

Rotterdam / Carleton International Case Competition

STINIS: A BOX OF VALUE

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On her daily walk over the dike by the River Lek, Lisette Stinis encounters a ferry jetty where the ferry boat has just left for the other side. "It goes back and forth, again and again" she muses. "This is exactly what we do with our hoisting equipment." On a more abstract level, the ferry also reminds her of the current strategy conundrum at Stinis. Competition from global competitors is intense and the company faces tough questions about how it creates value: "As technical people, we think that a great product sells itself. But do we really understand our customers? Do our offerings meet their needs? Are we doing everything possible—metaphorically speaking—to help them get from where they are to where they need to be?"

COMPANY BACKGROUND

Stinis is a Dutch family-run firm founded by Arie Stinis in 1830. Stinis was originally a forge that made horseshoes and ice skates for farmers and local people in the Krimpenerwaard region. Over the course of six generations, the firm has slowly turned its focus from a forge to a specialised developer and manufacturer of hoisting equipment for containers. In 1967, hoisting equipment made by Stinis was used for the first time to move a container onto the quay in Rotterdam. Until then, containers had been hoisted using chains. Kees Stinis – who is the fifth generation of the family – designed a mechanism that enables containers to be lifted much more easily. This "spreader" is a system with mechanical arms that grips a container and makes it easy for a crane to lift containers.

In 1978, Kees Stinis took over the management of the firm and under his leadership the firm continued to expand into hoisting equipment for containers. In 1989, Stinis developed a patented *Autotwist*®-spreader. This is a spreader that automatically locks and unlocks when it is placed on a container. This type of spreader became highly popular, partly because it enabled hoisting work to be done with significantly greater safety and without the need for additional manpower. In 1996, Stinis gained further international recognition when it introduced the *Stinis Long-Twin*®. This spreader enables two containers to be placed up to one and a half metres apart during the hoisting manoeuvre. The firm has since developed the *Stinis Split-Headblock*® which enables four containers to be lifted at the same time.

The spreaders made by Stinis are seen in the market as the 'Rolls Royce' of spreaders. Due to the high quality of the spreaders, Stinis spreaders are in demand on the used market. There may even be 20-year-old Stinis

spreaders that are still lifting containers which Stinis is unaware of. The quality is first and foremost due to the quality of materials and construction. Secondly, the premium position is reflected in a high-quality service organisation that is pleased to provide advice and assistance to customers and is able to go anywhere in the world provide maintenance and repair. Thirdly, quality is reflected in smart inventions for the design of the spreaders. For example, the way in which the flippers work, which are fitted in a slightly different way to the competitors, and which enable greater speed and several seconds to be shaved off each move¹.

After all, time is money in this business. Improving productivity at the terminal has always been the reason for innovation at Stinis. The firm always picks up practical ideas. These ideas come from close contact with customers and the firm's focus on service is an important skill. The firm's staff, including the director-shareholder, develop ideas and design a prototype. It then tests the fully fledged prototype on a client's site. This enables faults to be eliminated from the design and the product is ultimately prepared for the market. The firm takes innovation into its own hands wherever possible. The technical know-how within the company means that a great deal of attention is devoted to complex technical problems and that staff derive immense satisfaction from devising smart solutions.

In addition to new types of spreaders, Stinis has taken significant steps towards replacing the hydraulic drive mechanisms in the spreader with a fully electric mechanism. This is in keeping with the trend for sustainability. Furthermore, the firm has developed new applications, such as a system for weighing containers using the spreader, for instance. Once the weight of each container has been determined, it is possible to load ships with a view to greater stability.

The fact that Stinis is a family business is reflected in its core values:

- *Personal.* The company builds partnerships for the long term that are based on trust and friendship because the reputation of the company and the family are inseparable. They go to great lengths to make something special for customers which both Stinis and the customer can be proud of.
- *Dedicated*. The focus of Stinis' expertise is on essential areas for terminals and shipping companies, namely safety and efficiency. This requires high-quality materials and designs which guarantee high performance under challenging conditions on the quay.
- *Responsible*. If a problem occurs, Stinis works on finding a good solution. The company also assumes responsibility for design quality, choice of materials and finish. Furthermore, Stinis works on building long-term relationships with stakeholders.

GLOBAL CONTAINER MARKET

Since the introduction of containers to the maritime transport sector in the 1960s by American shipping company Sealand, this loading unit has revolutionised goods transport and has played a huge role in the globalisation of the economy. It is no coincidence that the shipping container was a frontrunner in the contest to choose the best inventions of the past hundred years that was organised by Koninklijke Hollandse Maatschappij der Wetenschappen in 2022. The container has made goods transport dramatically simpler and more efficient, and thus cheaper.

¹ One move equates to an entire movement of a container from the quay onto the vessel or from the vessel onto the quay.

Maritime transport is the backbone of globalized trade and the manufacturing supply chain. The maritime sector offers the most economical, energy efficient, and reliable mode of transportation over long distances. More than four-fifths of global merchandise trade (by volume) is carried by sea. A significant and growing portion of that volume, accounting for approximately 35 percent of total volumes and more than 60 percent of commercial value, is carried in containers. The growth of containerization has led to vast changes in the where and the how goods are manufactured and processed, a process that continues to evolve. Container ports, accordingly, are critical nodes in global supply chains and central to the growth strategies of many emerging economies. In many cases, the development of high-quality container port infrastructure, operated efficiently, has been a prerequisite to successful export-led growth strategies.

The container market is now dominated by a few very large players in transport, logistics and the terminals with numerous connections as a result of backward and forward integration. Mediterranean Shipping Company (MSC), Maersk and CMA-CGM are some of the largest container shipping companies. Hutchison Port Holdings Group, APM Terminals (a subsidiary of A.P. Møller-Mærsk Group) and Dubai Ports World (DP World) are major terminal operators. Alongside these companies that operate globally there are hundreds of other smaller terminal operators, which are both private and public. These smaller players are also able to manage multiple activities and have turnovers in the hundreds of millions of euros. These include, for instance, public-sector companies that operate port terminals and road transport companies with their own transshipment terminals in seaports and inland ports.

The container market is cyclic and is closely connected to the global economic cycle. There can be considerable fluctuations in the price of container transport. Cyclicality is amplified by the fact that investments involve long preparation times and large capital commitments. Furthermore, this often involves trade cycles where new capacity becomes available in a shrinking market, creating surplus capacity and price competition. A recent example of this was the coronavirus pandemic. In September 2021, a container from Shanghai to Rotterdam cost \$14,000. In November 2022, it cost \$2,100. As a result, shipping companies withdrew ships from service. When markets reopened, there was insufficient transport capacity which caused major delays at seaports. The bottlenecks have since been addressed and shipping companies have placed orders for new ships. Exhibit 4 provides further information about the container market.

The container market is extremely competitive. Since the introduction of the shipping container, the main focus of all players in the market has been cost reduction. The deployment of this standardised loading unit has led to a search for economies of scale in shipping, port transshipment and overland transport. This applies to both technology and to organisation and logistics, and has led to enormous increases in scale and productivity. Terminals are assessed on their productivity. As ships become larger, terminals also need to be adapted accordingly. The largest container ships currently carry around 24,000 TEU² per call. Due to the high capital commitment, terminals have to handle ships as efficiently as possible. Spending an hour longer than necessary in port can literally cost a shipping company a small fortune. This is why a high efficiency is necessary, which has led to increasing automation over recent decades. There are now several fully automated terminals, such as Rotterdam and Shanghai. It goes without saying that malfunctions also need to be prevented and equipment needs to have an availability in excess of 99%.

Port cranes (often called ship-to-shore or STS cranes) have a lifting capacity of about 40 to 80 metric tons on average. Ports have different setups around the world and certain quay cranes are able to lift heavier loads – some even up to 120 tons. A single hoist configuration with a single spreader can handle one 20', 40', 45', or two 20' containers. On the other hand, there are dual hoist and single hoist tandem configurations with

² A TEU stands for Twenty-foot Equivalent Unit. This is a 20 foot container, which is the standard unit in the container industry.

two spreaders that can handle 2 x 40' and 45' or 4 x 20'. This increases productivity greatly. Port cranes are measured by productivity, which is rated in moves. A move is influenced by the power and speed of the motors, the lifting capacity of the port crane, the crane's equipment including the spreader, and the experience of the crane driver. Depending on the size of the vessel and space at the berth to stall boxes, a crane can do between 30 - 50 moves per hour. Multiple cranes can turn around a vessel in about 51 to 64 hours.

SUPPLIERS OF CRANES AND SPREADERS

Spreaders are sold through two channels – a direct channel and an indirect channel. In the direct channel, the spreader supplier sells the spreader to the end user, namely the terminal operator. Direct sale is usually involved in smaller new-build products and when equipment is replaced. In the indirect channel, the crane supplier supplies the system and delivers a crane that includes a spreader (and where necessary, other hardware and software) to the terminal. The spreader supplier is the subcontractor and supplies its spreader to the crane manufacturer.

Several crane manufacturers sell their own spreaders. They frequently offer these spreaders together with their crane. By selling spreaders as part of a larger package, crane manufacturers are able to offer their spreaders to customers at very competitive prices. Examples of crane manufacturers with their own spreaders in the portfolio are ZPMC, Konecranes, Sany and MES Cranes. A crane supplier who wins a tender has considerable influence over the choice of spreader supplier. It is often possible to choose the company's own brand, but sometimes crane suppliers opt to include spreaders made by other suppliers in their tenders because the end user either specifically requests this or because they do not have all types of spreaders in their range. Alongside Stinis, the other major independent spreader manufacturers are the VDL group who manufacture in the Netherlands, Bromma who manufacture in Malaysia, and RAM Spreaders who manufacture in China.

When a terminal operator is going to build a new terminal or wants to refit part of an existing terminal, the operator will issue a call for tenders. The largest type of ship-to-shore crane costs around 10 million dollars. In order to operate this type of crane efficiently, it needs to have a system with other spreaders, terminal tractors, data systems and software. The overall investment be many times the cost of a container crane.

Terminal equipment is not purchased by a single manager of a terminal but instead by a decision-making unit (DMU). A DMU usually consists of representatives from procurement, operations, engineering, maintenance and general management. There are various competing interests involved. For instance, the direct user and the technical department primarily want quality, ease of use and rapid service in the event of a malfunction, the buyer pays close attention to the cost of investment but perhaps gives less attention to maintenance costs, and for management, the total picture of ease of use, total cost of ownership and strategic relationship are important.

Given the direct and indirect sale and the broad decision-making unit, the issue for independent spreader suppliers is to be visible to both end users and crane suppliers. They need to be visible to all members of the DMU of the end users so that their spreaders can be included in tenders. The spreader manufacturers also need to maintain good relationships with crane suppliers so they can be included in their offerings. The same applies to crane suppliers who make their own spreaders, which may also actually be in competition with independent spreader suppliers.

Manufacturing companies are increasingly deploying information technology. For instance, the use of the internet of things and blockchain technology is referred to as Smart Industry. Smart industry offers opportunities and threats to manufacturers. One of the opportunities is 'servitization'. Servitization is the addition of digital services to existing products. For example, it may involve predicting maintenance by adding sensors to industrial products which provide information about usage and wear and tear. It can lead to cost savings and create new added value. Servitization is a process that runs through a company in order to increasingly integrate services into what they offer. There are various stages to this process. At the beginning, the emphasis will be on physical products to which services associated with the product (maintenance, parts) are added. In later stages, service plays a much greater role in the business proposition. In the final stage, there is what is known as 'product as a service' (PaaS). An example of this is Signify – the former Philips company - that supplies light instead of lamps.

STINIS IN 2023

Since its foundation, Stinis' headquarters have been located in Krimpen aan de Lek, about 20 kilometres east of Rotterdam. Stinis has two business units and a holding company. Each business unit serves its own region. The markets in Europe, the United States and the Middle East are served from Krimpen. The Stinis Asia Pacific business unit covers Asia, Australia and Africa. Both business units have their own production facilities in Krimpen aan de Lek and Johor (Malaysia) respectively. In order to profit from low labour costs and market growth in the region, production has been moved somewhat from the Netherlands to Malaysia. Sales are managed from Krimpen aan de Lek and Singapore. The company also has a service point in Shanghai. Key functions such as finance, marketing, engineering, quality control and research & development are carried out at the head office (see Exhibit 1). Due to the R&D, some production is required in the Netherlands. Around 250 to 300 people work at Stinis. The firm's managing director is Lisette Stinis who guides the management teams for the two business units. She is a shareholder in the firm together with several other members of the family.

Stinis creates added value for its customers by supplying hoisting equipment for containers which stands out in terms of their quality, productivity and reliability and the firm's proactive services for usage of the containers. Stinis only supplies products under its own brand name. The firm's offerings include a range of products (see Exhibit 2):

- Fixed spreaders
- Mobile harbour crane spreaders
- Ship-to-shore crane spreaders
- Straddle carrier spreaders
- Stinis split-headblocks
- Yard crane spreaders
- Overheight frames
- Safety equipment

Around 30% of Stinis' turnover comes from activities other than the sale of new equipment. These activities include consultancy, where Stinis helps customers to optimise the performance of a spreader on a project basis. Training courses are also important, which Stinis provides on the customer's site or at Stinis' premises to train crane operators and technicians in how to use and perform maintenance on the spreaders. Naturally, maintenance is also part of the firm's after-sales service. The spreaders can be brought to the firm's

workshops in the Netherlands and Malaysia for large-scale maintenance. Stinis' technicians can carry out smaller maintenance jobs on site. Lastly, the supply of spare parts is an important element of the firm's turnover. Stinis supplies spare parts to end users all over the world from its central warehouse in Krimpen aan de Lek and from several strategic locations (administered by agents).

Although the pandemic years have made it difficult to see clear trends, the firm's turnover still continues to show slight growth. The firm's overall turnover is almost 30 million Euros and the profitability is satisfactory. Just as with many other family businesses, the firm has a strong balance sheet (see Exhibit 3). While service provision and spare parts account for almost a third of the firm's turnover, in relative terms, these activities are becoming increasingly important for Stinis' trading result. This is certainly true in recent years which have seen competition for new spreaders become increasingly tough with greater focus on price. As a high-end supplier, this price competition is detrimental to Stinis.

SALES

Stinis maintains an extensive network of customers at various levels, namely, management, procurement, operations and maintenance. The management team at Stinis visits important customers, as does the sales team. Technicians at Stinis are also an important part of contact with customers. They hear about the functioning of the spreaders and any operational issues on the shop floor. When investment issues arise, it is essential for Stinis to know all members of the decision-making unit, be able to optimally bring together information from these members and know how to influence them. It means that Stinis has to increasingly operate tactically with two groups in mind, namely the end user and the crane supplier (system supplier). This calls for diplomacy and self-confidence. A crane supplier may be a direct competitor of Stinis in one sales process, while in another sales trajectory the same supplier may include a spreader made by Stinis in its quotation at the request of the end user.

The process of selling, producing and supplying a spreader begins with a request from a customer. Stinis puts together a quotation based on technical specifications. When Stinis receives the order, the sales department creates a functional description, using a template with 80 variables. The engineering department then creates production drawings. On average, 80% of the drawing is based on existing designs and 20% is specific to the customer. Once the spreader has been assembled, an inspection team will meet to check the product against all of the customer's functional requirements. The spreader is then put into operation on the customer's site in collaboration with staff from the crane supplier and the terminal. The spreader is put through a 24-hour endurance test and put into operation by the customer on acceptance. This marks the start of a two-year warranty period. During and after this period, the service department takes over the reins.

The turnaround time for an order from the initial contact with the customer to completion varies considerably and depends on the type of spreader and type of customer. It is sometimes possible to produce a simple model for an existing customer within a few weeks. An advanced model with non-standard features that is made for a new customer will have an order process that can last more than two years. Stinis' position in a call for tender also affects the complexity and turnaround time of an order. The characteristics of the sales process are different when Stinis has a direct relationship with the end user compared to situations in which a Stinis' spreader is part of a sale of a container crane.

Until recently, the sales team was made up of eight full-time equivalent (FTE) positions; it was recently expanded with two additional FTEs. Five staff members work from the Netherlands and five work from Singapore. The team maintains contact with customers, prospects and agents. The team also represents Stinis at trade fairs and maintains the firm's presence on social media. The sales team is supported by 20 agents

around the world. They are the 'eyes and ears' of Stinis. The agents gather information about potential investments, maintain contact with customers and prospects and help to create quotations. They also support the logistical, financial and administrative processes.

Because Stinis does not supply the cheapest products, the salespeople especially emphasise technical quality and the impact on lifetime costs to their customers and prospects. Evidence-based sales is increasingly becoming a precondition. In other words, is Stinis able to use data to prove that the quality of its products leads to low maintenance costs, high productivity and a long working life?

While data is becoming more and more important, Stinis is convinced that sales are ultimately all about relationships. Personal contact, remaining involved and trust are the basis on which we have always operated and will continue to operate. At the end of the day, the container industry is all about people and as a family business we are better able to focus on personal contact than large corporates. This is why Lisette and her team travel across the world to talk with decision-makers about business and the ups and downs in their lives.

DIGITALISATION

Over the last few years, Stinis has been investing in digital expertise through its new staff members and tasks given to trainees. The company devotes great attention to the digitisation of internal processes, and in particular to streamlining the engineering and production chain and making it paper-free (and error-free). At the same time, data is constantly giving greater insights into the performance of the spreaders in the terminals. Sensors make it possible in principle to monitor important components of the spreaders in real time. The data about the movement of the spreader could be used, for instance, to see the difference between an experienced and a newly trained crane driver.

The deployment of sensors is an achievement in itself, as the heavy stresses exerted on the spreaders – the weather conditions and motion shocks – place exacting demands on the technology. It is not straightforward either to get data from the sensors. It is not only a technical challenge, but there is all manner of limitations on sharing data due to cultural and legal differences between countries, power relationships and the sensitivity to competition of user data.

The coronavirus pandemic accelerated the focus on digital technology and data. As service technicians were unable to travel much or at all, the use of monitoring equipment remotely was a solution. Not only did this lead to considerable savings in travel costs and time, but it also provided interesting insights into how the spreaders are used in practice. The data was collected and analysed wherever possible. Stinis also conducted exercises with models based on user data so that they could make predictions about the technical conditions of the spreaders. This turned out to be perfectly possible and it fired the enthusiasm of staff members and generated new ideas.

In the meantime, Stinis is working on an online platform with services and the first steps have been put in place. The platform enables customers to access manuals and training modules. Over the course of time, it will be possible to order spare parts. The idea is that the platform can eventually grow into a dashboard where customers, depending on the contractual arrangements, can get insights into the performance of their spreaders and Stinis can provide advice and schedule maintenance on the basis of performance information.

STRATEGY

Stinis' quality and reputation have taken the firm to its current position in the container market over the course of fifty years. The core of the company's current business strategy is to defend and expand its highend position. For the time being, the aim of the Stinis family is to continue running the firm within the family and to keep the headquarters and R&D in the Netherlands. However, the dynamics around Stinis do not make it easy to maintain this ambition and require the firm to redefine its competitive advantage and strategy. The following driving forces are changing the operation of the market and the position of the players:

- Asia. The robust economic and geopolitical position of China is reflected in various effects on the container industry. Firstly, an increasingly larger share of container volume is connected to trade with China and the largest container ports are located in China. Secondly, Chinese products have acquired a strong position in the market. A prime example of this is crane builder ZPMC, but newcomers such as HHMC and Sany are also occupying an increasingly prominent position on the world stage. A complete ecosystem has sprung up with various manufacturers that are able to deliver reasonable to high quality at a very competitive price. Alongside China, India is an up-and-coming country that now has higher growth figures for container ports than China.
- **Data.** Although it is still far from optimal, data travels in parallel with the physical transport of containers. Data is important for scheduling ships, shipping routes, the link with inland transport, monitoring by the customs authorities and other government bodies and much more. Data also plays a crucial role in further increasing the productivity of the container industry. For instance, 'digital twins' are used for practising and perfecting certain operations as realistically as possible. The structure of the container industry means that data is owned by various parties and data sharing is far from commonplace.
- **Consolidation.** It seems inevitable that players will further increase in scale due to the increasing investment costs and the focus on efficiency. This applies to shipping companies and terminal operators but certainly also to equipment suppliers. As we saw above, the equipment market still has a lower degree of consolidation that the market for cranes, transshipment and carriage by sea. The increasing role of data may intensify the consolidation process as it is easier to share data within a closed chain than between independent market players.
- Labour. The shortage of labour is also making itself felt in the container sector. All players are having difficulties finding and retaining trained staff. It is particularly hard to find nautical and technical staff. This specifically applies to European countries due to their aging populations, but Asia and certain other countries will also see shortages in several years. This is a further motivation for automation and digitisation. While training more people offers relatively little solace, increasing productivity and making work more comfortable provide better opportunities.
- Sustainability. The total CO₂ footprint of the container industry is large, although the footprint per container is relatively limited due to the volume effect. Shippers and governments are looking ever more critically at initiatives to make the industry greener. The reduction of energy consumption, the use other bunker fuels and choosing more efficient shipping routes are important. However, reducing the usage of materials, adopting alternative materials and recycling materials such as steel that is widely utilised in ships, containers and other transport equipment, are important to increase sustainability.

DECISION TIME

Lisette Stinis took over the family business from her father Kees Stinis in 2020. In doing so, she is the sixth generation of the family at the helm of the company. It is down to her as the new director and principal shareholder together with the management team to make the company ready for the future. As she sits at her desk after her walk, Lisette thinks that the next step will need to be taken soon about discussing the future of Stinis. Not everyone in the company and the family sees the need to change. "That is the drawback of a family business with a strong reputation", she thinks, "but past results are no guarantee for the future". That is why Lisette not only has to find answers to strategic issues with the management team, and use these answers to make decisions, but she also has to bring everyone along with her. She thinks back to the jetty and wonders "how do we get to the other side – how do we position ourselves to our end users and how do we prepare the company for the next generation?" She picks up her notepad and starts to write.

STINIS: A BOX OF VALUE

Exhibit 1

STINIS ORGANIZATIONAL CHART



Source: Company Files

Exhibit 2

STINIS PRODUCT PORTFOLIO



Stinis Long-Twin Port Crane Spreader



Stinis Long-Twin Mobile Port Crane Spreader



Stinis Split-Headblock



Stinis Single Lift Yard Crane Spreader



Stinis Straddle Carrier Spreader

Exhibit 3

STINIS FINANCIALS

BALANCE SHEET 2022

(000s of Euros)

ASSETS		LIABILITIES	
Current assets		Current liabilities	
Accounts receivable	2.100	Accounts payable 3.260	
Inventory	6.250	Taxes payable	990
Supplies	1.240	Credits	2.250
Prepaid expenses	980	Other accrued liabilities	390
Total	10.570	Deferred revenues	2.670
		Total	9.560
Property			
Real estate	12.800	Long term liabilities	
Equipment	8.150	Outstanding long term debt	7.460
Hardware & software	4.200	Total	7.460
Total	25.150		
		Stockholders equity	
Intangible assets		Common stock	21.200
Intellectual property	2.830	Retained earnings	330
Total	2.830	Total	21.530
Total	38.550	Total	38.550

Source: Author [company data has been disguised to protect confidentiality]

Exhibit 3 (CONTINUED)

STINIS TURNOVER 2018 – 2022

(000s of Euros)

	2018	2019	2020	2021	2022
Equipment	15.550	16.900	14.770	14.500	19.740
Spare parts	6.700	6.940	5.800	5.950	5.600
Services	2.200	2.400	2.500	2.500	2.810
Total	24.450	26.240	23.070	22.950	28.150

Source: author [company data has been disguised to protect confidentiality]

Exhibit 3 (CONTINUED)

STINIS INCOME STATEMENT 2022

(000s of Euros)

Revenues	
Sales of equipment	19.740
Sales of spare parts	5.600
Sales of services	2.810
Total	28.150
Costs of sales	
Materials	5.250
Direct labour	6.100
Indirect labour	2.800
Marketing &	2.050
	3.050
Depreciation	3.100
Energy and utilities	2.600
Bank and insurance costs	2.850
Total	25.750
Gross profit	2.400
Taxes	1.540
Net profit	860

Source: Author [company data has been disguised to protect confidentiality]

Exhibit 4







Global container shipping market volume - growth rate (%)



Throughput largest container ports in 2021

Source: Drewry World Container Index | MacroMicro



Leading container operators - share in fleet 2023

Leading container operators - owned and chartered vessels

