

Beyond Energy Action Strategies



D.3.1.c – Business Plan of Coordination of goods in Norrköping

Title of the project: Coordination of goods

Location: Norrköping



Energikontoret
ÖSTRA GÖTALAND

Submission date: 2015-05-30



Co-funded by the Intelligent Energy Europe
Programme of the European Union

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1 Summary of the Project/Project at a Glance

Norrköping makes an annual amount of purchases that are transported to the different local government units. All transportation cause noise, congestion and air pollution emissions, which in turn gives rise to both environmental and health impact. By loading the delivery via a transfer station, the municipality can reduce their environmental and health impacts significantly. In the current system there is no logistical planning of the transports and the municipality also has no overview of how the supply pattern looks like. With the coordination of transport, the municipality will have a better overview and more possibilities to influence over trade flows. By optimizing the transport, we will reduce the number of delivery times for each unit. This leads to that the total number of kilometers driven decreases as well as emissions of air pollutants. In addition, a coordination of goods gives more benefits such as increased competition, improved road safety and a precise delivery to the units.

2 Details of the Proposed Project

(Requirement of fixed capital and working capital, the cost of project and means of finance. Step-by-step description of the process, plant capacity, expansion plans and quality control procedures etc)

With goods transported efficiently and with fewer vehicles the number of deliveries decreases and it contributes to that the overall transport distance will be reduced. It also leads to an increase in road safety and by fewer delivery times the entities will have fixed time window. A transshipment center facilitates the participation for smaller suppliers in the bidding at the food procurement process. Smaller suppliers often do not have the capacity to deliver to all municipal units but with a delivery address you are much more competitive.

With coordinated deliveries there will also be an increase in quality for the units because the number of deliveries will be fewer and also because the total working time of delivery receipt is reduced. This allows the unit to manage their staff more efficiently because they will know when the goods will be delivered.

The purpose of coordinated deliveries are:

- To create a logistically efficient distribution of goods to the municipal units
- reducing the number of deliveries to municipal units
- to reduce environmental impact
- to increase road safety
- To increase the share of local suppliers
- to increase delivery precision providing a quality leap for the staff of the units

Goals by coordinated goods distribution:

- Reduce the number of food deliveries by 50% by 2018.
- Increase the share of local producers by 25% by 2018.

3 Internal aspects

Weaknesses

Sweden has a long-term goal to develop a model for the industry regarding coordination of

goods. One weakness is that one does not know how to effectively support such a process. One of the biggest obstacles in the process of coordination of goods is change of behavior of the parties. All shipments are to be unloaded and delivered in the best way and the receiving parties have to place orders and find the right kind of supplies for them. The challenge is to reduce the number of deliveries so that the gain of coordination can be great, but the experience could be that there will be a shortage of goods. It is a challenge to change the behavior in the best way, so that all experience a profit. When there is a technical solution, it need to be found out how it is psychologically anchored in the best way and with which actors to have a dialogue with and in what way.

Strengths

- Lower transportation costs
- Efficient distribution
- Reduced traffic flows, congestion
- Create conditions for reduced costs for purchasing, may also result in increased costs for warehousing
- A system / service that can generate income for the municipality
- Lower logistics costs (handling / storage) will primarily benefit the logistics companies and ultimately also the buyer
- Fewer loading and unloading
- Increased security at the dock station sites
- increase road safety
- An attractive city to do business in
- Market the municipality as sustainable (e.g. municipality's logo)
- The municipality as a model of sustainability work
- Give the municipality legitimacy in the field
- An urban development that takes freight into account

4 External environment

Threats

It is crucial to find out how to get local businesses (small or medium-sized companies) to bid in the tenders (because it is one of the objectives of coordination), to find out what support smaller firms need from the municipality in order to place a bid. Separating the goods from the transports is a first step to facilitate. Although it has to be concluded what advantages and disadvantages it brings, and if you risk landing in other traps. It is important to learn and study how similar projects have been conducted within the nation and in other countries, if there are corresponding experiences and problems following the Law on Public Procurement (Lou).

Regarding the Product distribution centers, different municipalities have different arrangement of business solutions. Sometimes you procure the transportation service (as in Växjö), and sometimes as an in-house solution (as in Eskilstuna). The pros and cons of ownership form have to be carefully considered and also if it to prefer to operate on its own, so as to avoid problems with appeals against procurement. Several municipalities have had problems with this, for example the municipalities Södertörn and Eskilstuna.

Night delivery of goods is an interesting aspect that should be investigated. Today, there are many obstacles. Working conditions for chauffeurs, noise levels at night, receipt of goods

that must be acknowledged. Finding other examples of night deliveries that succeeded would be of great interest and if electric vehicles can be solution here.

Opportunities

One possibility in this project is to expand this communal commitment to a regional approach.

- Open for locally grown products and local producers
- Open for organic producers
- Open for smaller producers
- Renewed purchasing procedures for increasing contract loyalty, visibility and control
- Introduction of e-commerce and e-invoices
- Reduced global environment impact (climate)
- Reduced local environmental impact (particulates, noise, etc.)
- Ability to set environmental requirements for the transport of goods
- Create conditions for an attractive inner city

5 Market Potential

There are many options and good examples of how to achieve a more efficient flow of goods. Road haulage has the major advantage that it is flexible, but has the major drawback that transportations have relatively high emissions per transported ton in comparison with transportation by train and boat. Today, the transport sector stands for about a quarter of Sweden's final energy use and over 40% of the total carbon dioxide emissions. Carbon dioxide emissions from transport have been given much attention in recent years. The focus has mainly been on passenger transport and freight transport has received less attention. This despite the fact that road freight transport has grown at a considerably faster pace than personal transports. In 2008 Sweden adopted a climate and energy plan, on goals by 2020. In the current situation it is those goals that govern the Swedish energy and climate policy:

- The share of renewable energy is at least 50% of the total energy use in 2020.
- The share of renewable energy in transport is at least 10% in 2020.
- Reduced energy consumption by at least 20% between the years 2008-2020.
- Reduce greenhouse gas emissions by at least 40% by 2020 compared to 2008.

One way to approach these goals, as well as the regional and municipal goals is to coordinate goods. By coordinating goods, big environmental savings are achieved as well as increased traffic safety, increased competition and improved working environment.

6 Risk analysis

Since the project is composed of many different parts, there are also a number of different risks on the project. In the inventory of food supplies, there may be a low response rate. The units can also experience the difficulty alternatively forget to fill in the logbook, which means that the number of deliveries is misleading. It can also be a large number of units that were not included in the original inventory, which gives more delivery times than expected.

Several contracts will be carried out, one for the purchase of a route optimization tool and one for a conveyor and transfer station. Even in the food side there will be a number of contracts as existing agreements expire. There is the risk that the specification does not generate any bids. Therefore, it is important to early inform and communicate with potential stakeholders in each area.

One of the project goals is to increase the share of local producers. There is also a political desire that every unit should be able to put together their own bill of fare. There is a risk that no bids will come from local producers when they do not feel they have the ability to deliver such small volumes that could be the case with different menus in each kitchen.

The municipality will parallel with this project introduce e-commerce systems. To get an effective functioning coordinated goods distribution, you need e-commerce system to be started and implemented to start 16/17. There is a risk that the procurement of e-trading system takes longer, and is not implemented to the start-up of joint distribution.

When the operation of the joint distribution should start there are also a number of risks. Suppliers as well as the units may have trouble understanding the new purchasing system and the new order and delivery routine. There might also be food supplies that are outside the system, for example, by units orders goods outside the agreements.

7 Financial Analysis

City Council has allocated one million dollars annually in 2015 and 2016 for project management and project work. There is also allocated SEK 250 000 for the purchase of an optimization tool. A cost estimate for the introduction of the other two phases and the operation of coordinated goods distribution will be developed during the project.

7.1 Cost

80 000 €, time for education, learning and spreading knowledge from other examples, informative campaigns, marketing and promoting, time to involve and engage local suppliers and transport companies.

Cost for Investing in optimization soft ware and time to do the optimization. 150 000-200 000 € per person and year: Cost for buying Optimizations soft ware and licenses including Staff Cost for Upholding and maintain the system.

7.2 Income

Reduced number of deliveries from today's 33,400 deliveries by 50% to 13,700 deliveries per year will save costs for the municipality. Optimized driving routes will lead to a reduction in the number of kilometers. It is difficult to give a figure for the saved crowns this optimization will yield since it is currently unknown how long distances deliveries represent.

Estimation of today's transport costs and CO₂ emission must be made, since there are no statistics for how many km the municipal food transports takes. Today the transport is included in the prise of the delivered food and the municipality have no knowledge in ton*km or power to influence the logistic planning of the transports.

We do know that today there 33.400 food deliveries within the municipality per year. Each transport is estimated to **100km**

- The trucks fuel consumption is **5liter diesel per 10km**
- **33400x100 = 3340000 km per year**
- **0,5 litre x3340000km = 1670 000 litre of diesel used per year**
- **Saving of CO₂ ekv when changing from diesel to RME is 2973 ton CO₂ ekv**
- **When halving to 7500 transport the saving per year will be 3956tCO₂ ekv**

7.3 Feasibility assessment

The project will be implemented. Funding for the project management and purchasing of optimization tool is set aside. Quotation for hosting the coordinated loading center is out on tender.

7.4 Sensitivity analysis

How well the project falls out depends largely on how well it is received by all involved. Education and information are crucial. The system for coordination will then be optimized continuously and the hope is to get more and more small and medium sized suppliers involved. Fewer intermediaries and better control of the use of both food and fuel for transports will save money for the municipality.

7.5 Social benefits and Public support

If the project succeeds in getting more small and medium-sized local producers to be suppliers to the municipality, it will in turn generate new jobs such as processing and handling of the local goods, for example, washing of root vegetables and processing, and packaging of various raw materials.

8 Implementation roadmap

The project consists of several parts. In the first step, an inventory of the current situation be implemented. All shipping addresses and contact information for devices that currently ordering food being prepared. A web survey produced and sent out in April. The questionnaire consists of two parts - a background part and partly a logbook. The logbook is filled in over two weeks, v. 16-17, and examines what delivery unit receives, the quantities and the stop time of each delivery has. Parallel to the survey carried out starting on-site visits at each delivery address. During these visits, examines how the physical location looks with loading dock, storage facilities and the like, as well as the GPS coordinates of the location are measured out.

Then the project goes over to procurement and information phase. Basis for the procurement of a route optimization tools, the procurement of conveyor and transfer station will be developed. Meanwhile seen food contracts everywhere because the existing agreements expire. Procurement of route optimization tool is expected to be completed in autumn 2015 and the procurement of the conveyor and transfer station for spring 2016. Information and communication with potential bidders commence after the summer 2015th

9 Conclusion

It is important to understand that the situation analysis (survey of municipal supplies), and the analysis of the current transports contain a degree of uncertainty. This means that the estimated effects of theoretical impact assessment should be seen as indicative rather than actual.

The conclusion that the positive effects, both in terms of reduced number of deliveries, transportation kilometers and emissions is clear. The impact can also vary greatly depending on the size of the municipality and the number of co-loading centers. The investment costs and the operating costs associated with the establishment of distribution centers within a municipality should be taken into account. More centers should give a higher total cost than that one. Another aspect to take into consideration is that the simulation of the before and after are based on the same type and size of vehicle. In the event of procurement of a new conveyor one has the opportunity to set requirements, for example, renewable fuels, which would lower the amount of emissions even further.

Finally, a joint introduction of e-commerce and coordinated goods distribution leads to a joint procurement. It will be a safer flow from order to delivery. It will lead to a more streamlined purchasing process through clear purchasing control where the municipalities based on counties and by common conditions can participate and negotiate quality and prices.