

Factors Affecting Growth in Semiconductor Business-to-Business

Sales



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Tämä opinnäytetyö keskittyy myynnin kasvuun vaikuttaviin tekijöihin toimeksiantajana toimivassa Okmetic Oy:ssä. Okmetic on korkeanteknologian piikiekkujen valmistaja Vantaalla ja olennainen toimija elektroniikkateollisuusketjun alkupäässä.

Okmeticin strategian yksi lähtökohta on kasvaa kannattavasti yhdessä asiakkaidensa kanssa. Tämän varmistamiseksi on tärkeää ymmärtää oma markkina-asema suhteessa kilpailijoihin, omat vahvuudet ja heikkoudet sekä asiakkaiden vaatimukset ja sovellukset. Okmetic on uudessa markkinatilanteessa v. 2025 valmistuvan ja avautuvan uuden tehtaan ansiosta. Tämän tehtaan myötä kapasiteetti yli kaksinkertaistuu, jolloin se ei ole enää myynnin kasvua rajoittava tekijä. Opinnäytetyön tavoitteena on ymmärtää uudessa markkinatilanteessa myynnin kasvuun vaikuttavat tekijät.

Tutkimuksella pyritään hakemaan vastauksia seuraaviin kysymyksiin: Kuinka mahdollistaa myynnin kasvu asiakkaiden kanssa? Mitkä ovat myynnin edistämisen kannalta ongelmakohdat? Mikä saa asiakkaan valitsemaan Okmeticin? Mikä toimii, mitä tehdään oikein? Mikä tekee Okmeticista vielä kilpailukykyisemmän, kun kapasiteettirajoitusta ei enää ole?

Tutkimuksen tulokset vastasivat teoriaperustan mukaisia näkemyksiä asiakkaiden odotuksista sekä Okmeticin vahvuuksista sekä heikkouksista. Johtopäätöksenä voidaan todeta, että tuleva tehtaanlaajennos on yhtiölle sekä innostava hieno mahdollisuus sekä kasvunpaikka, mutta samanaikaisesti myös iso haaste toiveiden ja haaveiden täyttymiselle sekä uuteen sopeutumiselle. Työn tuloksena on organisaatioille joukko kehitysehdotuksia sekä huomioitavia asioita.

Avainsanat Myynti, puolijohde, kasvu, business-to-business

Sivut 41 sivua ja liitteitä 1 sivu

This thesis focuses on factors influencing sales growth in semiconductor market. The thesis is commissioned by Okmetic Oy which is a manufacturer of high-tech silicon wafers in Vantaa and an essential player of the electronics industry chain.

Okmetic's strategy is to grow profitably together with its customers. To ensure this, it is important to understand their market position in relation to competitors, the strengths, and weaknesses of the company, as well as customer requirements and applications. Okmetic is in a new market situation as they are expanding and opening a new factory 2025. The capacity will more than doubled, and it will no longer be a limiting factor for sales growth. The aim of the thesis is to understand the factors affecting sales growth in the new market situation.

The purpose of the study is to find answers to the following questions: How to enable increased sales with customers? What are the problem areas in terms of sales promotion? What makes the customer choose Okmetic? What works, what is done right? What makes Okmetic even more competitive when there is no longer a capacity limit?

The results of the survey corresponded to theoretical views on customer expectations and Okmetic's strengths and weaknesses. In conclusion, the upcoming factory expansion is both an inspiring opportunity and a place for growth, but at the same time, it is also a big challenge to fulfil hopes and dreams and adapt to new things. The result of the work is several development suggestions and recommendations for the company, and also challenges to be taken into account in planning the future.

Keywords Business-to-business, sales, semiconductors, growth

Pages 41 pages and appendices 1 page

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1 Introduction

Semiconductors are the essential components of modern electronics and therefore important parts of our everyday lives. Without electronic devices and semiconductors, there would be no smartphones, TV's, computers, or advanced medical diagnostic equipment. (SIA, n.d.).

This thesis aims to understand the factors affecting sales and growth in the semiconductor market. The study was commissioned by a silicon wafer manufacturer Okmetic Oy. Silicon wafers are one of the base materials of semiconductor components. Okmetic Oy is at a historical point of the company's history because it is building a large expansion and more than doubling its capacity. For the completion of the project to be successful and to enable the growth potential, it is important to understand the company's position in comparison to competitors, and the strengths and weaknesses of the company. The knowledge and understanding of customers' requirements and their applications are extremely valuable for to be able to provide excellent customer service.

The thesis aims to answer the following research questions:

- How to enable the sales growth in Okmetic?
- What are the factors influencing B2B sales of Okmetic?
- What are the company's potential problems from the sales point of view?
- What makes the customer to choose Okmetic as their supplier?
- What is required for better position in the market once the Okmetic's current limitation with the capacity no longer exists?

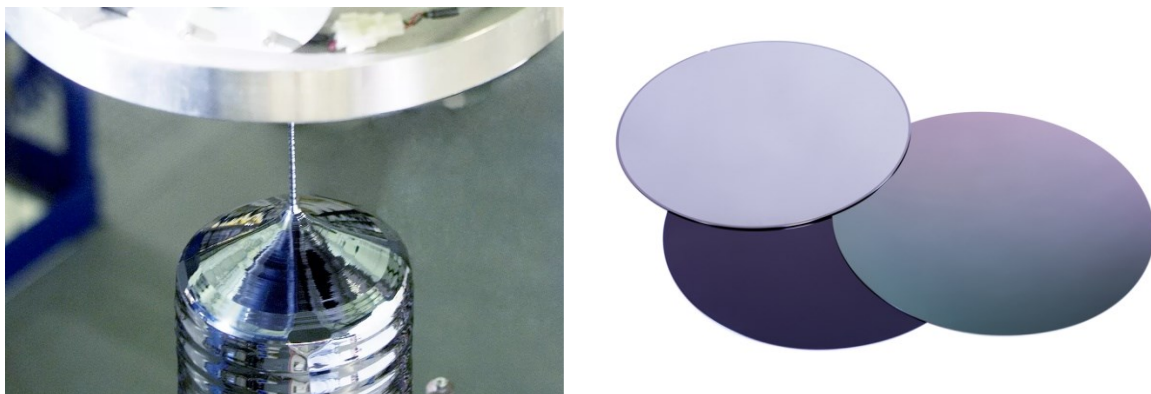
This thesis focuses to learn about elements that have an impact on sales and how to influence these elements. The research problem is addressed from the sales managers point of view to acknowledge the problems and challenges they experience in their work and in contact with the customers. The target is to recognise the root causes for the issues and to develop recommendations for actions for improvement.

The positive sides about Okmetic's way of doing business are extremely interesting as well. It is necessary to understand what Okmetic does well and how it differs from other suppliers. This information helps to maintain these aspects of the company when the company grows substantially.

1.1 Okmetic Oy

Okmetic Oy is a Finnish silicon wafer manufacturing company. It is the seventh largest manufacturer in the world and a leading supplier of high value-added silicon wafers (Okmetic, n.d.). Okmetic supplies customized silicon wafers for their international customers according to their specification in 150mm and 200mm diameter sizes. The customers manufacture sensors, RF filters and devices and power devices for smartphone and automotive electronics, industrial process control and healthcare applications, the Internet of Things, as well as power supply and efficiency improvement solutions. (Okmetic, n.d.)

Figure 1: Pictures of a silicon crystal ingot (left) and finished wafers (right).

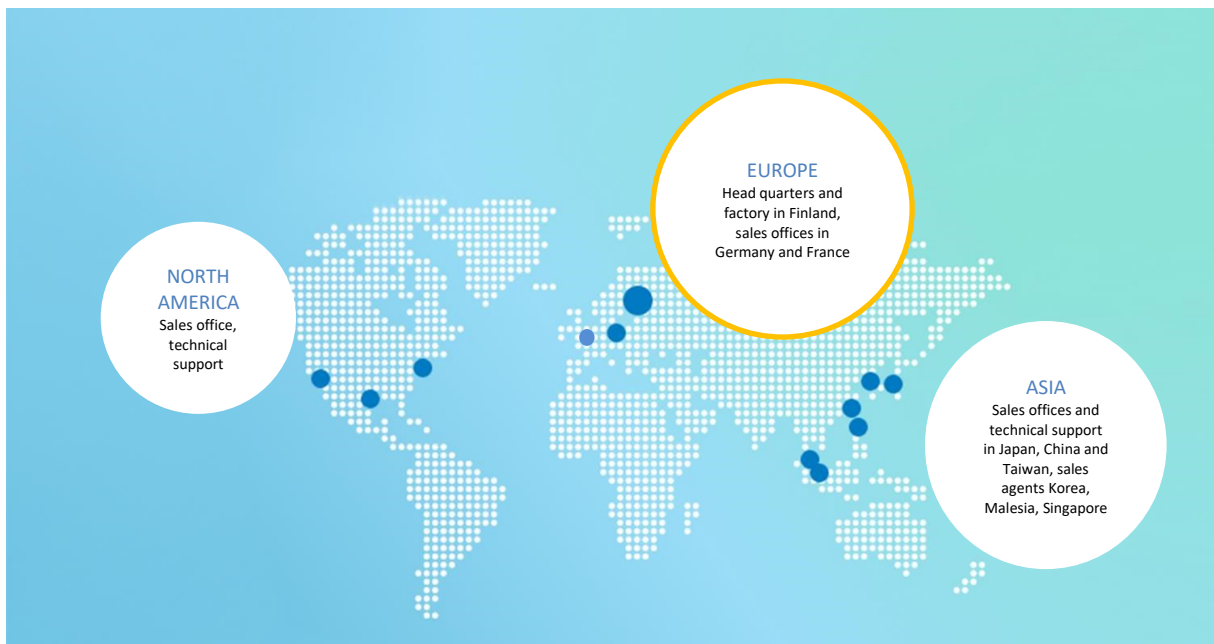


The business model of the company focuses on deep understanding of customer needs. The aim is to bring added value for the customer with tailored, high-quality silicon wafers. Okmetic's core expertise is crystal growing which is the very first step of silicon wafer production and which defines several features of the final product (figure 1). Customizing this with the customers' specific requirements in mind they get highly specialized products. (Okmetic, n.d.)

Okmetic headquarters is in Vantaa, Finland, and then they have sales offices in the United States, Germany, France, China, Taiwan and Japan (figure 2). The sales organization (shown

in figure 3) consist of sales managers, technical customer support, customer service for order handling and other supporting roles. The company also has sales agents in Korea, Malaysia and Singapore. The turnover of the company was around 150 million euros in 2022. Currently, Okmetic employs around 600 people. (Okmetic, n.d.)

Figure 2: Locations of Okmetic's offices



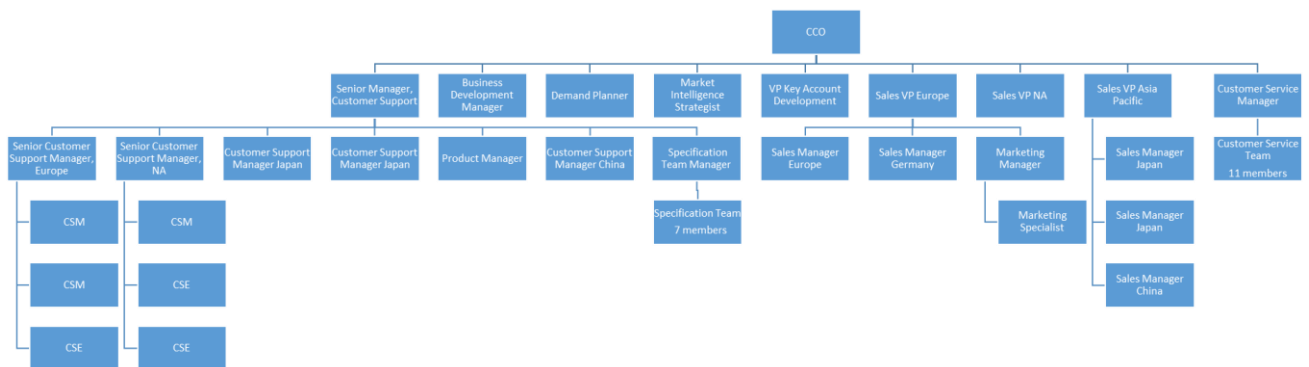
In the recent few years, the demand for silicon wafers has been extremely high (Statista, 2023) and the sales have been capacity limited. This has meant that Okmetic and other silicon wafer manufacturers could have sold more and had to turn down customers (Burkacky et al., 2022) because there was no capacity to produce more wafers. In the next few years Okmetic will build another factory next to the existing one in Vantaa, Finland and this will more than double the capacity (Okmetic, n.d.) and bring the number of staff over a thousand. The investment is the largest in the company history, almost 400 million euros. (Okmetic, n.d.).

The silicon and semiconductor market in general is very cyclic with ups and downs taking turns every few years (Deloitte, n.d.). In total the market is still growing with more and more electronic components being used in our everyday life (Mayanja, 2023; Statista, 2023).

Strategy of Okmetic is to maintain its leading position in the niche market and grow profitably together with their customers. One of Okmetic values is sustainable growth, which

means equal consideration of economic factors and people as well as the environment. The company's operations are designed to comply with the Responsible Business Alliance's (RBA) Code of Conduct. (Okmetic, n.d.) This is a set of social, environmental and ethical industry standards and the participating companies get audited yearly against the standards. (RBA, n.d.).

Figure 3: Okmetic's sales organization

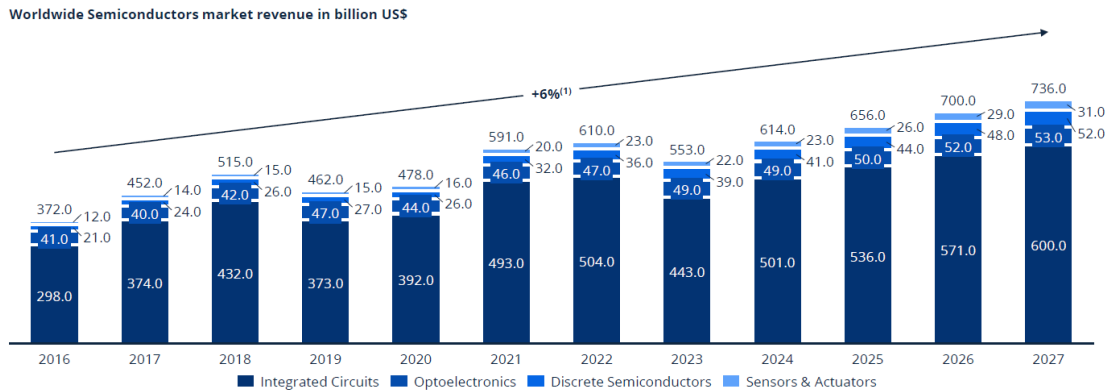


1.2 Semiconductor and silicon wafer markets

The following graphs will help to understand the landscape where Okmetic operates and to gain knowledge of the general semiconductor market.

Several end markets have an impact to semiconductor market, for example automotive, consumer electronics and telecommunications. Typically, the semiconductor market is quite cyclic where high and low revenue growth take turns. This is mainly because of the changes in demand. (Miller, 2022, pp. 327-334).

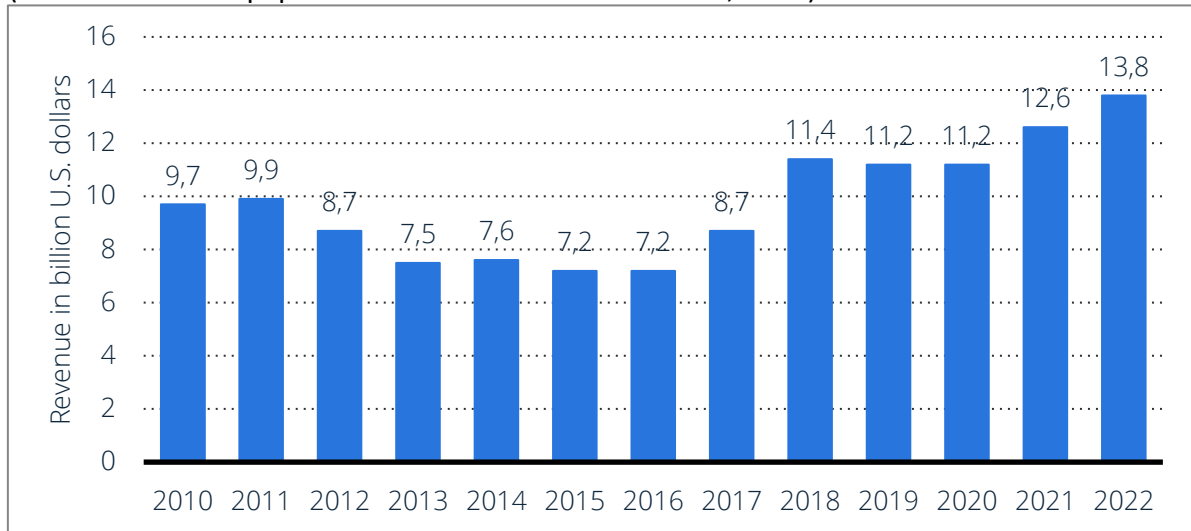
Figure 4: The global semiconductor market size worldwide from 2016 to 2027 (in billion U.S. dollars) (Statista, 2023, p.8).



In the last few years, the Covid-19 pandemic and Russian invasion to Ukraine have disrupted the market. (Burkacky et al., 2002). During Covid-19 pandemic the demand for semiconductor chips dropped as the car manufacturers cut their production and cancelled their orders. During 2020 the demand grew as consumers started replacing and upgrading their electronic devices while they were trying to cope with the consequences of the lockdowns and surge of remote working. 2021-2022 the market grew as the demand for semiconductor components was record high. This is due to the car industry recovering from the Covid-19 pandemic at the same when consumer business demand was high as well. (Miller, 2022, pp. 327-334).

Overall, in long term, the semiconductor market is anticipated to grow steadily as the demand for automation and digitalization is increasing the need for chips and components that power these advanced systems (Mayanja, 2023). The market is estimated to reach 736 billion US dollars by 2027, figure 4. (Statista, 2023, p.4).

Figure 5: Silicon wafer revenue worldwide from 2010 to 2021 (in billion U.S. dollars). (Semiconductor Equipment and Materials International, 2023).



Silicon wafers are used as a base for great number of electronic components and the market follows the trend of the whole semiconductor market. The silicon wafer market is a small proportion of the whole semiconductor market. Figure 4 shows a steady growth of the semiconductor market size from 2016 and the growth of the silicon wafer market is predicted to continue in the next few years (figure 6). The number of silicon wafer shipments is expected to continue increasing.

Figure 6: Forecast silicon wafer shipments worldwide from 2021 to 2025 (in million square inches). (SGL Carbon, 2019).

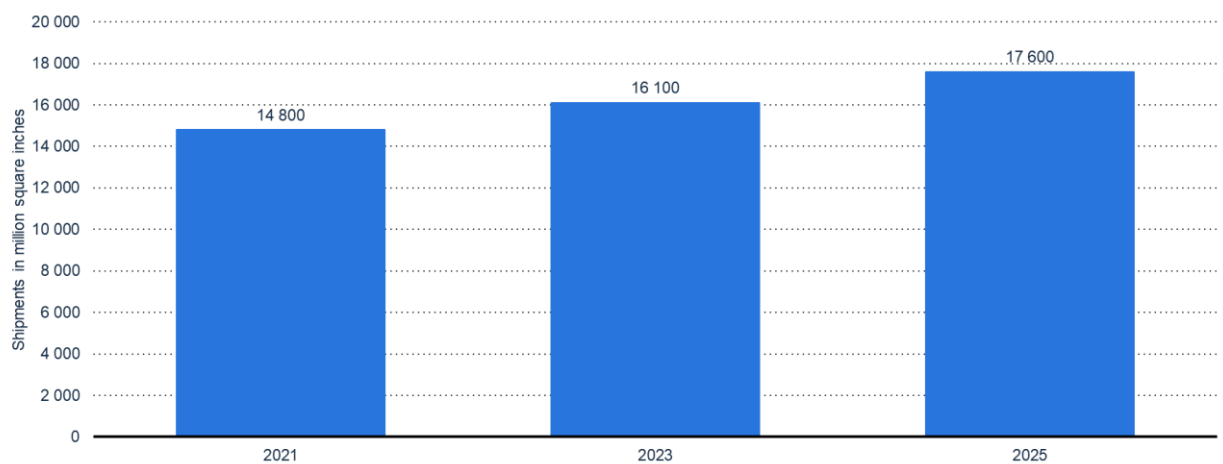
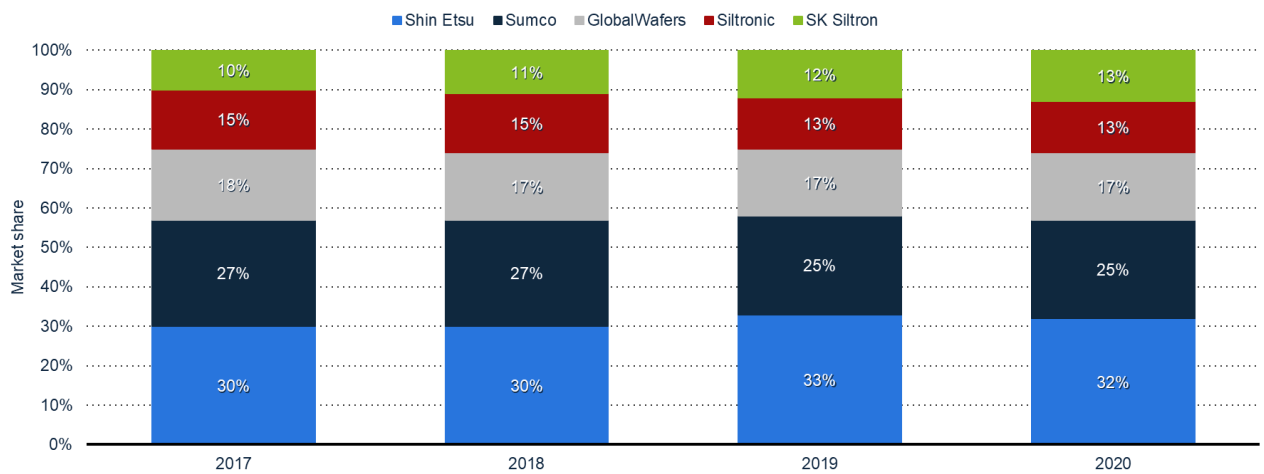


Figure 7 shows the five largest silicon wafer producers in the world. In comparison, Okmetic is the 7th largest silicon wafer manufacturer. The order of the top 5 manufacturers has remained stable for several years. The two largest companies Sumco and Shin-Etsu are both based in Japan. While Sumco focuses to produce silicon wafers only, Shin Etsu's product

portfolio expands over several materials and applications. (Sumco, n.d.; Shin-Etsu, n.d.). The third largest silicon wafer manufacturer, GlobalWafers has manufacturing sites in several continents and produces wafers for multiple applications (GlobalWafers, n.d.). Siltronic is the 4th largest producer and is nearly as large as GlobalWafers. The company has headquarters in Munich, Germany and production facilities in Asia, Europe and the USA (Siltronic, n.d.). SK Siltron is part of SK corporation and is based in South Korea (SK, n.d.).

Figure 7: Market share of the top five wafer producers worldwide from 2017 to 2020. (Siltronic, 2021).



Silicon wafer market follows megatrends closely and is influenced by consumer behaviours. With only a few key producers and steady growth over cycles the market looks positive going forward due digitalization and technology development and is anticipated to grow approximately 10% year on year basis.

Okmetic is a relatively small supplier in a growing market and operates from somewhat different geographical location compared to competition. As key customers have global manufacturing network, the location is not business critical, but this needs to be considered due to pandemics and other major local events which can impact business/supply negatively short term. This forms the basis for this study as ensuring/demonstrating the ability to growth with the market maintaining quality, customer service and support is essential for Okmetic long term success. Customers need to have confidence in the supplier as the business further in the line is based on customer satisfaction/experience and in automotive business, people safety.

2 Nature of business-to-business sales

2.1 Business-to-business sales in high-technology market

B2B sales in high-technology refer to the business-to-business (B2B) sales of advanced and often complex technology products, services or solutions. These products and services are typically designed to meet the specific needs of other businesses, and they often involve cutting-edge technology, innovation, and advanced features. B2B high-technology sales include a wide range of industries and products, including software, hardware, telecommunications, cloud services, artificial intelligence, and more. Sales representatives in B2B high technology sales must have a deep understanding of the technology they are selling. They need to be knowledgeable about the product's features, functionality, and how it can address specific business challenges. Sales teams and representatives in the B2B semiconductor sector need a high degree of technical expertise. They must understand the specifications, functionality, and applications of different semiconductor components to effectively communicate with engineers and technical decision-makers. (Batra & Kaza, 2012, p.66-75; Lyly-Yrjänäinen et al., 2018, pp. 8 – 37).

Semiconductors are crucial components in electronic systems. Reliability and quality are very important, and the suppliers should be able to demonstrate the rigorous testing and quality assurance processes used in their manufacturing. Certain industries, such as automotive and aerospace, have stringent certification and compliance requirements for the components they use. Manufacturers must ensure that their products and manufacturing processes meet these industry-specific standards. (IATF, n.d.)

Managing the supply chain is critical in semiconductor sales, as supply chain disruptions can have a significant impact on customers. Sales teams need to provide transparency regarding lead times and availability. Semiconductors have lifecycles, and some components become obsolete over time. Sales teams must assist customers in managing the obsolescence of components and finding suitable replacements. (Batra & Kaza, 2012, p.66-75)

The sales process for high technology products is often lengthy and complex. It may involve multiple stakeholders, technical evaluations, and a detailed procurement process. Decision-

making can be slow, and it may require extensive technical and financial justifications. (Lyly-Yrjänäinen et al., 2018, pp. 8 – 37). Semiconductor components need to be thoroughly evaluated, integrated into existing systems, and meet strict performance criteria before a purchase decision is made. B2B high technology sales often focus on selling solutions rather than standalone products. The products are often tailored to suit specific needs of each customer. Supplier needs to understand these unique requirements and tailor the offering accordingly. Components are often designed by engineers in collaboration with the customers' during the development of new products. Manufacturers must provide extensive support, technical documentation, and guidance to help customers incorporate the components into their products. (Varas et. al, 2021; Lyly-Yrjänäinen et al., 2018, pp. 8 – 37).

The technology industry is highly competitive, with new innovations constantly emerging. Sales teams must be aware of the competitive landscape and differentiate their offerings effectively. Technology evolves rapidly, and sales representatives need to stay updated on the latest advancements and trends in their field. Continuous learning and training are essential. Business-to-business high technology sales often have a global dimension, with technology companies selling their products and services to customers in multiple countries and regions. (Batra & Kaza, 2012, p.66-75; Lyly-Yrjänäinen et al., 2018, pp. 163-203)

Building strong relationships, providing excellent support, and demonstrating the value of the technology are essential components of success in this sector. B2B semiconductor sales require a deep understanding of technology, strong relationships with manufacturers, and the ability to provide comprehensive technical support and guidance to customers. These sales efforts play a critical role in enabling technological advancements across various industries. (Batra & Kaza, 2012, p.66-75).

2.2 Megatrends as driving force for change for buying process and behaviour

Several megatrends have been shaping the B2B sales landscape in recent years and these are continually evolving. Globalization, digitalization, personalization and data based selling will shape the selling strategies in the future. Also, social and environmental responsibility gains attention increasingly as the ecological sustainability is in crisis. Successful B2B sales

organizations need to adapt to stay competitive and effectively meet the changing needs of their customers. (Aaltonen, 2023; Hong et al., 2023).

The digitalization of sales processes is a significant megatrend. Companies are increasingly adopting digital tools and platforms for lead generation, customer relationship management, and sales analytics. The digitalization was rapidly accelerated by the Covid-19 pandemic. Video conferencing, webinars, and virtual events have become common tools for engaging with customers. The adoption of virtual and remote selling techniques became very important and vital part of the sales process. (Arslan et al. 2022). Furthermore, adoption of artificial intelligence (AI) for sales is believed to change sales practices in the future (Paschen et al., 2020).

For B2B manufacturing companies in high-technology market trading in global scale is crucial in achieving competitive advantage. It is beneficial for the companies to pursue and explore business beyond their regional market and globalization is key for securing growth of business. (Hong et al., 2023).

Nowadays, B2B buyers expect a highly personalized experience. Sales and marketing teams need to use data analytics to understand customer needs, deliver tailored content, and provide custom solutions. Personalization is key to building stronger customer relationships. Exceptional customer experience is a differentiator in B2B sales. Companies are expected to invest in improving every touchpoint in the customer journey to build strong, lasting relationships. For marketing AI-assisted content is reality already and this will be increasingly beneficial in the future. (Paschen et al., 2020).

Buyers are increasingly considering a company's environmental and social responsibility in their decision-making process. Company strategies need to adapt to include sustainability initiatives and corporate social responsibility efforts. (Jagani & Hong, 2022, pp. 1-11).

2.2.1 Buyer behaviour and buying processes

World is constantly changing, and the changes happen quicker than ever before (Dufva, 2020, s.38). Developing technology is part of everything and the importance of using technology is becoming greater. Technology changes how we work and interact and how we

operate (Dufva, 2020, p. 37; Dufva & Rekola, 2023, p. 48). This has impacted the buying behaviour also. Over the years buying and selling has evolved from single transactions to journeys where technology impacts the buying process (Steward et al. 2019). Nowadays, majority of modern business-to-business buyers prefer a representative-free sales experience according to Gartner survey (Gartner, 2024). Potential customers tend to do research online and familiarize themselves with the suppliers and their offerings before making the contact.

Eades and Sullivan (Eades & Sullivan, 2014, p. 16) introduce four fundamental changes in buyer behaviour that have become more obvious since 2011:

1. Buyers are delaying the involvement of sellers in their buying process.
2. More people are involved in purchase decisions; buying by committee is more common than ever before.
3. Buyers have developed a higher aversion to risk, resulting in more decisions to do nothing or to simply maintain the status quo.
4. Buyers are asserting more formalized control over their purchasing processes and are demanding greater seller transparency.

These changes in how customers approach buying are more and more common. Eades and Sullivan call the buyers who tend to behave this way “Buyer 2.0.” Eades and Sullivan introduce three reasons for this new standard of buyer behaviour. According to them the factors influencing this change are: increased information access, the rise of the Millennial generation, and the persistent unpredictability of global economic trends. (Eades & Sullivan, 2014, pp. 16-27).

Increased information access refers to the internet becoming widely available. Buyers have easy access to information about potential products and solutions they are looking into. This means the buyers are no longer dependant of the sales teams and the information received from them. They can start the evaluation process of potential suppliers even without contacting them. (Eades & Sullivan, 2014, pp. 27). This theory is supported by Tanni (Tanni, 2022, pp. 27-29), who explains that the easy access to the information and the excess amount of information available extends the sales process. The process becomes more

complicated as the group making the decision are large, rather than one manager (Tanni, 2022, pp. 30-32).

The term Millennials typically refers to people born between 1981-1996 (Beresford, 2024). This generation differs from previous generations by their technical capability and business knowledge. Their expectations for collaboration and transparency is much higher as well.

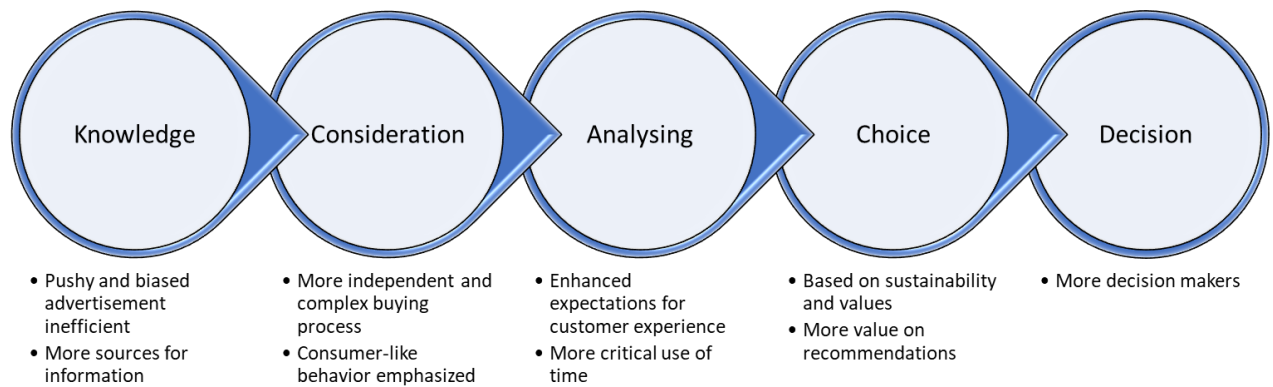
The unpredictable global economic trends affect the buying process by the level of risk the buyers are ready to take. This manifests itself in several ways (Eades & Sullivan, 2014, p. 26):

- More thorough buyer evaluations, with more people involved in the buying process.
- More buyer decisions to remain with the status quo.
- More involvement by formal procurement departments.

Kenner and Leino have presented similar finding about the changes in B2B customers' buying behaviour. Figure 8 illustrates the element that have changed significantly or accelerated in the behaviour of B2B buyers. The customer organisations seem to use more personnel and information sources in their decision making process. The buying process is more complex, more independent and requires more time and effort from all parties. (Kenner & Leino, 2020, pp.12-13).

According to Lofthouse (Lofthouse, n.d.) the selection process of suppliers is thoroughly evolved over the last few years to include much more aspects. He also states that B2B buyer groups are getting larger and more complex. His study shows that company's values play a role in the selection of strategic partners and that customers assess the suitability of suppliers very early on in the process before they have even contacted the sales team.

Figure 8: Changes in buying behaviour of B2B customers (Kenner & Leino, 2020, p.12-13).



In Gartner (Gartner, n.d.) report the B2B buying process has been defined as list of buying jobs which the customer will revisit at least once, looping across all of them, not in a predictable linear order. These jobs include:

- Problem identification. “We need to do something.”
- Solution exploration. “What’s out there to solve our problem?”
- Requirements building. “What exactly do we need the purchase to do?”
- Supplier selection. “Does this do what we want it to do?”
- Validation. “We think we know the right answer, but we need to be sure.”
- Consensus creation. “We need to get everyone on board.”

The complexity of the B2B buying and selling compared to consumer trade is quite significant. In B2B sales is quite typical to make deals that include several products and could last for several years. The buyer organisations may even demand concessions in return or require suppliers to work together to deliver solutions for them. The decision-making units are large and the risks in organizational buying and selling are higher. The potential financial losses could be greater due to the nature of the projects, which often demand a long period of time, high-levelled professional contributing (Jobber et al, 2019, pp. 82—83).

2.2.2 Customer expectations and personalization

Nowadays, the customers are more informed and more difficult to keep than ever before. As Lofthouse describes: "Harder to win – and easier to lose". (Lofthouse, n.d.). The power of customer experience should not be underestimated in B2B. After all B2B is H2H, human to human. (Holma et al. 2021, pp. 24-26).

According to Villani the main factors for higher customer expectations can be listed as follows: personalization, mobility, sociability, self-care, ease, consistency, timeliness, empowerment, empathy, help and complaints. (Villani, 2018, pp. 3–8).

The customers expect customised service especially when the customer-supplier relationship has already been formed and the customer knows the organization to have specific information on them. (Villani, 2018, pp. 8–9). The term B2Me has been used to emphasize the consumer-like expectations the buyers have (Holma et al. 2021, pp. 24-26; Kenner & Leino, 2020, p. 18).

Fast mobile broadband enables customers to contact and to be contacted at all times. The buyers can compare products and providers as they go (Kenner & Leino, 2020, p.18). When contacted it is likely that the customers are doing something simultaneously, so it is difficult to get their undivided attention (Villani, 2018, pp. 10–11). It is important to follow-up the call with additional information afterwards to create trust and feel of empowerment to a customer.

According to Villani (Villani, 2018, p. 13) customers expect to suppliers to use social media to provide information about their products and services. The customers look for reviews and recommendations in social media and are likely to trust complete strangers more than companies' marketing material (Kenner & Leino, 2020, p. 19).

Modern customers have increasing expectations to have the possibility of self-care and freedom. They are happy to serve themselves online to progress their project quickly and freely (Villani, 2018, p. 14) This means that there is a demand for fast, personalised and always-open channels for customers to do business. This is the reason companies have

started built self-service portals, especially for repeat orders, beside standard human to human service (Kenner & Leino, 2020, p. 19).

The buyers expect ease and effortlessness. They appreciate the ease of doing business which requires no effort from them. (Villani, 2018, p. 15). Kenner & Leino (2020, pp. 12-31) advice to prioritize customer ease. According to them the salespeople supporting customer's purchasing process prevent them from maintaining the status quo, preventing the customer from stopping supposedly difficult and time consuming purchasing process.

Consistency in customer experience is a priority for companies when they target to provide superior service to their customers. This should concern information on all channels (Villani, 2018, p. 15). Other important factors are:

- timeliness - customers want answers and replies quickly without any waste of time (Villani, 2018, p. 16).
- empowerment and transparency - customers expect to be offered accurate, up-to-date and manageable information about the products and services in the channels and formats that suit the customers (Villani, 2018, p. 18).
- empathy - understanding the customer and their experience (Villani, 2018, p. 16).
- help - the expectations is to receive help personally and immediately when problems occur (Villani, 2018, pp. 18-19).
- complaints - customers expect to be heard and explained what had happened (Villani, 2018, p. 21).

2.3 Customer satisfaction and loyalty in high-technology markets

Sharma (2022, pp. 984-988) has studied knowledge of customer satisfaction and loyalty in the high-technology B2B market. Sharma's interest was to test a proposed model where customer satisfaction is affected by the relationship value components and attitudinal loyalty and behavioural loyalty. Her focus was to investigate the relative effect of relationship value components on customer satisfaction, and two sides of the customer loyalty. Relationship value components are defined in three groups and there are 7 components in total.

- Core component:
 - product quality
 - delivery and logistics
 - costs (price, acquisition cost and operations cost)
- Technical component:
 - collaboration for technical advancement
 - adaptation of product, equipment, process and procedures
 - information provision and learning benefit (information about market intelligence, knowledge about new products/processes)
- Social component: Ease of negotiating, coordinating and making decisions on relationship issues

Sharma's study proves that technical and social components affect customer satisfaction more than the core components. This means that for customer the most important values are the easy of doing business and collaboration with the supplier. The behavioural loyalty is mostly motivated by core components, the social component has more effect on the attitudinal loyalty. Still all of these seven components of relationship value have an impact in customer satisfaction. (Sharma, 2022, pp. 984-988). This finding is supported by Guo, C., & Wang, Y. (Guo & Wang, 2015, pp. 182-193) who show that both customer orientation and competitor orientation have positive effect on B2B customer satisfaction.

In their study Guo and Wang examined what kind of impact, if any, three market orientation components have industrial manufacturer's customer relationship management. Those three components were customer orientation, competitor orientation and interfunctional coordination. (Guo & Wang, 2015, pp. 182-193).

On one hand a competitor-oriented company can improve their customer satisfaction by learning from and benchmarking with their competitors. This will help them to fulfil customers' needs by offering them better products than their competitors and this will lead to customer retention and improved loyalty. On the other hand, a high level of customer orientation of the supplier with their customer's has a direct impact on B2B customer retention and influences customers' repurchase actions. (Guo & Wang, 2015, pp. 182-193).

Guo and Wang found that the interfunctional coordination had no direct effect on customer satisfaction and customer loyalty. This means that company's coordinated efforts alone will not improve the customer relationship for manufacturing firms if they do not follow the market and listen to the customers' needs. Listening to customers' needs was also emphasized in Sharma's study. The study confirmed that for enhancing attitudinal loyalty the social value is more significant than product quality. This means that for being successful, the high technology suppliers do not concentrate purely on core component development (product quality, delivery and logistics and cost) but also strive for making connections with the relevant customer staff (Sharma, 2022, pp. 984-988). According to Sharma's study the customers in the high-technology industries highly value the relationships with suppliers in which there are fewer issues, and it is easy to work together. This was one of the three key findings in Sharma's study.

Second finding is the need to manage customer satisfaction as previously already discussed because of its strong impact on customer loyalty. As a third finding they mention the core component cost (price, acquisition cost and operations cost) which influences behavioural loyalty almost same amount as product quality. Suppliers' efforts to help a customer to reduce the costs will help with repeat purchases. (Sharma, 2022, pp. 984-988).

As found in other studies (Park & Lee, 2018, pp. 478-494) the business relationships are built at the early stage of product development. The value of collaboration for technical advancement is due to the technological complexity. Sharing resources for new product development and technology improvement was emphasized in Sharma's study. Suppliers help and collaboration with customers reduce the time to market in the new product development processes.

Although, it is vital to listen to the customers' needs and work in close collaboration with them to ensure the satisfaction and loyalty it is equally important not to overdo it. If a supplier has a full implementation of customer orientation and competitor orientation in every department, it may lose flexibility and continuity of product, weakening the positive effect on customer relationship outcomes. The results could become unfavourable if every functional unit in a manufacturing firm is very focused in dealing with customers and their needs as this will impact the operational cost for the customers massively. Also a supplier's

cross-functional customer orientation may actually discourage innovativeness of the staff and this impact the customer satisfaction in the long term (Sharma, 2022, pp. 984-988).

3 Research method and execution of the study

Study was conducted as qualitative research using individual themed interviews. The interviewees were the sales managers of five different market regions of Okmetic, one from each region: North America, China, Japan, Germany and Finland. The interviews were carried out in Microsoft Teams in March-April 2023. Each interview lasted about an hour and was recorded with Teams' own feature. The recordings were then transcribed into text through Teams.

Qualitative research is a scientific research method where the target is to understand the world of meanings which influence between people. The various characteristics of the research topic is at the center of interest. The method is based on the uniqueness of the topic. (Vilkka, 2021, p. 118; Hirsjärvi et al. 2009, pp. 161-164.) Qualitative research aims to understand a behaviour or an event deeply and achieve information about a local phenomenon. The goal is also to look for new theoretical perspectives on events and phenomena. Experiences and views of people are the key elements of the method. (Hirsjärvi & Hurme, 2011, p. 59).

One data collection method in a qualitative research is a research interview. There are several ways of performing the interviews for example form interview, theme interviews and open interviews to mention a few. Typically interviews are conducted for individuals but could be also done for groups depending on targets of the research. (Vilkka, 2021, pp. 122-123).

Theme interviews are also called semistructured interviews. A typical characteristic of a themed interview is that the interview areas are picked and decided in advance. These are areas that are necessary to discuss to answer the research question and typically are extracted from the theory of research topic. The interviews are targeted to specified people. With the help of themes, the aim is to go through all subject areas with each interviewee, and through this to bring out all the topics of the research. (Vilkka, 2021, p. 124; Eskola et al., 2018, pp. 27-30). The theme interview has the advantage of direct linguistic interaction with

the interviewees, which allows clarifies and deepens the information obtained with additional questions that makes it so unique data collection method (Hirsjärvi & Hurme, 2009, p. 34).

The aim of this thesis was to investigate and to understand Okmetic's position in the market compared to competitors and customers. The study was carried out as a qualitative research using individual themed interviews. The interviewees were Okmetic's sales team, more specifically the sales managers. An individual theme interview was the suitable solution for this research, because the interviewees have very different work backgrounds and experiences, and they represent many different cultures. Their understanding of customer needs and their way of working with customers differ significantly from each other, so the flexibility offered by theme interviews was important. It was important to discuss possible new themes emerging in the research by means of clarifying questions. (Hirsjärvi & Hurme, 2011, pp. 47 - 48). All the interviewees were interviewed using the same interview template and the interview was carried out with semi-free discussion, one theme at a time. During the interview, the order of the themes could change for the interviewees, but all themes were reviewed with the interviewees.

The research material i.e. the interviews was used as the base for this research. In qualitative research the material is analysed to find similarities and differences. The aim is to find logic of function or based on the research material, a typical story that is repeated in the material. (Vilkka, 2021, p. 163). In the material analysis the interviews are simplified and categorized. This means excluding the information which is irrelevant for the research subject or research questions. Individual words, phrases and sentences can be used as unit of analysis. Categorizing and combining similarities and differences into classes is called clustering. The target is to find key points for the research. After clustering it is possible to make an epitome of the general concept. By finding the significant information for the research subject examples and theoretical conclusion can be found. (Tuomi & Sarajärvi, 2006, pp. 110–115).

3.1 Reliability of the study

Reliability of a research refers to its repeatability. When considering reliability, you have to think about how the nature of the research and the research topic have possibly influenced

how the participants in the research have answered. Validity, on the other hand, indicates how well the research measures what it was supposed to measure. Validity is about whether the research is valid; has it been done thoroughly, are the results obtained and the conclusions drawn accurate. Reliability and validity together are the basis of overall reliability of the research. (Hirsjärvi et al., 2013, pp. 231-233)

The reliability of the research can be examined through the different stages of the process. The different steps must be done correctly so that the research data is reliable and believable. (Kananen, 2013, p. 115.) In qualitative research, when the material is analysed, the reliability of the material analysis is evaluated. When evaluating this, it is considered whether all available material has been taken into account and whether the information has been transcribed correctly. It is very important, that the results reflect the perceptions and world of thought of the subjects. (Hirsjärvi & Hurme, 2011, p. 189.) When evaluating research, it must be accepted that all research is a construction made by the researcher from certain frameworks and with certain building materials - someone else could make a slightly different-looking output from the same pieces. Qualitative research is always one version of the research subject, and it can never be completely trusted, i.e. it does not provide objective, absolute information, even if one wants to think so in order to increase the feeling of security. Some conclusions can be drawn from the results obtained by the researchers, but the results are always contextual, e.g. things related to time, place and researcher. (Saaranen-Kauppinen & Puusniekka, 2006).

The reliability of research can be evaluated according to the next list (Tuomi & Sarajärvi, 2006, pp. 137-138):

- The research subject and purpose – what is being researched and why?
- Researcher`s own commitment to the research – why it is important and what are the presumptions?
- Collecting of the material – how were the interviews done?
- Selection of interviewees – how the selection was done and how they were contacted?
- Researcher-interviewee-relationship – how the relationship works?
- Schedule of the research – how long the research lasted?

- Analysis of the material – how was the analysis done?
- Reliability of the research – is the research done ethically?
- Reporting of the research – is the report accurate?

As the study and opinions of the interviewees are dependant of the market situation, the study is only valid for the current time. The effect of my role as the author of the thesis and as a colleague of the interviewees cannot be ruled out. In the report of this study, I have described the theme interviews in such a way that the interviewees cannot be identified. The collection of data and the reporting of interviews have been described as accurately as possible, and the reliability of the interpretations of the results is increased by direct quotations from the interviews.

4 Findings of the study

The results of the interviews are introduced in the following sections. The discussion points have clustered under the same themes and some examples and main points raised from the interviews.

4.1 Okmetic's biggest advantages in comparison to the competition

Customer responsiveness is the main theme that emerges from all the discussions with the interviewees. All the interviewees mentioned that their customers appreciate the ease of working with Okmetic. Okmetic seems to be very customer oriented and have a focus on customer needs.

- *And from the feedback which I get from the customer, our strength is really our response time of flexibility, our transparency and sharing data...*

Until now Okmetic has been a small size company compared to the other silicon wafer suppliers but with the capacity expansion it is moving to medium size company. Being small size company has meant that the company has been quite agile and has been able to provide orders of smaller quantities to their customers. Large companies typically have large minimum order quantities. The size of the minimum order quantity is important at the time

of the product development and ramp-up phase, it has direct affect to suppliers' development costs.

Another benefit that all the interviewees emphasized is the flexibility of Okmetic. Being an agile and small size company means that changes can be implemented quickly at customers' request.

- *So Okmetic is moving to be a little bit more of large size company. However, this is just in the last few years, historically Okmetic has been small to medium sized company which allowed to be very flexible and agile...*

Technical capability was also mentioned. The company's product offering is wide and more comprehensive than what any of the competitors currently have. Okmetic is also ready to improve on the current capability to respond to the customers' requirements and needs.

- *We have offers which others do not have. So we have also products where we are better than any other competition...*
- *So we're not shy to go after more challenging specifications and push the technology limits in the company.*

Most of the major silicon wafer manufacturers are located in Asia. With the uncertain times and situations in the world some customers have paid attention to the location and county of origin of the products they purchase. For some European customers the sustainability targets are very high, and they seek to have suppliers more locally. From the contingency management point of view, it is important to have suppliers across the world as a caution to worst case scenario. In this light, Okmetic's position in the market is getting stronger being European and Finnish manufacturer. As a Finnish company Okmetic is seen as trustworthy and reliable with high quality products.

- *Many customers have a good impression of Finnish company. They think Finnish company can provide excellent service. So general impression is that a Finnish product is a quite certificated and beautiful and on time...*

4.2 Improvement opportunities

When discussing the possible improvement opportunities with the interviewees, several topics were raised that concerned customer experience; how the customers see the quality of the products and the service. Other identified opportunities concerned the technical capabilities of the company's products.

4.2.1 Enhancing the customer experience

The interviewees emphasized that when the company is expanding and when the target market is shifted to larger companies, the customers' expectations for services change as well. Specifically, the customers expect fast responses in case they have problems or challenges with the products they have purchased. Often this means maximum of 24 hour response time for customer enquiries or investigations. The customers expect that if they experience issues with the company's wafers that a report of process step investigations is sent to them within 24 hours of the first contact from them. This represents the company's commitment for serving customers.

- *So we will take, I don't say our approach is not good, but we take a bit long time to report like a first, first report. This high end semiconductor market for 24 hours response is a very common... So they are global standard. It's like this within 24 hours response for we should think about that.*

One of the interviewees also identified communication as an item where improvement is needed. Some customers expect to have more information and communication about the quality findings of the products and processes. This would help them to understand their analysis more deeply.

- *And of course communication, always. Communication is always something that needs to be improved, clarifying what we mean in a very concise, in clear way.*

In several discussions the interviewees raised the topic of pricing strategy and their need for support with pricing. Two of the interviewees felt that they have clear guidelines and expectations for margins. The improvements others wished for was with the general

knowledge of the market prices i.e. how Okmetic compares with the competition, especially in tough market situations where the competition is hard.

Some of the interviewees raised a concern over recruitments and overall resources during absences. They felt that there is not enough backup or not enough attention paid for cross-training because the company is not very big at the moment.

- *Human resources are limited for in case someone gets sick or someone leaves from company. A bit difficult to find a replacement.*
- *I think that what is needed little bit more cross training on whoever is the backup person for employee who is absent for whatever reason vacation or sick time or family time regardless important. We rely on a lot of on one person in things.*

4.2.2 Enhancing the technical capabilities

The interviewees also identified several possibilities for technical improvements that could improve company's competitiveness. With the change of target customers due to the company expansion, there is a change of in the key requirements for the products, for example in the surface uniformity and in level of automation used in the manufacturing process of the wafers.

- *So we need to change our mindset and business model which will subsequently impact our technical capability. So that's what we need to improve and we're moving towards this direction already. We're working with those customers and we're having internal discussions. So I think that could be improved.*

4.3 Support needed in the future from the sales managers point of view

When asked what kind of support the interviewees need in the future, they all asked for more local resources. They identified various roles in their own local market areas which would help them to fulfil the sales targets. This would give them a possibility to find new potential customers.

- *Another salesperson could maybe split some key accounts and also be more active with smaller and mid-size customers where we haven't been so active at the moment also because we didn't have capacity anyway. So this is, but if you have a new sales manager, we also need a new customer support person.*
- *So that's good like important market, we need to have our own people, their own sales, own tech support to communicate with customer direct in local language.*

The interviewees also mentioned the need to improve communication between different teams and levels.

- *There has to be cooperation because there might be two different persons taking care of this customer. So communication within the team.. So maybe this kind of product marketing manager or product manager support could be useful.*

As the company is growing significantly in the next few years some of the interviewees mentioned the importance of training and access to information in English.

- *Training materials, you know you have many newcomers, but you forget things which we don't need every day. And then maybe you have a customer question and instead of bothering the customer support with the same question if you could find in intranet like a FAQ or whatever, so that the information or even maybe like a clean room tour, like a video...*

4.4 The main factors limiting the sales and growth

During the interviews the participants indicated that the current sales strategy of concentrating on few selected products is not beneficial for the company growth. Instead, in the future they suggest that the company focuses to larger customer accounts and targets to sell them several products. This would provide the company stability and consistency even when there is downturn in the market cycle.

- *So we should serve our customers as several product as a package and it works when it's a bigger package of products.*

- *But if we would have like more projects, like some weird unique wafers first, but then we have to be also in this kind of more standard project where we are selling more standard wafers. But then we would have more projects ongoing...*

4.5 Future challenges

When reflecting and thinking the future challenges without the capacity limitation, the participants disclosed that their biggest concern is related to competition and other suppliers. More information regarding the competitors and their actions is required. For some customers the selection of supplier is based on the price, but others may select their supplier based on various attributes. Price is typically one of these attributes, but other such as quality, sustainability and origin of the company etc. are as significant as the price.

- *More gathered information or call it more structured maybe. It's not only the pieces, they [customers] make kind of matrix, performance relationship then, quality and yield differences are actually important.*
- *The challenge is for currently if the local customers kind of localizations. They want to use local materials firstly.*

Several of the interviewees emphasized that even though the business sells to another business, there are individuals on both parties. Getting to know the customers is highlighted by the interviewees. Focus should be on understanding the customers' needs or especially what prevents them from selecting Okmetic. By building trust and working consistently together the mutual understanding of companies' futures are aligned and both parties benefit from this relationship.

- *Road maps in business model in good understanding of very intimate understanding of customer requirements, technical and business and what is their objective and sometimes their objectives are strictly business related like cost savings or having second or third supplier or securing of the supply or implementing global supply chain for themselves. So we really need to be very good in listening and understanding those pain points.*

- *My thought is that every depends on the individual relationship. Business-to-business is still always person to person business that it's one person selling to the other even though you're presenting your company. So company should do, like building the trust and the building the trust takes time and it doesn't happen overnight. So loyalty and all that is, is very important. So company should do let everyone understand you are the face of Okmetic. What is our attitude, should be on the same page.*
- *So the interaction is much tighter and the understanding, but you need time to learn on both sides and also build the trust at the customer that they are sharing more information with you, why certain things are arranged in a certain way.*
- *And at the end of the day, I'm a strong believer of relationships and trust. Building those relationships with customers, with individuals who are decision makers, identifying those decision makers and building that trust with them. So when they need anything they can always call Okmetic first. So in their mind Okmetic will be the supplier of choice.*

A few of the participants of the interviews were concerned about maintaining company culture when the company grows significantly in size. At Okmetic majority of the people know each other personally currently which itself makes cooperation easy and flexible. When the head count is doubled in a very short time by the extension of the factory, it is a challenge to keep this close work community as close and as well operating as it is now.

- *That's something maybe not now a challenge but in in the future a challenge for us as well that how do we keep this authentic spirit alive that that we actually know each other and understand each other.*
- *So I think what we need to improve is this mindset of everybody in the company even our technicians and all the different divisions and individuals who don't have direct interaction with customers. To really be aware that their job is critical and very important and directly related to the revenue.*

5 Conclusions and recommendations

The research questions for this thesis were:

- How to enable the sales growth in Okmetic?
- What are the factors influencing B2B sales of Okmetic?
- What are the company's potential problems from the sales point of view?
- What makes the customer to choose Okmetic as their supplier?
- What is required for better position in the market once the Okmetic's current limitation with the capacity no longer exists?

Next, I will answer these questions and elaborate on the findings of the study.

How to enable the sales growth in Okmetic?

To enable growth and further enhance the sales potential in Okmetic, the company should be seen as strategic partner rather than a supplier among others. According to Kenner & Leino (2020, pp. 12-31) selling is helping and supporting the customer in the change. Being involved in the product development at very early stages help to build the trust between the supplier and the customer (Park & Lee, 2018, pp. 478-494). Helping the customer to design their products in cooperation with the relevant team of the company creates customer loyalty and satisfaction through personalised projects.

Kenner & Leino (2020, pp. 12-31) advice companies to create awareness in the early stages of the purchasing process. Modern buyers trust their peers and colleagues more than marketing material so to create awareness and make the company even more known in the market should be the focus. Visibility and awareness could be built for example by getting involved in associations, being visible in social media, writing articles, giving speeches in industry forums, getting involved in the online discussions, and providing free or low-cost seminars. To gain and maintain competitiveness for the future, company should be active in consciously building employer brand and attracting skilled employees by attending various recruitment events and universities when possible. The company should also become bilingual, to make it more attractive to potential employees. As the semiconductor industry is already focused on producing for modern and large future technology companies unlike

some more traditional businesses which are forced to search greener, new or further processed end products, this should be leveraged for future strength.

What makes the customer to choose Okmetic as their supplier?

One of the themes arising from the interview is the ease of doing business with Okmetic. This excellent feature is also regarded by the customers and supported by the literature. The customers' expectation for their suppliers are ease and effortless with doing business (Villani, 2018, p. 15, Kenner & Leino 2020, pp. 12-31). Okmetic is already well-known for flexibility but there are some challenges to overcome for improved the customer experience. This is especially important when the company is expanding and looking to become supplier to some larger customers which have extended requirements. These requirements should be studied closely and assessed carefully. This could mean some investment needs to in order provide further processing or customer specific quality but simultaneously provide growth opportunities and increase in market share. This could be an opportunity to demonstrate existing ability and motivation to support current and potential customers.

What are the factors influencing B2B sales of Okmetic?

The global economic and political situation are beyond the control of the company. Therefore, the focus needs to be removing the limitations for sales within the company. According to the results of the study one of these limitations are technical which are outside of the company's current capability. The company should investigate how to remove the technical limitations even if it requires extensive testing and possible investments. Sales should not be limited due minor technical details. The technical aspects are the most important factors for customer satisfaction in high technology business (Sharma, 2022, pp. 975-994). This is also another step closer for creating business and company that is an easy choice for the customers.

The key for success is common targets and open dialog between all departments within the company. Different departments need to operate as a one unified team for the success of the company. When everyone understands their role as part of the company and their colleagues' roles as well, the team can work together for the best result. This makes it easy for the customer to choose a company for their supplier. As Tanni phrased it: Nowadays the

customer is joint for the whole organisation. The time for so called lonely rider seller is over (Tanni, 2022, p.159).

From the interviews it appears that B2B sales is strongly based on individual relationships between buyers and sellers. However according to literature the committees making the buying decisions and supplier selections are becoming larger and the personal connections are less important for the buying process. (Eades & Sullivan, 2014, pp. 16-27). Although, these relationships are valuable when the trust and loyalty are at stake, for example if and when there are issues with the products and services provided to the customer. This is supported by Vilani's study where it was proved that the customers expect to receive help personally and immediately when problems occur (Villani, 2018, pp. 18-19) and also to be heard and explained what had happened (Villani, 2018, p. 21).

What are the company's potential problems from the sales point of view? What is required for better position in the market once the Okmetic's current limitation with the capacity no longer exists?

The study raised some concerns over the competition of the company. To address the cost awareness the company should review the cost structure of the manufacturing the wafers. A possible solution could be to appoint a product or pricing manager whose responsibilities would extend across different departments regarding pricing of the products, the cost of manufacturing and the market prices. They could conduct analyses of wins and losses and the reasons behind losing, research the competitors pricing strategies and innovate cost development plan for Okmetic. Other possibility could be to bring the budget responsibility closer to production and ensure targets are followed closely and exceptions studied and reported. This could bring the required accountability closer to where costs are and can be influenced most.

The factory expansion will bring synergy and cost optimisation potential which should be studied closely because the economy of scale. This should be considered carefully so the current flexibility and agility the company has should not be lost. It is also vital not to differentiate the old and new plant by the employees as this can influence motivation within the staff reducing their efficiency for cost competitiveness or maintaining the quality. The target should be to maintain the company culture where everyone knows each other and

are happy to share knowledge. Modern platforms for training and introductions could be useful to formalize the training when the size of the company expands. Also identity cards could be beneficial for enabling and ensuring everyone are still acquainted with each other in the future.

As a finding of the study where the concerns raised by the interviewees related to the lack of resources in several departments of the company. To be able to serve the customers the best possible way the 24h response time in case of customer enquiries should be achieved. This is part of the easiness and timeliness of doing business that customers expect (Villani, 2018, pp. 3- 21). This requires significant reorganisation and rearrangements of the duties and responsibilities, and also training but as an industry standard service the company will need to find a solution for this.

The semiconductor industry is putting more focus on environmental aspects of the business (SEMI, n.d.) and as found in the study, also the customers of Okmetic are more and more interested in the impact of their products to the nature. To make the social and environmental responsibility efforts and targets of the company more known and visible for the customer with targeted campaigns are adverts and publications could be useful. Also having targets for each team of the staff could be considered.

5.1 Discussion

One of the values of Okmetic is customer orientation which is very good step for the sales development and for long term targets. However, according to Sharma's study the company should not be too strongly customer oriented as it may cause lack of innovativeness within the staff and therefore reduce the customer satisfaction in the future (Sharma, 2022, pp. 984-988). At Okmetic in my opinion there is strong drive for creating something new and investment for the future developments is firm. The R&D team is separate from the customer support and the process development teams and this should be maintained in the future. All of these teams have their own roles, and it is beneficial to have some shared (i.e. revenue) and some separate targets.

Okmetic is at a historical point of the company's story. The large expansion is nearing completion and making the investment profitable demands significant contributions and

efforts from all employees of the company. At the same time the company should aim to maintain and take the advantage when extending the market share of the technological advantages compared to some of competition and leverage this for future growth potential and customer support. The change or the growth to a larger size company requires changes and management of the change is not usually easy. Clear vision and strategy are vital for the success of the company in the future. According to Aki Heiskanen leading the sales is the responsibility of the whole management team, not just the director of the sales (Heiskanen, 2019, p. 19). In practise this means that the customer and the sales need to be the focal point of the company's strategy.

During the thesis project I changed role within the company from customer support team in sales to process quality. This change of view made me realize how the production and the process teams have their own duties and responsibilities to achieve in order to help the sales. This also has impact to the revenue of the company. This has been a great benefit for myself in understanding my own new role and how my team can drive the company to improve and succeed.

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Appendix 1: Interview questions:

1. What makes Okmetic better than the competitors? What are the biggest advantages Okmetic has vs. competition? Why customers choose Okmetic over competitors?
2. What could be done even better? What could be improved? How?
3. What kind of support or resources you need as a sales manager in the future?
4. What do you see the main factors limiting our sales?
5. Once we have no current limitation in 200mm wafer capacity what are the challenges that we have in hitting the sales targets in your opinion?