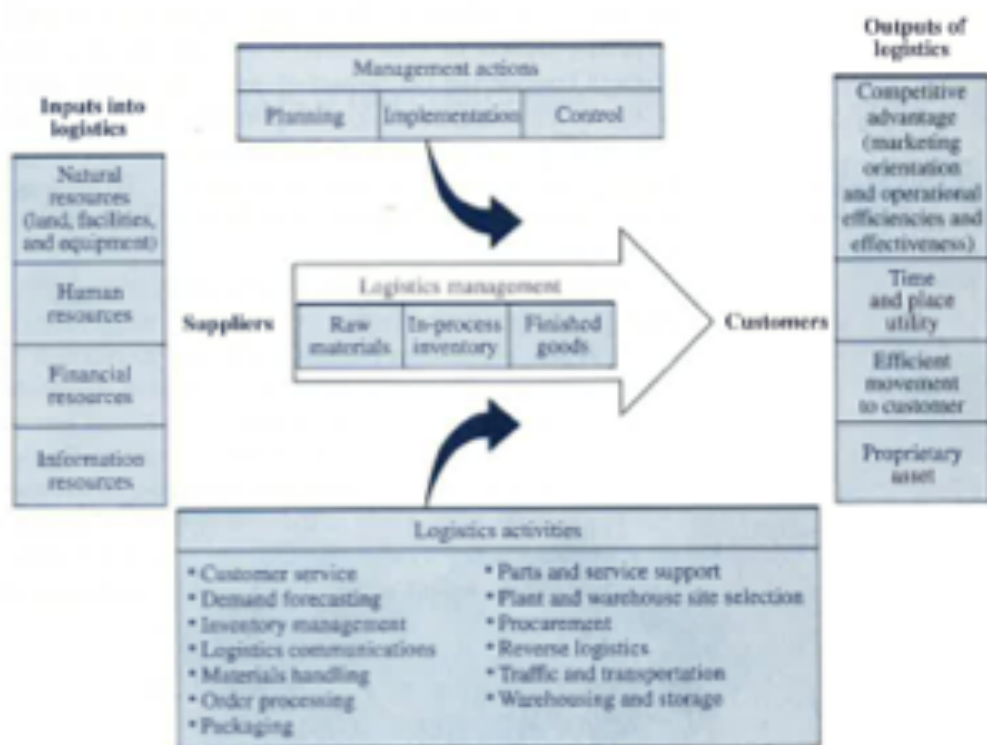
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7.0 Attachments

Attachment 1: Cost trade-off in marketing and logistics



Attachment 2: Components of logistics management



Attachment 3: Examples of content of WASH-kit

Plastic toilet; squatting plates



Buckets for transporting water



Faucet for drinking water



Faucet mechanism (fitting)



Hygiene promotion kit
(T-shirts, posters, coloring kits)



Some parts of the kit packed and ready for transportation

