



The market survey of mobile stone crushers and screeners

Oy Atlas Copco Louhintatekniikka Ab

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Thesis
May 2011
Mechanical and Production Engineering
Research and Development
Tampere University of applied sciences

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Thesis

Number of pages	35
Number of appendices	4 (Confidential)
Completion	May 2011

This thesis is done for Oy Atlas Copco Louhintatekniikka Ab. Atlas Copco group acquired Hartl Powercrushers and now it is known as Atlas Copco Powercrushers. With this takeover Atlas Copco Surface Drilling Equipment division adds mobile crushers and screeners to the Surface Drilling Equipment range and the Atlas Copco's customers will gain more business possibilities. The main objective of this thesis is to examine the current situation and the future trends of the Finnish mobile stone crusher and screener markets. Also, the environmental and R&D issues are quite strongly visible within the questionnaire and the survey.

The research was carried out as an e-mail survey, which was sent to the companies in the Finnish stone crushing industry. The answers were processed and analyzed with the Microsoft Excel program.

According to the answers, the stone crusher business is dominated strongly by Metso Minerals. Other formidable competitors are Sandvik and a foreign manufacturer Terex. The Finnish stone crushing industry strongly values strongly domestic products. The attitude towards to a new competitor is mainly good and the customers appreciate competition, because they consider prices to be too high and feel a need for more competition.

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VIRHE. KIRJANMERKKIÄ EI OLE MÄÄRITETTY.

1. INTRODUCTION

Atlas Copco acquired factory and the rights to the products of Hartl Anlagenbau GmbH in September 2010. Corporate acquisition causes the need for the market survey. The global marketing and the after marketing services are already Atlas Copcos responsibility. Now, before Atlas Copco begins its full marketing campaign in Finland, they need information about the current situation within the Finnish stone crushing industry.

The market is strongly dominated by Metso minerals and Sandvik. New distributor needs detailed information about the market so they will be able to compete with these two main distributors in Finland. The current situation and the changes in the market trends are the most important issues for the new competitor.

The survey was made with a simple electronic form that was sent to the Finnish companies in the stone crushing industry. Getting the answers proved to be harder than expected. It took two full rounds of e-mails to the companies and over a dozen of phone calls to get enough answers. Nevertheless, the answers were comprehensive and the marketing decisions can be eased with this report.

The thesis begins with the introduction of Atlas Copco and followed by explanation what the market survey is about. Then the answers are analyzed, followed by the conclusions and the suggestions. The questionnaire and the cover letter are in the attachments.

2. ATLAS COPCO

2.1 Atlas Copco group

Atlas Copco is a world leading provider of industrial productivity solutions. Their product and service range covers compressors, construction and mining equipment, power tools, assembly systems, after marketing and renting of the equipment.

Atlas Copco has production in twenty countries. The equipment are being sold and rented with different brands in over 170 countries. In numbers Atlas copco is a really large company. In the end of the year 2010, the Atlas Copco group had over 33 000 workers and its turnover was over 7.3 billion Euros. The company was founded in the 1873 so they have over 130 years of experience of innovating for sustainable productivity. (Atlas Copco homepage 25.4.2011)

2.2 Atlas Copco Surface Drilling Equipment division

This market survey was made to the construction and mining equipment sector. The whole business area covers developing, manufacturing, marketing and maintaining of drilling equipment, loading equipment, construction tools and road construction equipment. The most important R&D and production units are located in Sweden, Germany and United States of America. Other units are in Australia, Austria, Brazil, Bulgaria, Canada, China, Finland, France, India, Japan and South-Africa. (Atlas Copco Homepage 25.4.2011)

The key customer in the sector is the mining segment. (*Picture 1*) Construction segment comes with 40 % share.

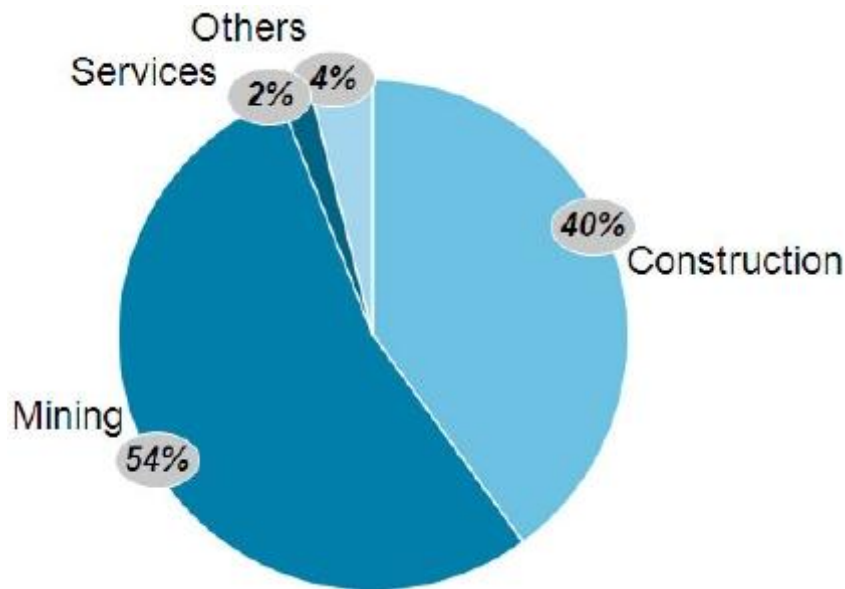


Figure 1: The market shares of different segments in mining and construction techniques. (Atlas Copco Homepage 25.4.2011)

2.3 Atlas Copco Powercrusher

The Hartl Powercrusher had over 85 years experience in the stone and quarry industry. The development of the first mobile rock crusher was in the 1977 and after ten years the first tracked unit was produced, so Hartl Powercrusher had over thirty years of experience with stone crushing technology. The Hartl Powercrusher had several awards with their new generation of products. Among them is the Red Dot Design Award “best of the best” for Powercrusher PC 1375 I.

In the 2010 Atlas Copco acquired Hartl Powercrusher. Nowadays the Hartl Powercrusher is known as Atlas Copco Powercrusher. It has around 100 employees and it is located in St. Valentin, Austria. With the takeover Atlas Copco can add mobile crushers and screeners to the Surface Drilling Equipment range.

3. Market Survey

3.1 What is a market survey?

Rope and Vahvaselkä describe the market survey literally to be a survey about markets. The objects of the research are the size, dispersion and development of the markets. (Rope & Vahvaselkä 1994: 44.) On the other hand, Hague defines the market survey as a systematic gathering, analyzing and interpretation of the information associated to a marketing decision. (Hague 2002: 9)

It is often believed that the market survey and the marketing survey is the same thing. The marketing survey is associated with the collecting, modifying and analyzing information for marketing purposes. The purpose of the market survey is to gather information about the markets. For example, the size of the markets, demand for the products, customer demands, purchasing power of the markets, number of the competitors, the market shares and the future trends of the markets. (Raatikainen 2004: 10-11.)

The market survey is usually made by marketing department together with the R&D team during the different phases of the marketing process. An important part of the market survey is a competitor analysis. This competitor analysis is left out of this survey, because Atlas Copco has done it already and there is no need to do it again.

3.2 The purpose of the market survey

The purpose of the market survey is to ease and assist the decision associated with the marketing. There are as many and as different decisions as there are companies and sectors where the decisions are done. The good and efficient decision making relies on the same basic issues in every sector of the business. These issues are up-to-date information and the right use of it. (Hague 2002: 1-2.)

The areas to gather the information with a market survey are:

- The markets
- The structures of the markets
- The valuations of the customers
- The products
- The developing of a new product
- The pricing
- The distribution/retail
- The advertising and the promotions (Hague 2002: 7.)

3.2.1 Defining the goals of the market survey

Right at the beginning it is good to define the specific needs of the market survey. In that way it is easier to focus the questions for the needs and to collect the right information. Also, this saves time and money when there is no any extra information that is not really needed. (Vaarnas, Virtanen & Hirvensalo 2005: 103.)

It is important to put specific limitation to the data gathering. This guarantees detailed results. On the other hand, too narrow view point is pointless, so there should be a balance within all the goals of the information gathering. Approaching in phases is usually the most profitable way: First, developing an overview of the market and their opportunities, Secondly, focusing on the more potential options. (Vaarnas etc. 2005: 103.)

3.3 The markets

The market survey can be applied in all markets where the buyers and sellers meet to trade. Markets can be divided to the consumer markets, the industrial markets and the business to business markets. The industrial markets include companies, organizations, authorities and the government. (Hague 2002: 4-5.)

3.3.1 The phases of the market survey

The market survey is usually a six-phased process. The process begins with the definition of the problems and/or the goals. The first thing to find out is why the survey is being made and what does it have to achieve. (Hague 2002: 9.) Without the specific goals the risk of the failure increases noticeably.

When the goals are clear, the second phase is to plan how to reach these goals. In this phase the method of collecting information is usually decided. The information collection can be done in multiple ways: phone calls, emails, electrical forms, letters, visits, etc. The planning phase is important, because the poor questions do not necessarily provide the answers that are needed. (Hague 2002: 9.)

When the planning is ready, the third phase of collecting the data can be started. The amount of the answerers can vary from a few to thousands. In this case, the amount is measured in dozens. The necessary amount of the answerers depends on the market size, the nature of the survey and the topic of the survey. (Hague 2002: 9-10.)

When the data collection is done, begins the analysis of the information. In this fourth phase, it is usually easier to gather all the answers together and compare the answers than analyze the answers separately. (Hague 2002: 10, 186.)

The fifth phase is the making of the survey report. The report presents the results, the conclusions and the suggestions made from the results. The report should be clear and as understandable as possible. Good tools for this are diagrams, tables, figures, etc. (Hague 2002: 10.)

The last and the sixth phase is to make the marketing decisions based on the report and carry out those decisions. (Hague 2002: 10.) Usually this decision is monitored just to make sure that the made decision is right one.

Here is a list of the six phases that are typically used in a market survey. This same framework was also used in this survey.

1. Definition of the objectives.
2. Creation of the questionnaire/research concept = Planning.

3. Gathering the information.
4. Analysis of the information.
5. Reporting the analyzed information.
6. Using the analyzed information for the marketing decisions. (Not part of this thesis)

3.4 Data gathering methods

There are two kinds of market survey methods, qualitative and quantitative.

(www.mtl.fi/markkinatutkimus 13.4.2011) The method is chosen according to the survey needs. In this survey the used method is quantitative survey.

3.4.1 Quantitative survey

There are basically three information gathering methods with a quantitative survey. The first and most used method is using a questionnaire. The questionnaire can be filled out using e-mails, phone calls, letters, electrical forms, visits etc. Nowadays, the easiest way might be sending an electrical form using e-mail. The second method is to observe people and their actions personally and/or mechanically with counters and indicators. The third way is to arrange an experiment. These situations are usually artificial, so the results cannot be applied directly to practice.

3.4.2 Qualitative survey

A qualitative survey is usually made by interviews, group discussions or observing. A qualitative survey does not rely only on the answers, but it also interprets answerer's body language, tone of voice, etc. This means, it does not only rely on what has been said, but also

how it has been said. When a quantitative survey is presenting only facts, the qualitative survey tries to reveal the reasons behind those facts. For example, if some product does not succeed on markets, a qualitative survey gives the information about customer's attitudes towards the products. (Birn 2004: 46.)

3.5 The reliability of the results

The reliability of the market research has two aspects, the reliability and the validity. The reliability indicates how much the survey helps to achieve the defined goals. If the answers are coherent and the survey helps towards to the objectives, then the survey is reliable. The validity measures the correctness of the information, which means the survey measures what it was supposed to. (Homepages of the University of Oulu 13.4.2011)

The factors for the validity are the way how the questions are written, what kind of answers can the responders give and layout of the questions in the questionnaire. If the survey is an interview, then it is possible that the interviewer's influence reduces validity. (Rope & Vahvaselkä 1994: 45.)

The reliability can be reduced if there are too few responses, the questions are unclear or the survey is being made at the wrong time. In other words, the reliability means that if a second survey is made, the results are the same as in the first one. (Rope & Vahvaselkä 1994: 45.)

The reliability is also reduced by the objectivity of the persons making the survey. This means that the people may add their own opinions, values or attitudes to the survey. In a good survey, the results are independent of the people making the survey. (Rope & Vahvaselkä 1994: 46.)

4. QUESTIONNAIRE OF MOBILE CRUSHERS AND SCREENERS

The Finnish stone crusher and screener market has been dominated by two major companies. There are few other companies that imports machinery to Finland for stone crushing and recycling. The competition in this business area is tough although there are only few competitors. When new distributors come to the market, they need to get as much information of the market as they can. New distributors are also good for the users, because they increase the competition. The competition lowers prices and forces companies to develop their products.

The users' knowledge about the variety of available machinery is quite limited. From the results can be seen that users mainly prefer domestic machines and their knowledge of other different brands is poor. In a way, the survey worked also as an advertisement with information, which made the users aware of the Atlas Copco and their newly acquired Hartl products.

4.1 The implementation of the survey

The results of this survey are based on the questionnaire sent to the companies. Part of the companies answered to the electrical form and a few companies were interviewed via phone calls. The inquiry was made in March 2011 to the Finnish companies in the stone crushing industry. The number of companies was fifty five, which included five to ten companies that are working more or less in the recycling/demolition sector.

The questionnaire was sent on an e-mail. The e-mail included introduction to the subject, a cover letter from Atlas Copco and the hyperlink to the electrical form. The electrical form was made with a form editor. The form editor is property of the Tampere University of applied sciences, but as a student I was able to use it in this thesis. Also, the phone call interviews were recorded using the same form, therefore all the answers were in the same form

editor. The answers were transferred to the Microsoft Excel software, where they were sorted and processed.

The form contains twenty two questions with several sub questions. The form is divided into three fields. The first field is about the basic information of the companies and their machinery. The second field includes the future interests of the companies as well as their views and opinions of other issues in the stone crushing business. The third field is environmental issues and this part of the questionnaire is oriented to Infra Ry (fore organization of Finnish earth- and water work companies and entrepreneurs). The third field gives useful information also for Atlas Copco, because the environmental issues are important to the distributors and manufacturers.

The inquiry is made in Finnish, because all of the companies are Finnish. There is no need to use English especially when the using of a different language might affect on the answers negatively.

4.2 The goals

The main goal of the inquiry was to find out the current market situation and possible changes in the Finnish stone crushing industry's regarding future trends. In other words, what kind of machinery they are using and what kind of machinery they will purchase in the future. The Hartl products are quite new in the product family of Atlas Copco, so the information is needed before Atlas Copco begins to increase their marketing. There was already a hunch about the situation, but the final confirmation comes with the survey. With the information the company can prepare their marketing strategy to be more specific, e.g. perceiving new market opportunities and confining and minimizing risks. In this way, the decision making comes easier and more efficient.

The other objective was to gain information for Infra Ry. The stone crushing industry in Finland is in pressure with the environmental issues and they need solutions for these issues. Although the inquiry was made mostly for the Atlas Copco, there were few questions

about the environmental issues for Infra Ry. The questionnaire concentrated mostly on have the companies had any problems with the environmental issues such as noise- and dust and if so, what they have done to solve the problems.

4.3 The processing of the results

After there were enough answers to process the data, the answers were transferred to Microsoft Excel. In this program the answers were easier to handle. The first phase of the data processing was to check the basic information of the companies: How big are the companies, are they working in quarries or in the recycling business, how long have they worked in stone crushing business, etc. Then the processing of the more detailed data started.

The final amount of the responded companies is eighteen and the response rate is 32,7%. This is enough to close the survey, especially when at least half of the responded companies are big producers of crushed stone in Finland. Some of the questions are made so that the answerer could answer more options than just one, so in some cases there might appear more answers than eighteen. Also, some of the answer fields were optional to answer so in some questions there are fewer answers than eighteen.

4.4 The results

4.4.1 The basic information of the interviewed companies

Most of the responded companies are operating in quarries. Seventeen companies get their material from the quarry or mines. Eight of these companies told that they also work in road construction, so some the material come also from there. Despite the effort only one company in the recycling and demolition sector answered to the survey. (*Table 1*)

Table 1: The sources of the crushing materials for the interviewed companies. Note that all eight companies that announced working in road construction sector also works in quarries/mines.

Quarry/Mining	Road construction	Recycling
17	8	1

The starting years in the stone crushing business of the interviewed companies are quite evenly divided to different decades. Only bigger difference is from the year 2000 to present. During that time there are seven companies that have started working in the stone crushing business. This is most likely because the older companies from different businesses have expanded their production also to stone crushing industry.

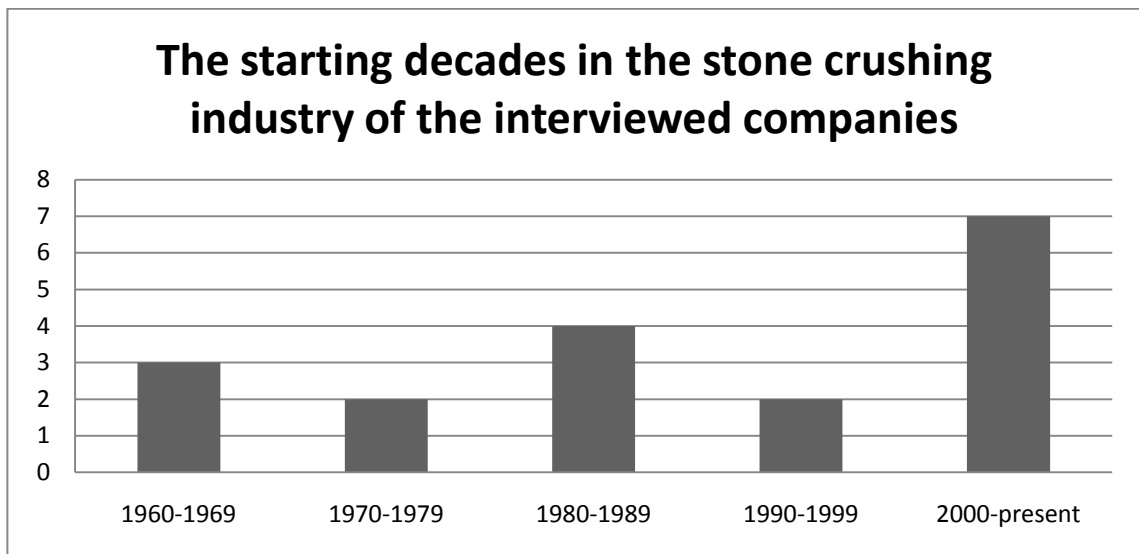


Figure 2: The starting decades when the companies started working in the stone crushing business.

The production amount of crushed stone varies a lot between the interviewed companies. (Table 2) Only two companies produced less than 100 000 tons per year. First one of these companies operate in the recycling and demolition business and the other one is a smaller factor in the quarry stone crushing industry. Other companies are quite evenly divided to 100 000 – 3 000 000 tons per year except two biggest companies from Finland that produce more than ten million tons per year.

Table 2: Production amounts of the interviewed companies

Production amounts (1000 tons/year)	Amount of companies
<100	2
100-1000	5
1000-2000	3
2000-3000	6
10 000<	2

4.4.2 Current crushers

The current crushers that the interviewed companies have are mostly brands from Metso. In the questionnaire, there are different brands from different manufacturers in hope of getting slightly more detailed information about the crushers that companies are using. There are three brands from Metso, which are Lokomo, Metso and Nordberg. The brands of Sandvik are Sandvik, Extec and Fintec and the brands of Terex are Terex and Terex Pegson. (Table 3)

Table 3: The current machinery of interviewed companies divided by brands and manufacturers

Metso	167
Lokomo	12
Metso	146
Nordberg	9
Sandvik	24
Sandvik	17
Extec	2
Fintec	5
Terex	10
Terex	9
Terex Pegson	1
Other	6

4.4.2.1 Strengths and weaknesses

The next question was about strengths and weaknesses of the current crushers that the companies have. There were few noticeable issues that companies had in common for both strengths and weaknesses.

4.4.2.1.1 Strengths

Being domestic

One of the strengths that came up in multiple answers was that the machinery is domestic. This is because the users felt it to be more suitable for rough winter circumstances. They also said that if the machinery is domestic, then it is also easier to get spare parts and maintenance. So being domestic often refers to easy maintenance and easy to get spare parts.

Mobility

Couple of the companies told that one of the strengths is the crusher's mobility. The same companies were also happy with the versatility of the machinery, which means that the production capacity is flexible.

Other

Basic things for the strengths, like efficiency, good condition, functionality, dependability, reliability, and usability, were naturally appreciated. Also, some of the companies said that their machinery's strengths are fitting for recycling concrete and stone and that the machinery is technically simple.

4.4.2.1.2 Weaknesses

Companies answered only half as much weaknesses as strengths. So mainly it seems that they are quite happy with their crushers, but there are still few things they would like to be different with their machinery.

Price

Price came up in couple of answers. One of the answers said that track crushers have quite weak competition, which is pulling prices up.

Old crushers

Some of the companies said that at least one of their crushers is old. It is harder to get spare parts for older machines and they are more likely to have a malfunction than newer machinery. There are differences with the answers about this subject. One of the companies answered that their newer crushers are not as durable as older. So it seems that the older machinery is more durable in structural level, but when it comes to electrical issues, the newer models are not as sensitive to failures as the older ones.

Production capacity

The production capacity of the machinery is too low and limited. The machinery's weak efficiency came up in few answers.

Other

Couple other answers were that the energy production is not good enough. The problem occurs in track crushers, but not in wheel mounted crushers. Also, one company said that the machinery is not flexible enough and the chippings are slightly too small.

4.4.3 Important features for the crushers

The Next issue in the questionnaire was the most important features for the crushers. The answers were quite similar between each other, but there were still couple more detailed answers.

Reliability and durability

Many of the companies answered that they need the machine to be very reliable and durable. This is quite obvious, because the machines themselves are very critical for the production and they really need to be reliable.

Easy to maintain

Maintenance and getting of spare parts are required to be easy and fast to get. Maintenance should be easy and it must be quick so the machine can continue production as soon as possible. This also requires that the spare parts are easy to acquire. One of the answerers even said that the warranty must be better than it is currently.

Mobility and easy to assemble

The mobility is also important feature for some companies. Same companies that said that mobility is important said also that the crusher needs to be easy to assemble for the production line and to modify for different production.

Other

The basic things for crushers, like easy to use and efficiency, were announced to be critical. Efficiency was mentioned couple of times with the energy consumption. So efficiency and energy consumption should be both in tolerable levels. The last and only once mentioned issue is noiseless and dustless working environment.

4.4.4 Crusher types

Eleven companies out of the eighteen produce crushed stone more than million tons per year. This means there are plenty of big crushing companies included in the survey. From that aspect can be seen clearly that jaw and cone crushers are the most used crushers in Finnish stone crushing industry. (*Figure 3*)

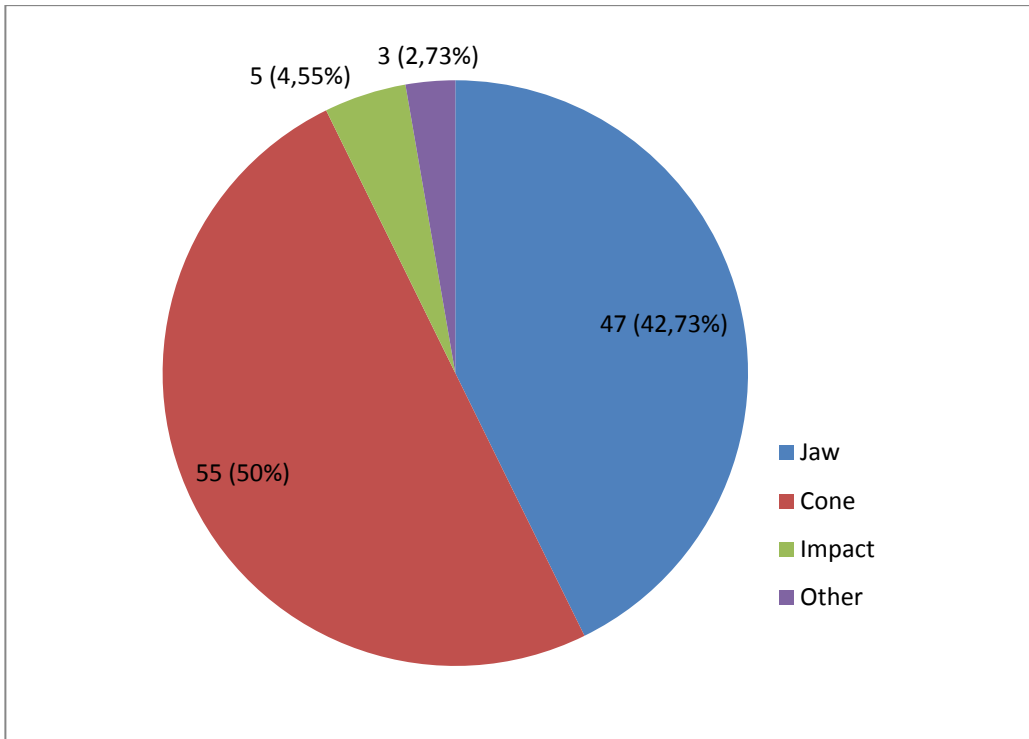


Figure 3: Types of the crushers used in the interviewed companies.

In the future, the companies' will be interested about jaw and cone crushers. Impact crusher is not the main choice of any responded companies. (Table 6) Five companies are not sure what kind of crusher they are going to purchase, but seeing the current trend it is probably going to be a jaw or cone crusher. The only recycling company is using a jaw crusher and will buy jaw crushers in the future.

Table 6: What kind of crusher companies are most likely to buy next

Type	Jaw	Cone	Impact	Other	Don't know
Amount	7	5	0	1	5

4.4.5 The requirements for a screener

Reliability and durability

The basic requirements, e.g. reliability and durability, are the main requirements. Screener's structure has to be long lasting and the efficiency must be enough for the needs of each company. Efficiency requirement of course varies between companies, but mainly screening area should be around ten to twelve square meters. Screener should also provide clean product.

Screen changing

The biggest more detailed requirement based on the answers is an easy and fast changing of the screen. Of course the basic screen should be as efficient as possible, but still it would not cover everything and the screen needs to be changed every now and then. One of the companies hoped more efficient screening for smaller chippings so screening potential could be better.

Other

The other requirements are an option to use piano wires on the lower level and a three leveled screener.

4.4.6 The most frequent problems with crushers and/or screeners

In general, there are multiple big problems. The answers are also in some cases very indefinite and the problems are presented from many different viewpoints. There are electrical, mechanical, hydraulical and technical problems. In addition, there are several more specific problems.

Durability

Durability is a problem regarding the structure and consuming parts. Especially crusher corrosion has been a problem to some companies.

Other

There have been multiple smaller problems. The Finnish weather conditions causes starting problems during winter. Maintenance and availability of spare parts have been problems as well. Screeners have limited capacity and screening of small chippings is hard if material is wet or muddy.

4.4.7 Maintenance costs

Only ten out of eighteen companies gave the estimated amount of maintenance and spare part costs, but the costs have big differences between companies. Due to the big differences with annual crushed stone production, the maintenance costs answers are presented as €/ton. The average costs of the ten companies that responded is around 0,30 €/ton. On figure 4 can be seen the costs divided to the ten companies that responded to this issue in the questionnaire.



Figure 4: Maintenance costs of the interviewed companies that answered to the questionnaire

4.4.8 The aftermarket service

Mostly the companies are happy with their aftermarket service. Sixteen companies are satisfied with their current aftermarket service and only one is not. (Table 7)

Table 7: Satisfactory of the companies to the aftermarket services for their current machinery.

Yes	16
No	1
Can't say	1

Also noticeable is that every company buys maintenance and/or spare parts from their distributors. Despite of that, not everyone is interested in maintenance and spare part contracts. There are five companies that are not interested in these kinds of contracts. (Table 8)

Table 8: Interest of companies in maintenance and spare part contracts

Yes	No
13	5

All the responded companies acquire maintenance and/or spare parts from their distributors, but some of the companies acquire their consumable parts from elsewhere. (*Table 9*)

Table 9: Where do the companies buy their consumable parts

From distributor	from elsewhere
13	5

4.4.9 Warranty

Companies are mainly satisfied with their warranty. Roughly one out of four companies is not happy with their current warranty. (*Table 10*) The companies that were interviewed via phone call gave more accurate answer to the issue. Couple of them said that they are mostly satisfied with the warranty, but there are issues that should be better. So they are partially satisfied are partially are not.

Table 10: Satisfactory with current warranty for the machinery

Yes	No
14	4

4.4.10 Interests in future

Companies are mostly interested in domestic products. Every company considers buying the next crusher from Metso. (*Table 11*) Also, half of the companies are thinking of buying from Sandvik, which also has production in Finland. From the answers it was visible that

they were interested in products that are domestic. The domestic interest correlates to the availability of spare parts. Atlas Copco is not as known manufacturer for stone crushers in Finland as Metso and Sandvik are. If the companies were more aware that Atlas Copco is also competing with Metso and Sandvik and they have good maintenance and spare part service, then it would be presumable that they would also consider Atlas Copco more than currently.

Table 11: From what manufacturer companies are considering buying the next crusher.

Metso	Sandvik	Atlas Copco	Other
18	9	1	1

Also, noticeable is that companies seem to prefer buying the production lines in parts. The packet deals that cover crushers, conveyors and screeners are not popular. (*Table 12*) The need of the companies is usually a single machine at a time.

Table 12: Number of companies that prefer buying their machinery as a packet or separately.

Packet	Separately
2	16

4.4.11 Work safety

Work safety is very important especially when working with machines. This is why one of the questions was about safety of their current machinery and what improvement their machinery need. There were two issues that were commented more than once.

Main problems with work safety are:

- Dust blocking/prevention
- Moving between the parts of the production line

Other smaller problems that occurred with work safety are:

- Finger protection and cover the moving parts
- Maintenance platforms are poorly made
- Noise abatement could be better

4.4.12 Dust and/or noise problems

Infra Ry is also interested in the dust and noise problems. These problems are quite critical in the urban areas. There is also R&D aspect for Atlas Copco in this question, because some of the answered problems might also affect the work safety. The dust problems seem to be bigger than problems with noise. (*Table 13*) Every company that has problems with noise has also problems with dust. Total seven companies do not have noticeable problems with either dust or noise.

Table 13: Number of companies with dust and/or noise problems

Problems with noise	Problems with dust	Not noticeable problems
8	11	7

The companies told several actions that they have done to fix the problems themselves. One solution for both noise and dust problems was to cover the whole production line. Other solutions are for either dust or noise issue, but they are not for both.

Dust problems

Around ten companies said that their main improvement is upgrading the watering system. In some cases the companies answered that they have built a complete new one. This is clearly one potential aspect to improve crushers. Building a new irrigator to be suitable for winter and summer condition would be one way to get advantage over the competitors. One company answered that they have made heating water containers so they are able to keep watering also in winter.

One solution for dust problem in winter is using suction. One company had built suction system, which is usable during winter and summer.

Noise problems

Only two companies said their actions for reducing noise level. The first company used rubber dampers to diminish the sound. The other company used sound barriers. They said that sound barriers proved to be a good way to reduce noise especially near urban areas.

4.4.13 Environmental issue

The environmental issues are important for Infra Ry. The stone crushing industry is in the pressure with environmental issues so it is important to recognize the problems. The processed issue in the survey is about preventing fuel and oil leakage from the machinery.

The companies answered several ways to prevent leakage from the machinery to the soil:

- Using of dual case tanks and vats
- Caution when fueling and using the machine
- Using of electrical machine
- Separate refueling and working areas

Other smaller ways of preventing leakage to the soil:

- Using of refueling carpet
- Plastic cover underneath the machinery
- Bayonet coupling and proper connectors during refueling
- Following standards

Also, couple of companies said that they are using peat bags near the machinery just in case if any leakage happens.

5. THE CONCLUSIONS

5.1 The markets

The market for stone crushers and screeners is strongly dominated by Metso. Also Sandvik is quite big factor in the market. Domestic machinery is appreciated, because the availability of maintenance and spare part services are better compared to the foreign machinery. The issue is not necessarily of machinery being domestic per se, but the companies need to rely on getting the spare parts and the maintenance fast when needed.

It is also clear that the biggest market for the stone crushers is in the quarries and mines. The recycling and demolition business is not a big sector producing crushed stone. This is important when deciding the marketing strategy. A new distributor can decide whether to concentrate on a smaller sector like recycling or start competing in the main sector. It might be easier to become the market leader in the smaller sector, but the main sector might be more profitable because of the market size. The profit could be much better even if the new distributor does not achieve a big share of the market.

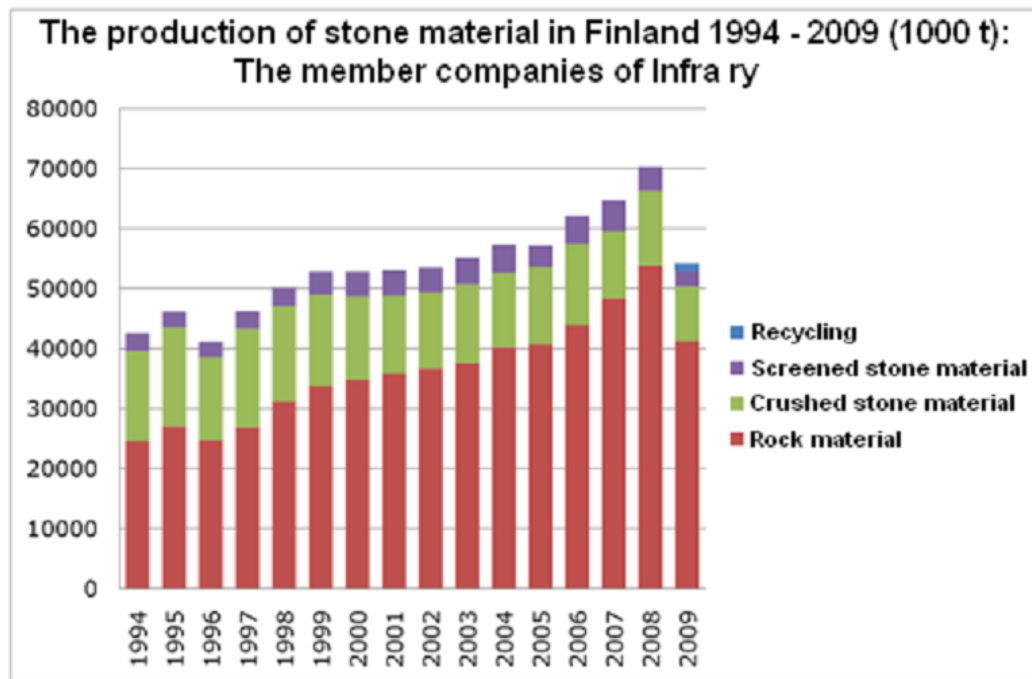


Figure 5: Production of crushed stone in Finland by member companies of Infra Ry. from 1994 to 2009. (1000 tons)
(Source: Infra Ry: Yhteenveto.pdf)

The production amount in different sectors vary a lot. (Figure 5) The most noticeable issue is the size of the production in the recycling sector. The size is very small compared to the basic crushed stone production. The production amounts of recycling companies are much smaller, because their main object is not just to produce stone material.

From the survey it can be seen that there is an increased amount of the companies within the stone crushing business. Seven companies out of the eighteen have started working in the stone crushing business after the year of 2000. There is more variety among the users so the end product market is naturally more divided.

5.2 The suggestions for the actions

5.2.1 The marketing strategy

The stone crushing companies in Finland are quite familiar with different crusher and screener brands, but they do not know the availability in the Finnish market very well. The biggest manufacturers, Metso and Sandvik, are well known in Finnish market and they have built a good image for themselves. Especially Metso is seen as reliable and good producer. Table 11 indicates that the stone crushing companies depend on Metso as the preferred brand. This is also the reason for the popularity of their crushers and screeners.

Atlas Copco needs to improve the awareness of the Finnish stone crushing industry about the Hartl products. A good way to get more visibility for the products is promotions, advertising and exhibitions. Currently customers would most likely just buy products from Metso or Sandvik without question, because of their limited knowledge of the competition. If the companies were more aware of the competition, they might competitive bidding for the machinery.

5.2.2 The maintenance

The crushing sites are usually located in quite remote areas because of their dust- and noise pollution. Also, the distance between different crushing sites can be very long and it causes challenges to the maintenance services. The machinery need to be reliable around the year, including winter time, so the need for maintenance is higher.

Even if the machinery is very durable and reliable, every now and then it needs maintenance and spare parts. The customers need to be sure that maintenance and spare parts are available so the production can continue as fast as possible. Many of the answers are more or less linked to the maintenance issues. Easy and fast maintenance are often the preferred strengths. Also, ease of maintenance is important.

It might be a good idea to offer maintenance and spare part contracts to the customers. From the answers it can be seen that almost three out of four companies are interested in these kinds of contracts. (*Table 8*)

The warranty is adequate for most companies. The phone call interviews revealed that the negative answers for this issue might also reflect to the fact that the warranty has some minuses, but it is not really bad.

5.2.3 The R&D aspect

Although the answers are not about Hartl crushers and screeners, there are some points that can be useful for the product development. The consumers always require more durable and more efficient machinery among the other general issues. The efficiency is generally just about production capacity. There is couple of answers where the energy production with the track crushers is too low, which needs improving.

The durability issue can be divided to structural durability and electrical durability. The answers gave the image that the older models are sturdier than the newer models. This means that the structure of the machine is not as vulnerable to vibration. On the other hand, the older models are more sensitive to electrical issues. This is also linked to the usability of the machinery. The usability was hoped to be better.

The R&D aspect for the screeners is easier, because the survey examined more crushers than screeners. Nevertheless, the durability and efficiency among other general issues came up for the screeners and there is only one slightly more detailed issue. The changing and fastening of the screen could be easier and faster. The current models that the companies are using require too much time and sometimes it might halt the whole production to change the screen.

6. THE SUMMARY

When moving to a new country, the significance of the quality, up-to-date and detailed information of the markets are emphasized. When starting a business within a new market area, the risks are big and the significance of the market survey is greater. To get enough information, the company needs to individualize their information needs. Successful market survey is the sum of careful planning and including every possible component concerning the survey.

In this survey the wanted market information is the current situation and future trends. This survey is mostly about gathering the basic market data and to verify the issues that might have already been acknowledged. Also, there are some questions about environmental issues as well as few issues to the needs of the R&D department. The survey also worked as a promotion for Atlas Copco, because the companies knew the Hartl product, but they clearly were not aware that the Hartl products are now being distributed in Finland by Atlas Copco.

The Finnish stone crushing industry clearly values domestic products. This is mostly because of better availability of spare part and maintenance services. The other valued aspects regarding the machinery are more general issues like reliability, durability, efficiency, mobility, and production capacity. The market leader in Finland has built a strong image for itself, but there is a need for competition so there is a market niche within the Finnish stone crusher and screener market.

Referring to this survey, the future seems to be promising for new distributors in the market. Attitude towards the new distributor is good and competition is welcomed. The next thing to decide is the marketing strategy. There is an opportunity to concentrate on a smaller segment like stone crushing in recycling business or trying to get a market share in the major stone crushing business.

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