Becoming a Solution Provider: Integrating in the Customer Process

The Case of Equipment Producers and Trackunit as Enabler

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BECOMING A SOLUTION PROVIDER: INTEGRATING IN THE CUSTOMER PROCESS

THE CASE OF EQUIPMENT PRODUCERS AND TRACKUNIT AS ENABLER

CBS COPENHAGEN BUSINESS SCHOOL HANDELSHØJSKOLEN

CBS COMPETITIVENESS PLATFORM

INDUSTRIENS FOND FREMMER DANSK KONKURRENCEEVNE
The Danish Industry Foundation

RESEARCH BACKGROUND

This report stems from research undertaken by Copenhagen Business School (CBS) as part of the applied research project 'Driving Competitiveness through Servitization'.

The aim of the project is to examine the potential of services as a means of improving the competitive ability of Danish industry. The project is supported by the Danish Industry Foundation and involves close collaboration with Danish companies.

Further information about the project is available at blog.cbs.dk/servitization

INTRODUCTION

This report describes the strategy of a business model extension by manufacturers adding offerings of first services, product performance, and potential solutions for the customer. The potentials and challenges of applying a solution provider business model are analysed. Potentials include creating stable revenue, higher margins, and closer relationships with customers. Challenges include changing the value proposition to service and solutions, requiring a drastic change in organizational culture, competence, organizational structures, financial instruments, and objectives.

The report covers the following:

WHAT IS A SOLUTION PROVIDER AND WHAT CAN IT DO (PP 4-5)

The first section explains and discusses the network perspective on managing a company and its external relations. The concepts of servitization and being a solution provider are defined and explained as steps in extending the business model.

CASES: FROM MANUFACTURING EQUIPMENT TO PROVIDING GOODS BEING MOVED (PP 6-7)

Provides examples of the development of a business model becoming a solution. Two cases of equipment producers are described from the perspective of developing a manufacturer into a solution provider.

PARTNERSHIP FOR EQUIPMENT CONNECTIVENESS CASES (PP 8-9)

The case describes how an Original Equipment Manufacturer (OEM) and a digital platform provider with competencies in connectivity and data analysis enable the development of business models utilizing data for new customer services and improve internal efficiency. Telematics allow for data collection in the eco-system around the machine, providing a basis for insights across business functions.

EXPERIENCES FROM BECOMING A SOLUTION PROVIDER (PP 10-12)

Here is first an analysis of experiences from attempts to become a solution provider. Several experiences of studied companies are gathered in an analytical framework. These are followed by conclusions on what to consider in developing the solution provider concept.

CONCLUSIONS (P 13)

This section summarizes and concludes what it is to be a solution provider and how it influences the business model and strategies. The extension of the business from selling equipment to solutions.

IMPLEMENTING THE STRATEGY: THE PROCESS TO BECOME A SOLUTION PROVIDER (P 14)

Finally, recommendations are provided on how to plan the journey from a traditional manufacturing business model to becoming a solution provider. A step-by-step checklist is provided. While the same process does not apply to all companies, it may serve as inspiration for to plan and initiate considerations within one's own business context.

FURTHER READING AND REFERENCES (P 15)

References to publications that are used in developing this report can be found here along with suggestions for further reading about the subject.

WHAT IS A SOLUTION PROVIDER AND WHAT CAN IT DO

Original Equipment Manufacturers (OEM) differentiate their products and develop new revenue streams, which reduces their dependence on the core product. These developments include new services and innovative ways of packaging solutions. They have involve potentials for creating stable revenue, higher margins, and closer relationships with customers but are risking short-term performance. Researchers have dealt with these issues under labels such as integrated solutions (Davies, Brady, Hobday, 2007) and the servitization of manufacturing (Vandermerwe and Rada, 1989). New service business models are partly enabled by advances in Information and Communication Technologies (ICT) and big data with connectivity of capital equipment that provide for remote diagnostics and smart solutions. Moving from being a manufacturer to a solution provider is a complex transformation that affects operations and involves a shift in orientation from focusing on products to focusing on customers and service.

WHY HAVE A SOLUTION PROVIDER?

Three customer motives enable different future roles of the OEM.

1. Customers have a clear desire to focus on their core business
2. Higher market and technological volatility raises the importance of adaptability
3. Customers place an emphasis on the balance sheet and capital tied up in assets.

THE EMERGING STRATEGIES AND STRUCTURES

In a more competitive environment, product and service offerings are increasingly important. It is not just the physical product that is important but also the product function and the brand. Companies are moving focus from selling the product to selling functions that create customer value (Kotler, 1976). To be able to handle more complex offerings, companies abandon lower levels of technology and leave suppliers to contribute whole processes in addition to systems, sub-systems and components (Chiesa et al., 2000). Not only is production, but also product development, being externally sourced at an increasing rate to fewer and larger sources that supply complete production process solutions. Another reason for the OEM to consider outsourcing is to become more flexible and responsive to technological and market changes. History shows the dangers of being tied up by investments in technologies, which become obsolete through radical innovations. This affects structures and drives networking. Not having the globally best production system creates competitive disadvantages in comparison to other actors who take advantage of the best sources. Since top sources are pursued, there is a high probability that multiple components, systems, and whole processes are sourced externally. Such a strategy necessitates a shift in perspective from the plant network to the industrial network.

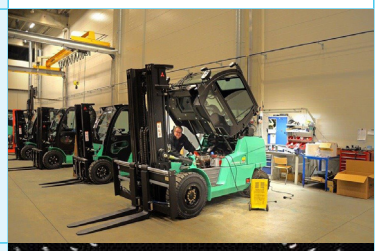
These networks may be based not only on ownership, but also on more complex and varied types of integration such as outsourcing, licensing and joint ventures of various kinds. Specialized supplier networks offering competitive solutions can enhance the competitiveness of the OEM.

Hence, managers need to un-learn the ‘manage the organization’ paradigm to enable the pursuit of the ‘continuously manage a network’ paradigm (Rezazade, Mehrizi, & Lashkarbouluki, 2016).

To become a solution provider is an opportunity to be a stronger actor in such a network.

However, to be a solution provider, the supplier must develop not only the manufactured product and basic

Figure 1: Extended value proposition business model

STEP 0 • Manufacturer and seller of equipment. • The traditional basic role.	
STEP 1 • Maintenance and repair service. • Normal additional offerings to the product with what is often called base services.	
STEP 2 • Equipment uptime and auditing. • Here the supplier is following up on the performance of the product within the customer's production process. The aim can be to improve uptime and optimize efficiency. Consulting is often offered.	
STEP 3 • The functional outcome of the equipment. • Here the function of the product is offered and is the invoicing unit. For example, price per distance and weight or 'Power by the hour'. • Operational lease, financial solutions, and rentals are additional offerings.	
STEP 4 • Running a process within the customer's process/es. • This is the ultimate solution provider relation. It will involve a contract based on performance. For the customer it means lower fixed costs. • The supplier will have their own interest and see that the process is optimized.	

services but also the business model, offer the functional performance of the product, and eventually run the process for the customer.

EXTENDING THE BUSINESS MODEL FROM MANUFACTURER TO SOLUTION PROVIDER

The business model concept should entail three consecutive parts; value proposition, value creation, and value capturing. In other words, how to make money by determining what can be of value for the customer, how to create the value in products through processes, and how to market it to customers and make a profit. The business model here is extended by adding to the manufacturing of more offerings through not only service and product performance but also eventually providing solutions for the customer. The table shows the steps of development; from manufacturer to solution provider.

CASES: FROM MANUFACTURING EQUIPMENT TO PROVIDING GOODS BEING MOVED

CASE 1: VOLVO CONSTRUCTION EQUIPMENT AS THE PROCESS OPTIMIZATION CONSULTANT

Among OEMs, equipment sales are considered first priority followed by sales figures with a strong focus on spare parts sale. The emphasis is on growing the volume of the spare parts business while the risks and the potentials remain modest. However, OEMs are now expanding their business model into more advanced customer services. These services will challenge the reseller and OEM with increased financial exposure, processes and systems, and skills.

Volvo CE has a wide range of equipment, each specially designed and optimized for performing defined tasks in the value chain of road construction, landscaping, gravel production, etc. As Volvo CE explores the options of expanding their business model into new types of customer services, like production process optimization, a holistic and consultative approach must be incorporated in the service offering. This type of offering requires objectivity and focuses on total output across all equipment types, functionality and brands, in few cases identified improvements could potentially reduce or even exclude its own products in the customers production process. It also runs the potential risk of cannibalizing its own products by decreasing sales of parts, and services.

However quantifying production process improvements can sometimes be challenging. In a recent customer pilot project potential savings of around 4-5 % of the total production cost were identified. Despite the strong value proposition, the project was a challenge because of the complexity of measuring progress and goal achievements in financial terms. Delivering this type of service requires analytics, lean methodology, and industry skills that many traditional resellers struggle to meet.

This is a major obstacle; however, it can be mitigated by extensive channel development or with partnerships. But most importantly, it requires a radical shift in mind-set, competence and business model.

PICTURE FROM VOLVO, USED WITH PERMISSION.

The final output in a gravel pit is the result of an advanced production process that involves a wide range of different sub processes, external partners and machines that must be aligned in order to avoid waste and inefficiency.

CASE 2: MITSUBISHI CATERPILLAR FORKLIFTS EUROPE'S (MCFE) NEW DIGITAL PLATFORM FOR COLLECTING DATA AND SECURING COLLABORATION BETWEEN THE STAKEHOLDERS IN THE ECO-SYSTEM

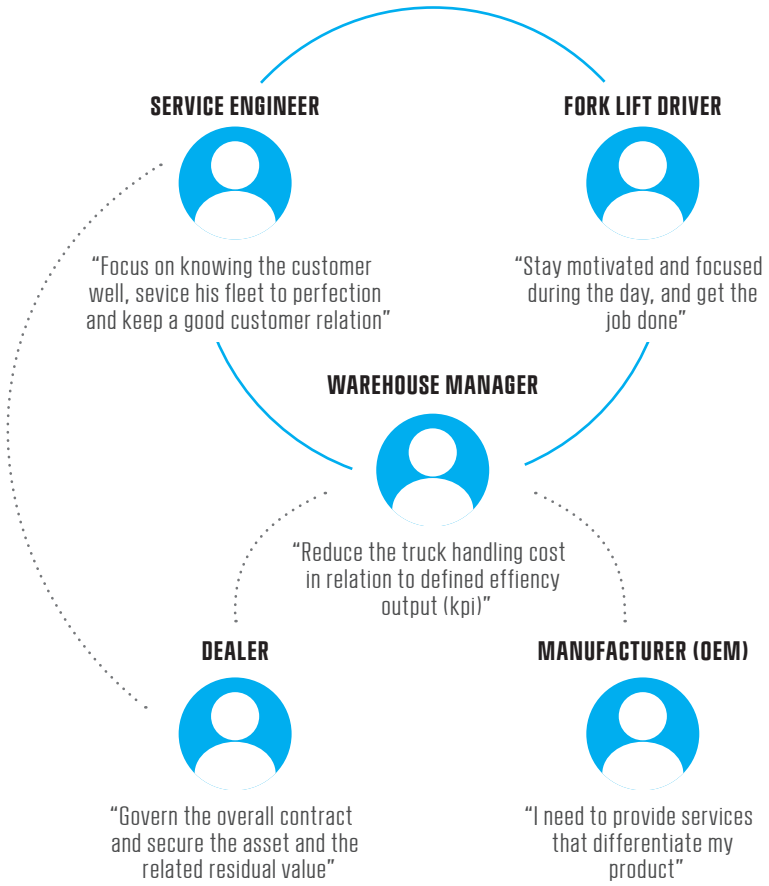
Resellers rent the majority of new forklifts and, consequently, the reseller becomes exposed to a financial risk: high repair cost and residual value degradation.

The rental agreement profitability is dependent on an optimum cooperation between each stakeholder of the ecosystem; from Service Engineer, to Operator, to Warehouse-manager.

In a MCFE and Trackunit co-creation project, a platform for collaboration between each of these stakeholders was developed with specific focus on supporting the operator to perform efficient safety pre-checks and report damages on the machine, thereby avoiding consequential damages.

This mobile collaboration-tool combines a collection of machine sensor data (IoT) and data collected by each stakeholders via a mobile application and then presents it in intuitive dashboards. Thus, enabling MCFE (Reseller) to improve the first-time fix rate, reduce unnecessary travel, reduce uncertainty about in- and out-of-contract cost, and increase uptime and safety. All of which will lead to the reduction and risk control of repair cost, improvement of the rental agreement profitability for the Reseller and increase the uptime for a customer.

Figure 2: The Value System



Value System: Defining the stakeholders and analysing the interaction, pains, gains and tension points was based on research and interviews executed by Trackunit Professional Services in cooperation with MCFE.

Personas were developed describing the characteristics of each stakeholder, and through structured innovation workshops where ideas were captured and prioritized for further testing and customer validation.

PARTNERSHIP FOR EQUIPMENT CONNECTIVENESS

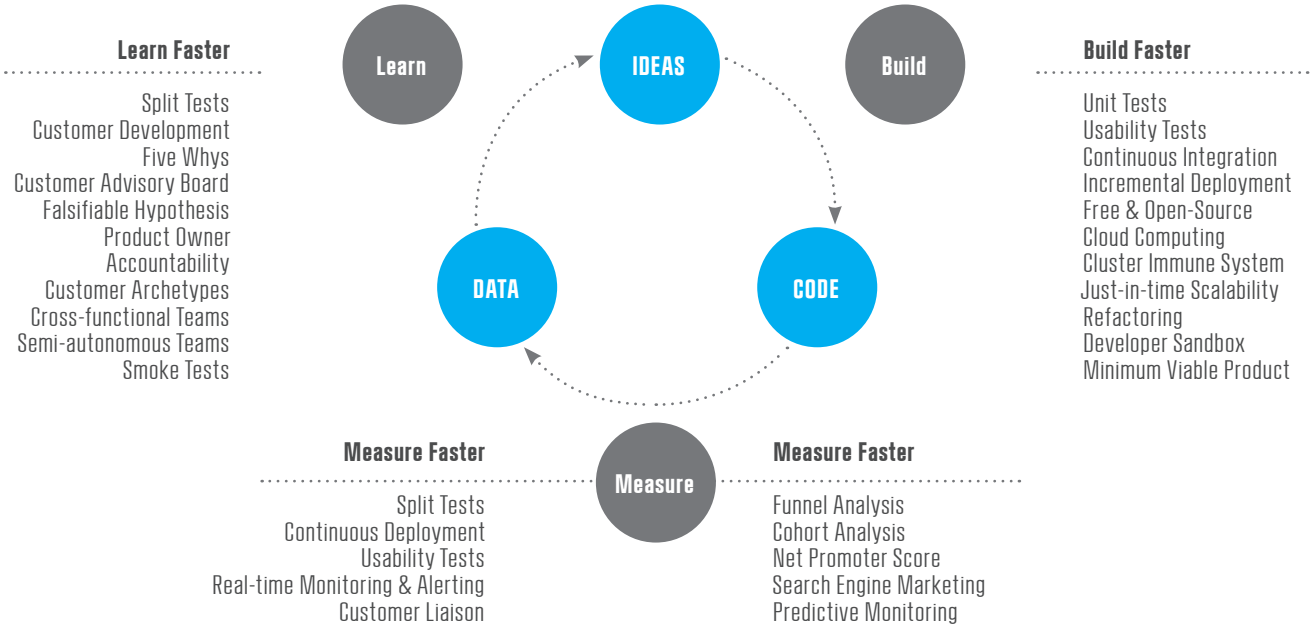
The past Telematics technology was characterised by simple data collection, such as location and hours, and the business model did not require any further data harvesting. Current Telematics technology embraces not only machine sensor data but also data collected in the surrounding environment of the machine. Data then flows across data silos at OEM, reseller, customer and operator, enabling a new wave of data-driven services and insights across business functions.

Trackunit is on the forefront of the technological shift, collecting higher volumes of varied data (CANbus data) at higher speeds and lower prices, allowing low cost and even non-powered equipment to be connected. This shift makes it possible for the OEM to create business models utilizing data for new customer services and improve internal efficiency.

Learnings from several global OEMs in the construction equipment industry clearly demonstrates that the transformation from product centric to digital solution centric is challenging. Trackunit has conceptualized the development and launch of digital services, introducing new agile and lean start up methodology in a modular format, offering consultation on shaping, ideation, incubation and development. Agility, high speed and co-creation is essential when testing different ideas and hypothesis. Testing prototypes, described as a Minimum Viable Service (MVS), allows the customer to pivot at an early stage with limited cost when applying the Build-Measure-Learn method (see figure 3).

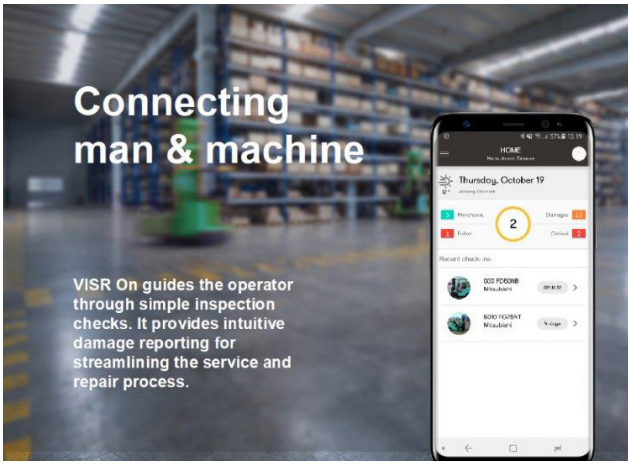
Figure 3: The Build-Measure-Learn model (Ries, 2011).

From agreement to market launch in 24 weeks using proven lean start-up methods
Fast wins: If we can reduce the time between pivots, we can increase our odds of succes before we run out of money.



An example of a MVS (see figure 4) that was validated by real customers and then turned into a real service was the Machine Pre-Check Application developed for Mitsubishi Caterpillar Forklift Europe.

Figure 4: Pre-check prototype, from Trackunit



The Machine Pre-Check Application that went from being a MVS to a launched service in only a few months

An important part of developing digital services is to constantly align all initiatives with a business model securing cost and revenue in synchronization. The business model differs depending on the OEM, but there seems to be a common path towards three main areas that will benefit from digital services and solutions (see figure 5):

1. Increased top-line revenue through attractive subscription models
2. Cost savings through improved efficiency
3. Catalyst for traditional revenue

Trackunit's project and consultative offering are executed by a team of program managers, UX designers, software developers and value proposition design specialists and are often integrated and relocated to the OEM's organisation in a 24-week sprint.

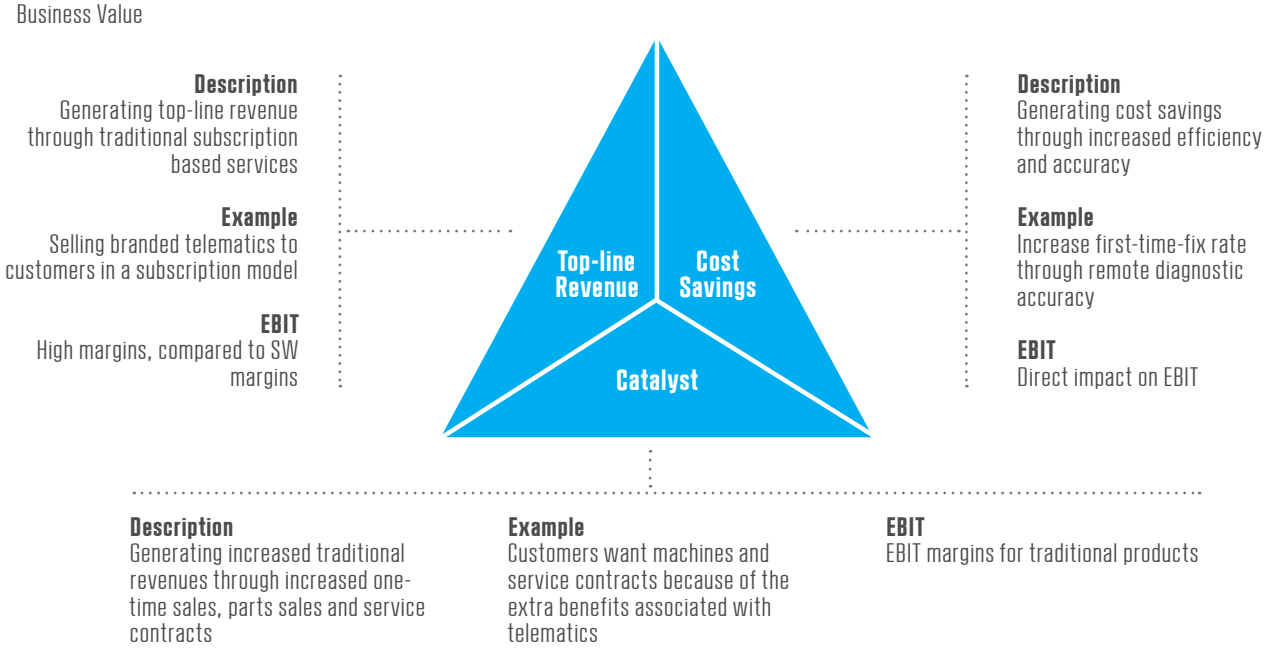
After several implementations, Trackunit has analysed, evaluated and determined that a successful deployment depends on the following four fundamentals:

1. Internal alignment (less bureaucracy, faster processes)
2. Understand users (Value user-centric approach)
3. Break data silos (No system rules all perspective)
4. Short-term ROI (incrementally showcasing tangible benefits)

The OEM's foundation and legacy are its machines and equipment. Moving from producing iron to digital services is extensive and requires a review and extension of the company's current business model. This business transformation requires different skillsets, working across organizational structures and in some cases bypassing existing development and deployment processes at the OEM. The Executive Management at an OEM must acknowledge that external help is needed in order to start this business transformation.

Trackunit has identified this gap and is now offering to bridge it with a proven model for launching digital services combined with a project and consultative team who facilitate and support this business transformation; a partnership model that allow OEMs to think big but start small, fast and agile.

Figure 5: OEM Business Value, from Trackunit.



EXPERIENCES FROM BECOMING A SOLUTION PROVIDER

In pages 4-5, what it means and takes to become a solution provider was introduced. We have studied international experiences from Europe, the USA and other markets in the organizations as described in pages 6-7. Dilemmas are found to result from changing the value proposition to service and solutions, that this change requires a drastic shift in the culture, competence, organizational structures, financial instruments and objectives of a company. The following provides insight into what managers have experienced during the transition from an equipment manufacturer to a solution provider. It does not provide a panacea, but it is meant to inspire the reader when planning the switch and its process. Bear with the text format being direct quotes from managers why there are some conflicting statements.

STRATEGIC TRANSITION

BUSINESS MODEL

The sole focus must be on the customer's perception and meaning of value; simply, what are customers willing to pay for? This business model includes opportunities for customization. From defining the strategy and objectives, developing prototypes and conducting ethnographic research, even coming up with new ideas, there is a process for everything. The whole package; the marketing and the communication.

OFFERINGS

It can be very difficult for customers who are equipment focused to start thinking outside the tangible piece of iron and think about how to build solutions for their dilemma. We offer industry insight and technology developments in a speed that they cannot keep up with. Solutions should allow for more differentiation, flexibility, and scalability in the product offering and provide customized solutions to specific customers. You should sell a solution that can improve the customer's business providing a return on investment.

From a reseller's perspective, it is possible to reduce risk on warranty. If he or she sits with a service agreement where repairs are included he or she faces a huge risk. Resellers would then be interested in reducing that risk by getting data and being proactive in avoiding overload and abuse. Rental providers would also be interested in maximizing equipment utilization. Likewise, contractors would be interested in analysing the utilization of his or her fleet in connection with the projects.

FINANCIAL IMPLICATIONS

There will be a higher Price/Earnings (P/E) ratio than if just selling a product. The strongest solution typically involves higher margins. It is a more defensible position to differentiate; hence, it is a competitive advantage. However, investments in time, resources, and efforts are required. The advantages for the reseller by improving the residual value risk and reducing the repair cost can be calculated. The total value of installing a telematics solution across all the stakeholders can be calculated, too. However, pricing can be an issue since solutions often involve indirect resources such as headcount to support. This presents a challenge when sales are not used to billing for recurring revenue and hence is not included in the pricing of solution offerings.

DEVELOPING MARKETS AND CUSTOMERS

MARKETS AND CUSTOMERS

There is a paradigm shift when product companies, OEMs especially, move towards service businesses. Nearly ten years before the construction equipment industry, the material handling industry implemented service

agreements. They had call centres and they used telematics. For each segment, the discussion is on completely different levels. Many OEMs want to differentiate themselves and what happens in US is that a select few brands grow very big. Of large players, there are some 10 to 15 per section; in comparison to Europe, there are at least 100. However, there is a limit to how much one can differentiate one's hard product. If a digital solution is put on top of the product and it is servitized, the OEM and the reseller will want the necessary data in order to control the risk, since risk control and internal efficiency are ways of generating more revenue and differentiating yourself.

CULTURES

In Scandinavia, the UK, and central Europe, people are more open to telematics and services, while the southern extremities do not care for such offerings. However, when looking even further, to Africa or Asia, where the labour cost is extremely low, it is different. In China specifically, there is less need to optimize around the operator. There is also a huge difference between Europe and the US. In Europe, people are more forward-thinking and open to utilizing digital services.

SALES PROCESSES

One must always sell the value. The offer is always customized, phrasing the solution to what that specific customer wants. The customer should always be at the start and then, from there, move backwards. The company has gone from selling just the product to selling a revenue stream and that has become a service. View this as a different product offering. Multiple customers in the equipment industry would shop around unless there is something extraordinary that has kept them within that brand. Now, the OEMs are beginning to see the need to create that stickiness in customer relations. One part of the business wants to sell a product and knows how to. It is, therefore, necessary to create another group that understands how to sell a service or revenue stream.

RESEARCH & DEVELOPMENT (R&D) DEVELOPMENT

Competency and some success must be demonstrated before it is possible to see the benefit in how one can grow. Typically, a test is completed, a proof of concept is provided, and then demonstration that one can add value and increase earnings is presented. Once finished, this process can be scaled to other product offerings. We have even created a solution that no customer knew they wanted, as it was not visible to the customer. What makes a better business is to have large customers that require a large amount from the business. A very large customer may have a different perspective on their business, and need solutions that are more sophisticated. An advanced R&D group can provide key components for the product development group, who can then create customized offerings. However, building a consensus behind something, like an advanced R&D group, will take time and commitment from the company.

TECHNOLOGY

In European OEMs, there is a lot more emphasis on technologically advanced solutions than in the US. Some of the products developed with tele-handlers are excessively advanced for the US. Standardization is a huge topic. One must have hardware that allows for scalability and flexibility. On the software side, one needs to be able to provide quick solutions and provide instantaneous value for the customer. It has been seen that a digital service can become machine specific. Much is forgotten about the operator. It is not recognized today, but in the future, with operator data, one can incentivize the operator to become better and improve their possibilities for employment.

DIGITALIZATION

Digitalization provides a way to add more value to the customer. It can also be a way of differentiating a product that is considered a commodity. Digital services come in many shapes. It can be anywhere from extremely simple services to advancements that could require an organizational change. Providing remote monitoring and services can be extremely difficult for OEMs because it requires a completely new way of thinking. Launching a digital service, the more machine specific it becomes, the easier it is for the OEM to launch. However, data ownership is a challenging issue. The closer, tighter connection and partnership one can get with an OEM, the more data can be acquired.

ORGANIZATIONAL DEVELOPMENT

MANAGEMENT

Management is all about relationships and developing them within your organization, knowing who the influencers are, and having personal relationships with them. Showing what is happening in other industries and what has happened previously in the current industry is a good method for learning. Another managerial tool is storytelling. One has to anticipate any possibilities and be at the forefront of those possibilities. A manager must also be strategic about networking, something that is done well in the US.

ORGANIZATION

We needed to change people and so we had to recruit new employees. We have employed data analysts and program managers that we did not have before. Data analytics needs a completely different skills set as it is so different from normal engineering. With solutions, one ultimately needs to create a separate business unit. An advanced R&D group, a small group who works together to look at what kind of new technologies are in the marketplace and that are potentially applicable to this industry, are needed as well. For building prototypes and testing, one can argue that it should be a separate business area within the company. We have outsourced production, but we control the development of hardware in the entire chain. In that way, we are able to provide customized solutions that are unique to the customer. We can change the software and the appearance of what our customers' customer see by providing a differentiated solution. A company that can only do digital services, but does not control the data, is easily beaten. There is an acknowledgement that making digital solutions is not as easy as having three people engineering the solutions. It needs a completely different engineering section following the processes, how they are managed and how they are continuously developed. Becoming a solution provider means that one needs to create a separate business unit.

OBSTACLES TO CHANGE

The biggest challenge has been how to organize the company to provide the solutions needed. Obstacles usually exist because of past precedents as well as faulty communication patterns and a general lack of understanding. Obstacles can be overcome primarily through examples, logic and business cases. The cultural challenges that OEMs have, their resellers have as well.

CONCLUSIONS

There are powerful motives driving OEMs to consider becoming solution providers. However, the transition has multiple dimensions as experienced executives engaged in the move from equipment manufacturer to solution provider reported.

As illustrated in Figure 6, we identify four main dimensions, in which each are particularly important, that include a number of aspects.

First, it is important to recognize that a strategic transition for changing the business model is needed by developing solution offerings, which can have profound financial implications.

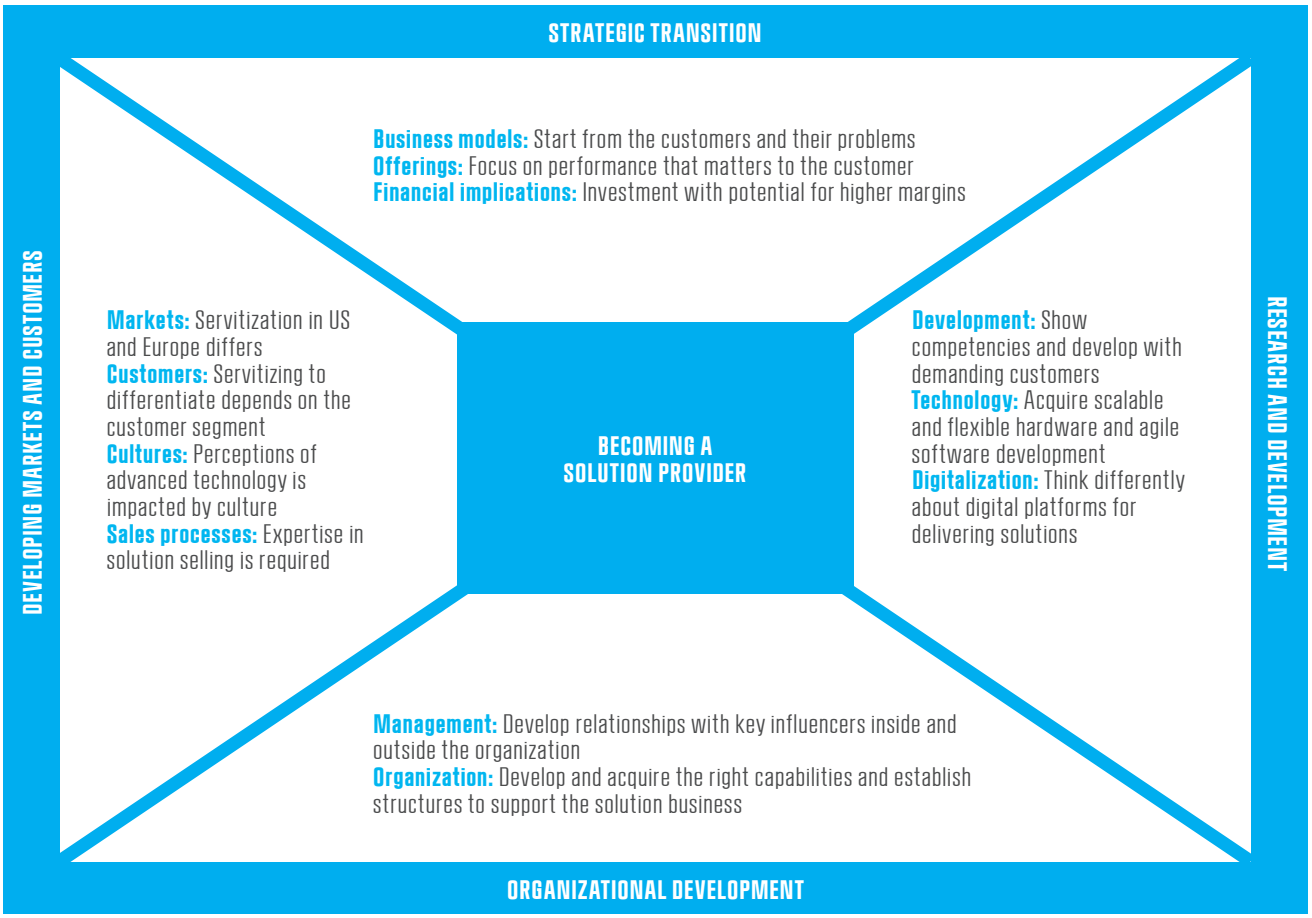
Second, becoming a solution provider involves understanding and changing both the market and the customers, recognizing the differences in the cultures. This involves selling value, which places different requirements on the sales processes.

Third, experiences show the importance of development to find solutions for unresolved customer problems. Technology plays an important role with digitalization reshaping value creation and requiring new ways of thinking for OEMs.

Fourth, the transition requires organizational development in terms of actively managing to develop and enact the vision towards solutions as well as the recognition that new skillsets and capabilities are required to implement the transition.

The following section provides recommendations based on these experiences.

Figure 6: Experiences in becoming a solution provider. Source: Author development



IMPLEMENTING THE STRATEGY;

THE PROCESS TO BECOME A SOLUTION PROVIDER

Moving from being a manufacturer of equipment to becoming a solution provider is not trivial. There are a multitude of issues to consider and a complex process to plan and manage. Based on our studies and the experiences, we have put together a checklist of things to consider and plan. In this way, we summarize considerations when a company is changing direction from manufacturing to becoming a solution provider, adding service offerings, adding performance outcomes, and eventually adding solution provisions.

REDEFINE THE BUSINESS MODEL:

Carefully develop and analyse the intended business model and compare it to the current model. This involves developing new objectives and Key Performance Indicators (KPIs). Analyse strengths such as competitiveness and weaknesses such as ease to copy. What value can you create for the customer and are they willing to pay for it?

DO THE CALCULATIONS:

Try to estimate potential revenues but compare them with the higher risks. In the new business, sources of income, such as equipment and parts, become costs. Responsibility for the customer's process makes a high risk-factor.

DO FINANCIAL ANALYSES:

Products that used to be sold are now own investments and in addition soft investments must be made. Consider the time effects, there are more development costs before there are incomes.

DEVELOP COMPETENCIES:

If you are willing to take the risk and make the effort, investing in and developing service competencies is where to start. There are two kinds of competencies: one is service-focused individuals to develop and deliver services while the other is IT development of connectivity and support.

DEVELOP THE ORGANIZATION:

Concurrently with acquiring new staff, the organization and culture must be developed. Restructure it to focus on operations that work close with customers.

DEVELOP VALUES:

More complex than finding a new organizational structure is to develop values in the organization and the staff members. Changing the thinking from physical products to a customer focus happens only through a long process. Values and perspectives are more persistent and prevalent than objects.

DEVELOP SOLUTIONS:

Product development must change from a planned activity based on technological development and forecasts to an adaptive process of customer problem solving. Having application engineers is one possible practice for solutions.

CAPTURE VALUE:

When meeting potential customers, one must apply a new customer interface with new participants. It is about making bigger deals at a higher organizational level. In addition to the value proposition and value creation, one must do value capturing.

REITERATE THE BUSINESS MODEL ANALYSIS:

The fundamentals of the business changes from production and distribution costs to paid for effects in the customer's production process, also meaning there is no pay when there are no effects.

FURTHER READING

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Images on page 5.
Figure i. Picture of forklift truck from Wikimedia Commons.
https://commons.wikimedia.org
Accessed on 1 May 2018.
Figure ii. picture of forklift service sales from Pixabay.
https://pixabay.com/
Accessed on 1 May 2018.
Figure iii. picture of a control room from Wikimedia Commons.
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SERVITIZATION RESEARCH AT CBS

CBS is undertaking a research project to examine the potential of services as a means of improving competitiveness for Danish industry. The project is supported by the Danish Industry Foundation and involves working closely with industry.

For more information, see cbs.dk/competitiveness and blog.cbs.dk/servitization

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