Strategic issues in logistics

A literature study on the implementation of sustainability in strategic issues in the field of logistics today

J. Doe[1]

Abstract: This is a literature review focusing on the topics of sustainable supplier selection, transport methods and general process evaluation – all different strategic issues in logistics. After narrowing the results to only cover the aforementioned topics, the review goes through two to five articles in each category and gathers the results. In the topic of sustainable supplier selection we see that the stakeholders care less about the question of sustainability than the people working with logistics processes closer to the end user. In the topic of the performance evaluation in regards to sustainability we find that producing metrics for sustainability is a huge and costly load for a company and that there is currently no standardization for companies to be evaluated against each other in terms of how eco-friendly they are. Regarding transport methods, we find out that the transport companies themselves are not as interested in their eco-friendliness as they probably should be, but that neither are stakeholders. This literature study is concluded with a talk on the correlation of the positioning of the issue in the chain of logistics processes and the prioritizing of the issue of sustainability, plus the implications of the low prioritization of sustainability in transport.

Keywords: Strategic issues, Logistics, Supply chain management, Sustainability, Transport, Suppliers, Shareholders

1 Introduction

The topic of this literature study encompasses an extremely wide and ever expanding pool of issues. To discuss only the matter of "strategic issues in logistics" would have us bringing to the table each aspect of a supply chain, no

[1] Jane Doe

matter how strange the produced product or service. Due to this, the articles needed to perform such a literature study would be very scattered, with every topic comprising of a review of several thousands of journal publications. Examples of viable issues to be discussed within a study of strategic logistics issues would be for example ethical issues (when related to for example outsourcing of manufacturing materials in conditions where outsourced material would be more time-effective but the company visions itself to be seen as a locally producing company), workforce diversity issues (when related to the employment of people of lesser physical strength to a physically craving job in a company that promotes equality), and last but not least environmental issues (when related to for example cargo methods and the use of cheaper but not as eco-friendly transport methods within goods transport). The list of possible issues to discuss would be endless. Therefore this study focuses on one of the most prominent fields of strategic issues (Govindan, et al, 2014): environmental strategic issues in logistics such as sustainability and eco-efficiency. Not only are sustainability, eco-efficiency and "greener supply chain" logistical issues as they are related to almost every step of a modern logistics chain, but that they are also extremely strategic as almost every operator in the supply chain business today not only has a vision but also a demand to be as eco-friendly as possible. It is one of the utmost goals of all modern companies, almost a high ideal that is always present (Payman, et al, 2013). This limitation also enables this literature study to pick subjects in a way that enables us to get a good picture on the whole of what has been written on certain topics over the last decade.

The overall goal with this study is to show how the current research sees sustainability in all major areas and issues of the logistics field of today, and to shed further light in the three picked out topics that seem to emerge the most in academic journals focusing on supply chains and logistics today.

2 Research methodology

2.1 Material search methods

The articles to be reviewed were first gathered using the Discovery service. The Discovery service was run through the Mälardalen College server, and the articles studied in full text. The search terms first used were "issue logistic sustainability". Not all articles listed were chosen to be studied, the choice of articles was based on the relevance of the article to our topic, with most attention paid to the journal the article was published in and the abstract of the article. The articles were then inspected via the ProQuest and Science Direct services and evaluated for their reliability using the sources cited in the articles. Next a complementing search was conducted using search term "green supply chain strategic issue logistics", "logistics supplier selection sustainability", "suppliers sustainability logistics", "transport sustainability issue logistics" and "logistics sustainability transport". Thirdly, a search into the found articles was conducted, listing out the references of the articles to find related articles meeting our delimitation of years and topics. The gathered articles were then evaluated for their reliability and uniqueness, and the originally found articles cross referenced to see that the sources matched the cited text.

2.2 Delimitations

This study is delimited to concern issues that first of all fulfill the criteria specified in our definition of the term "strategic issues in logistics" but secondly specifically concern the subject of "sustainability" in logistics. Additionally the study only reviews scientific articles published in academic journals within the last ten years, placing the publishing interval between 2005 and 2015.

As this literature study is restricted to a length of 25.000 to 30.000 characters we are also restricting the number of articles to be more than 15 but less than 30 to stay within the given limits.

3 Literature review

Sustainability comes into play in a multitude of strategic issues in logistics. In the literature studied the issues that pop up most often are those related to sustainable supplier selection, transport methods and general process evaluation. To show how these topics fit perfectly as high priority strategic issues in today's logistics, we need to delve into a definition of the term "strategic issue in logistics".
First to be defined will be the word "issue":

Definition 1. An issue is most often a question craving an answer or waiting for a decision. An issue is however not always a strategic issue, though it is considered an important – even vital – matter that is unsettled (Merriam-Webster, 2015).

What is a "strategic issue" then? Let's look first at the word "strategic":

Definition 2. To be considered "strategic" the matter in question must be related to a plan that has been put together to achieve something (Merriam-Webster, 2015).

Therefore a strategic issue could then be considered to be a combination of definitions 1 and 2: A question craving an answer or a decision that are related to a plan created to achieve something. To clarify further, we can say that strategic issues are issues that pose a threat, provide an opportunity, are function impaired in their present state, do not represent the desired outcome and are a result of being outdated and in need of a change. When affirming the strategic impact of an issue, we can also look whether the issue would have a negative impact on the completion of a strategy if left unresolved, or how it would impact the future workings or the vision of the business.

Next, it is necessary to define the term "logistics":

Definition 3. According to Merriam-Webster, logistics encompasses everything that must be completed in order to plan and organize events or activities (Merriam-Webster, 2015).

We can also think of logistics as the supply chain itself – from raw materials to a finished product, logistics makes the whle chain move and function.

Putting together definitions 1 and 3 it can now be defined what is meant by "issues in logistics" by saying that they are questions related to things that have been completed or are waiting to be completed in order for activities to be planned and / or organized. Combining this notion with our previous definition of "strategic" it can now be concluded that with "strategic issues in logistics" this study refers to issues that fulfill both of the following criteria:

1. The issue concerns matters in a workflow created for activity planning or organizing;
2. The issue plays a part in a bigger plan built to achieve a bigger goal than just the completion or resolution of the issue itself.

Last we define what we mean by calling something "sustainable":

Definition 4. According to Merriam-Webster, sustainable is a word used when describing methods and things that do not use up natural resources (Merriam-Webster, 2015).

In this literature review we also use the terms "eco-friendly" and "environmentally safe", and they are used as though synonyms of "sustainable". We use them in relation to describing whether the methods and ways of bringing a product or service to the world cause a lasting negative impact on the world and its lifeforms.

After defining the terms the three most common topics can be evaluated and deemed to be within the scope of this study. Each one of the themes will now be studied separately, divided into their own sub-themes.

3.1 Sustainability performance evaluation as a strategic issue in logistics

The general methods of continuous evaluation of the effectiveness of various sectors of logistics is an issue heavily affecting the strategy of a company as it gives the guidelines to what should be done and what should not – and most of all which areas need to be developed further. Within this issue sustainability has become an important factor naturally craving more means of evaluating processes. This study will now take a look at the literature concerning this subject.

Bai (2012) suggests that sustainability causes a significant load on logistics processes as the methods needed to evaluate sustainability take up a lot of time and resources. Tajbakhsh (2015) continues that eventually it would be necessary to implement similar strategies of sustainability evaluation across the globe to be able to achieve significant results. Bai (2012) also indicates that the metrics needed to evaluate the carbon footprints and other environmental impacts of the supply chain take up too much timewise as the methods to produce the metrics are too varied and not standardized. In some cases the need to evaluate the sustainability of logistics can become way too costly, and therefore becoming an overall concern as it is inefficient to measure and often does not produce extra monetary value. This opinion is backed by the research conducted by Acquaye et al (2014) who conclude that there is a lack of possible methods to properly measure and compare the environmental performance of one company with another. Whereas Bai (2012)

and Beske et al (2014) suggest using rough set and grey theory to start systemizing the evaluation of sustainability in a company, Acquaye et al (2014) suggest only penning similar companies against one another when in need of a comparison to provide accurate results. They also suggest building maps deciphering the whole supply chain for companies to be able to fully and continuously to follow the improvements in sustainability within different areas of logistics. Another method suggested to be implemented as a standard method could be the data envelopment analysis (DEA) which would prevent the implementation of performance measures becoming too extensive (Beske, et al, 2014).

Some instances have hinted at the possible of product-level evaluation through means of RF-id tagging as a standardized method, but McKinnon et al (2010) describe this as a "wasteful distraction". They deduct that such a method would not only take up too much time, effort and money, but also would work against the idea of sustainability through the use of the tags. It needs to be remembered that sustainability also includes the idea of lean: the fast and effective way of completing all tasks. Though many governments have approved legislation that requires companies to control their carbon emissions, it is seen as highly undesirable to go as far as the product level to provide accurate information on the sustainability of a company. Hence it is not even legally necessary to complete such an effective effort, let alone standardize one.

To bring forth another vital point, Colicchia et al (2013) bring up the necessity of developing a standardized method for company sustainability evaluation through the idea of being able to present existing results to others. Without existing methods to have as a reference point, it is hard to convince others to take up similar processes, as there is no standardized way of showing whether the method actually is effective or not. They suggest developing at least two separate methods: one for presenting the methods to their customers, and a separate one to present to the suppliers. They implicate that these two parties need different things from the method and therefore it will be necessary to provide each party with their own presentation focusing on exactly what they precisely need to know. Presenting both parties with the same presentations could be more harmful as certain aspects the others perceive as important can be perceived as harmful by the other party in the supply chain.

From the perspective of shareholders, the effective evaluation of sustainability processes seems to be an ever growing concern. Not only do the means to become a sustainable company take up money, but they also take up time. Stakeholders, craving a profit, do see the necessity of sustainability in this day and age and naturally also recognize the global need and legislation to promote sustainability, but they are hardly ever willing to do so at any given cost. The costs must always be well reasoned and here evaluation comes to play. Souza et al (2015) suggest using methods that target the needs of stakeholders in particular by bringing into view both the effects of the sustainability operations on the image, the costs and the profits. Based on this Souzaa et al (2015) suggest the use of causal maps, to make the implications of future impacts of environmental changes in processes visible to stakeholders. Sanchez (2015) goes further with this idea in first starting to identify key stakeholders and then addressing their specific concerns directly. This method is called the Strategy Map and is based on defining the goals and perspectives for all appropriate targets and projects and then using it to highlight the specific needs of a stakeholder. This approach would according to Sanchez

(2015) provide a better implementation of the standardization on both a stakeholder and a project management level, easing the monitoring of the environmental impact both from the view of a target, goal, need or a project. It could also be used in the creation of ranked lists of achievements in sustainability.

The persisting theme across the articles related to the methods and metrics the evaluation of sustainability is the heavy load it puts on the company – with no payback. We will discuss this further in our conclusion.

3.2 Selection of suppliers as a strategic sustainability issue in logistics

Finding a supplier is not as straightforward now as it was before the time the global focus turned to sustainability – now the choice of a supplier not only comprises of the suppliers service, location, cost and effectiveness but also of their sustainability, especially in the case of logistic chains that produce goods marketed as environmentally friendly. It is therefore a very serious strategic issue that can have long lasting effects to the image and vision of a company if not fulfilled appropriately.

Kudla et al (2015) indicate that many are only starting to look at their suppliers from the viewpoint of finding a supplier that is sustainable. Most companies tend to see issues of ethics and cost as more viable when considering the choice of a new supplier, and also questions why even the more environmentally aware companies put so little weight on the sustainability of a supplier's choice of working methods. Reuter et al (2012) continues that it seems like shareholders give a negative impact on the pursue of sustainable resolutions in logistics, whereas more customer oriented companies and public pressure lead to faster and more prevailing sustainability strategies over the whole field of supply chain issues. This is partly due to the cost driven view of the stakeholders, and the public's exceeding capability in pointing out the more eco-friendly companies from the rest. Ramanathana et al (2014) suggest collaborating with other companies to overcome the restrictions placed by stakeholders and to find a common ground in meeting the global demands of corporations becoming more sustainable in all areas. In their article they present specific three-level conceptual ideas for the UK market but these ideas could be implemented anywhere, achieving sustainability through co-operation, to fulfill government restrictions for companies now and in the future. The issue of government or corporate based sustainability standards is also brought up by Grimma et al (2014). They discuss the idea of using sub-suppliers and evaluating them from the perspective of sustainability through third party evaluators, thus freeing the company from the task of evaluating and therefore freeing resources to other logistics tasks. The paper by Grimma et al (2014) is however the first of its kind and the topic should therefore be researched further to see the viability of the usage of sub suppliers in terms of the time and resources actually freed, and whether the actual effect on sustainability it bring is positive or negative. Darkow et al (2014 continue that the environment and sustainability will have to be kept in the limelight constantly for the attitudes of managers and shareholders to change to reflect the importance of them in the resolution of all logistics issues, including the choice of a supplier. According to them the importance of sustainability is still constantly being challenged when the logistical processes are being evaluated for their effectiveness.

3.3 The issue of finding sustainable transport methods

As with the search of a sustainable supplier, the finding of a sustainable transport method in logistic chains is an issue of high strategic importance with its influence ranging as far as the consumer – especially in cases where the transport method is found to be ecologically dangerous as causing a big carbon footprint for products otherwise marketed as "eco-friendly".

Evangelista (2014) brings into view the high use of third-party logistics providers in modern day logistics. At their best they can provide a true and tested safe option, but at worst they can be reliable for a huge chunk of the carbon footprint count of a product. In Evangelista's (2014) study three different groups within European logistics and third party logistic provider users are identified, with a different view of the importance of environmental issues in relation to transport. The general consensus seems to be that the variety of the transport companies and their reliability in terms of being sustainable is just too big, and therefore the environmental factor is considered very little in Europe when choosing a provider. On the other hand Colicchia et al (2014) indicate that many third-party logistics providers have implemented many different sustainability tactics into their proceedings with transport though they might lack in having sustainable proceeding in their internal management.

Obehofer et al (2014) suggest that the different views on transport as a sustainability issue vary depending on the place of the company in the chain of logistics. Those sides of a logistics chain that have contact with the customers seem to be more aware of the impact of carbon emissions in transport than those companies that are placed in the end of the logistics chain that mostly does dealings with non-end-users. All in all companies that have contact with end users feel the pressure of implementing the concept of sustainability to transport and other logistics issues alike. Transport companies themselves seem to however lack this contact, being mostly in the middle of a logistics chain. They do not receive the same pressure from the end users as other cells in the supply chain, and though they are one of the highest producers of carbon emissions in the product manufacturing chain, they might be one of the last to implement strategies to control these emissions.

To wrap up our findings on the topic of transport and sustainability, we can see that of all three topics covered in this literature study it is the least advanced in terms of being eco-friendly, though it might be easy to think otherwise. It can be argued that due to the habit of third party outsourcing transport and not providing transport internally, not enough is thought about the environmental impact and too much of the cost when choosing the method and company used.

4 Analysis and discussion

The reviewed articles implicate that there is a lot of work to be done before we can see all strategic issues within logistics being resolved with the idea of sustainability in mind. This study only touches the tip of the iceberg that is the iceberg of strategic logistic issues, and all of these issues have severe let downs when it comes to the current state of resolutions from the viewpoint of sustainability.

Conclusions drawn from the topic of evaluating the sustainability of a company is that evaluating and finding metrics for sustainability – something that was not evaluated in the past as much – is a tough load on any company. We can also conclude that no, no standard methods exist and every company measures their own sustainability in their own terms. It must be underlined though that finding the ways to evaluate and measure the sustainability of a company is and will be most important in terms of being able to compare companies and to show results to investors and shareholders.

On the topic of finding suppliers answering to the sustainability needs of a company we find that these needs are more important to the end users than to the shareholders, but are an emerging strategic theme nevertheless. Some sources even point at sub-suppliers and hint at the prospect of using third parties for evaluation of the suppliers' eco-friendliness.

Last but not least the discussed topic of transportation highlights the most alarming find in the study: the transport companies' lack of sustainability and sustainability strategies despite their share of the carbon footprint. This is something that seems to be overlooked by the logistics chain as it is so often outsourced, and therefore deemed "somebody else's problem". The realization of the importance of sustainability in the choosing of the outsourcing partner however is on the rise and a very hot upcoming topic.

The theme that rises from all of the three topics touched within this article is however the link between sustainability, the end users and stakeholders. Stakeholder impact on resolving strategic issues seems to bring about solutions that do not prioritize the eco friendliness of the implicated process – not short term nor long term. Companies, and specifically the supply chain organs closest to the level of shareholders, seem to be more interested in the subjects of cost effectiveness and the importance of measurable and easily countable metrics. The levels of the logistics chain closest to the public and the end user however place more weight on environmental issues. It can be argued that this is due to the public's ever growing awareness of the state of the environment, and their willingness in not only buying eco-friendly products and services but also in making sure they get exactly what the company advertises. In the time of social media the world is seeing an ever increasing amount of the public revealing hidden truths behind the eco-friendly masks of many corporations, unmasking the environmentally unsustainable methods in a supply chain, no matter how small or how insignificant they might've seemed to the company in question.

We conclude by saying that the importance of sustainability will definitely grow with each passing year, with governments and the global viewpoints putting more and more pressure on all companies to make all of their proceedings as sustainable, visible and long lastingly eco-friendly as possible. It can also be predicted that sanctions for not being sustainable will grow with each passing years as global warming and other possibly emission induced catastrophes continue to wreak havoc on the environment. Not only does each of the articles reviewed see sustainability as a value to be prioritized in the future, but also as something that will be legally binding to companies, and therefore something that even shareholders will take into account when choosing their next company to invest in.

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