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COMPLEX SERVICE SOLUTIONS

Bringing digital offerings
to industrial markets

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Solid Growth Series
2020



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The Essence of Business Strategy

Developing a robust planning framework

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Complex Service Solutions

Bringing digital offerings to industrial markets

In this booklet, we discuss how industrial companies can exploit digital technologies to grow their revenue and profits globally. For this purpose, we first analyze the discrepancies between the high expectations and the sobering results inherent to this strategic option. We then show which targets are realistic for industrial companies and how to successfully develop complex service solutions. We discuss which communication policy to use when marketing them and analyze the financial logic of innovative business models – in particular, the risks and opportunities of usage-based or performance-based pricing. Additional emphasis is put on the need to reorganize a company's sales system when introducing digital service solutions. We examine the qualifications that salespeople must have and the means to incentivize them before presenting the organizational structure that industrial companies need to create in order to successfully market complex service solutions worldwide.

THE SIEMENS SOARIAN CASE

In 2001, Siemens AG launched Soarian in the healthcare business sector. It was a revolutionary offering. By using an IT-based solution platform that collected and evaluated data, hospital processes could be improved for all types of patients and treatments, as well as for departments and products. The system allowed hospitals to follow the progress of individual work steps and automatically identified anomalies and weak points, in addition to proactively alerting hospital staff.

Siemens initially focused on the North American market. The company was soon able to gain a number of customers, including the renowned Massachusetts General Hospital in Boston. Nevertheless, the new business area's profitability remained below the set targets for many years. As a result, management decided to sell the business in 2014 and sold Soarian that very year to Cerner – a well-known IT and consulting company in the industry – for \$1.3 billion.

Why were profits unsatisfactory in spite of successful customer acquisition? When it launched Soarian, Siemens AG had already been in the healthcare sector for more than 100 years. The company focused on developing, producing, and marketing imaging devices based on X-rays, ultrasound, computer tomography, and magnetic resonance imaging. Yet, new competitors – many of whom were concentrated in emerging and developing countries – were increasingly approaching the market with their devices. Among them was Mindray Medical International Limited, a global medical instrumentation developer, manufacturer, and marketer founded in Shenzhen, China, in 1991. Some of these competitors were able to achieve a high level of device quality in a short time. At the same time, competitors were not always in compliance with intellectual property protection regulations. Their low prices put pressure on established suppliers' profit margins. For this reason – and because healthcare cost-cutting had become an increasingly important issue in many countries – Siemens wanted to offer hospitals innovative service solutions to help customers achieve more effective and efficient processes.

The complexity of this new offering went far beyond Siemens' traditional businesses, which focused on medical devices, and the related maintenance and repair services. To launch the new solution offering, Siemens AG bought a software company that was active in the healthcare sector. At the same time, the company created a new business area within Siemens Healthcare. As many as 1,400 software engineers started developing the comprehensive solutions platform. Siemens gave hospitals a choice when they made their purchase decision. They could buy the software license, software adaptation, system implementation, maintenance, and consulting services at fixed prices. Alternatively, they could base compensation on future efficiency improvements.

In order to adapt the solutions to a hospital's specific needs, specialists from Siemens first needed to analyze a hospital's related work processes. Areas for potential improvement could then be identified. Based on those findings, the IT system could be configured and implemented. All the necessary process changes could be implemented in a way that suited employees.



Figure 4.1: A Siemens Soarian advertisement

In 2016, we interviewed Tom Miller, then head of Soarian and member of the board of Siemens Healthcare from 2005 to 2013. We asked him about the key lessons he had learned from the Soarian business failure. He identified five:

- We lost too much time and money developing software that fulfilled our vision for the customer's functional requirements, and we lost sight of the true prioritized needs and costs of the actual customer.
- We overestimated our knowledge and capabilities of the entire healthcare enterprise, as well as the necessity to integrate the installed base of competitors' products in our complex service.
- We overestimated our knowledge and ability to change processes and culture when going from the business for high-tech machines to the business of complex service solutions. Our extremely successful processes for medical device capital equipment development and sales were actually a liability in the solutions business.

- We underestimated how different our people's skills portfolio requirements would be. The people from the traditional business did not even have the right skills to interview the necessary candidates.
- We miscalculated the financial logic of these kinds of businesses regarding time, cash requirements, and flows, as well as risk projections and mitigation.

These statements contradict the preconception that managers do not admit their mistakes. At least that is not the case with Miller. In addition, his responses reveal the problems and causes that are equally relevant for other industrial companies as they enter the complex service solutions market.

WHAT ARE COMPLEX SERVICE SOLUTIONS?

To answer this question, we turn once again to Soarian. To what extent did Soarian projects differ from the traditional Siemens imaging devices business? Three criteria were decisive:

1. The new projects were highly complex.
2. They included a high proportion of customized services.
3. They had a strong business impact on customers.

We refer to transactions with these characteristics as complex service solutions. In the following discussion, we focus on solutions that place a high priority on the use of digital technologies.

A high level of complexity means that the solution's functionality is influenced by many variables. Some of these functions are interdependent, making the exact results unpredictable. Soarian had an impact on so many employees, devices, and diverse processes in a hospital that it was impossible to predict detailed results. Transactions with a high degree of complexity have always existed, of course. Just think about plant construction, in which power plants, drilling rigs, or entire production factories are sold on a turnkey basis. Digital technologies allow more industrial companies to increase the complexity of their offerings and enable them to take over larger parts of their customers' added value.

Digital technologies, of course, are not new. They have been in use since 1959, when IBM introduced its legendary transistor computer "1401" to improve operational

process efficiency. Back in 1973, Joseph Harrington introduced his “computer-integrated manufacturing” (CIM), a forerunner to the networking concept known today as “Industry 4.0.” CIM, however, has never been implemented on a broad basis. The company-wide use of digital technologies has only recently become more widespread with the explosion in potential uses. This, in turn, is based on more powerful hardware and software for generating, storing, and processing data.

An often-cited example of this development that we introduced in Booklets 1 and 2 is the “power by the hour” offering from the Rolls-Royce Aircraft Turbines division. The company introduced this business model as early as 1962, but its industry-wide breakthrough only came with increasing digitization. Today, thousands of sensors are installed in an aircraft turbine. The related data is then transmitted to IT-based systems for analysis and evaluation. The turbine’s technical condition can be captured at any time, and both maintenance and utilization can be improved. The more turbine data, the greater the impact. In the meantime, the majority of aircraft turbines manufactured by Rolls-Royce are no longer sold. Instead, the manufacturer operates them as part of its power by the hour offering. In doing so, the company is able to collect more data than the airlines and can maintain the turbines more efficiently. Yet, Rolls Royce’s two major competitors – Pratt & Whitney and GE – introduced this type of complex service solution as well. GE is now even the market leader, and it sums up the digital core of its offerings with the slogan “Collect, Connect, Detect, Direct.”

Using these concepts, manufacturers no longer sell physical products to customers. Instead, they offer a service. In the case example above, it is a transport service for aircraft. These services are considered to be intangible and are viewed as being different from tangible goods. Research has revealed further criteria by which goods and services differ.¹ It should be noted that, in order to deliver these services, suppliers and customers must cooperate, and thereby “co-create” the service. Even with a relatively simple service, such as a haircut, the supplier and customer need to co-create. Hairdressers, for instance, can only provide their services if customers express what they want and keep their heads still during the service.

For complex projects, co-creation begins with an initial situation analysis, in which the customer gives the supplier essential information. If a hospital provides incorrect data about the number of patients or treatments performed, for example, processes cannot be optimized with Soarian. Even after implementing a solution, customer behavior is critical to success. If hospital staff operate the new software incorrectly, the hoped-for improvements will not be achieved.

Although the added value of complex service solutions is service-driven, goods can help complete the overall solution.² The many variables that affect the success of complex service solutions are different for each customer. That is why they must be customer-specific solutions to the greatest extent possible, even if the offering includes standardized hardware and software products in addition to services. Accordingly, we discuss solutions instead of products.

In addition, complex service solutions only refer to solutions that strongly impact the customer’s value-creation processes and the related costs and revenues. This means that successful implementation can deliver significant advantages to the customer. Failure, on the other hand, can cause significant damage. With Soarian, for example, hospitals realized substantial savings. But a system crash during a surgery would be a catastrophe. That is why customers attach great importance to the purchase of complex service solutions. They are aware of the tremendous risk involved with the purchase decision.

Given this business impact for their customers, suppliers of complex service solutions hope their customers are willing to pay more in order to receive high sales returns. They also hope to achieve smooth revenue streams to counteract the industrial product business cycle. In the latter approach, they expect upside revenue potential for their traditional business. If Soarian gave Siemens insight into a hospital’s entire set of processes, it would recognize customer demand for new imaging devices before competitors did. In addition, complex service solutions promise to provide industrial companies with market entry barriers for new competitors. This is because the skills required to provide complex service solutions are difficult to copy.

As a result, many established industrial companies from industrialized countries view complex service solutions as a new strategic opportunity for the future of their businesses. In the past, most of these businesses were satisfied with the development and sale of advanced, continuously improved premium products such as imaging devices, elevators, and gas turbines. But then the number of competitors has increased, with many of the new entrants coming from emerging countries. This trend has been accompanied by price pressure. As a result, established suppliers have changed their business models in order to focus their profit generation from product-selling to after-sales services. But here, too, competitive and margin pressures have increased in recent years because of copied spare parts, regulatory interventions, declining customer loyalty, and reduced profits. Complex service solutions are an alternative in this scenario. The scope of the offering gets broader while the development of the new offering is based on previous business. Figure 4.2 illustrates the three phases of business model development.

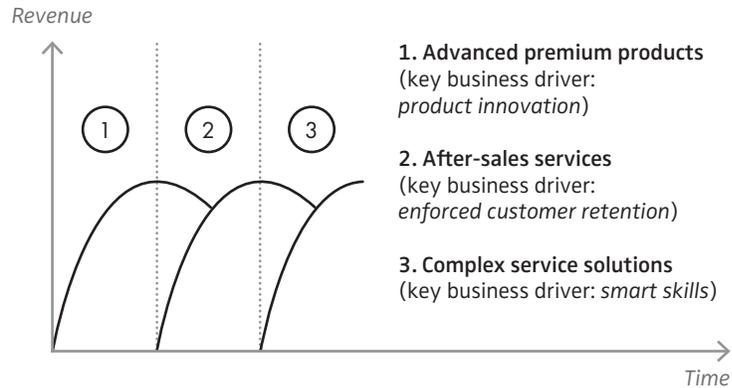


Figure 4.2: Three phases of business model development of established industrial companies

In order to take advantage of market entry barriers with complex service solutions, industrial companies must first overcome their own barriers. We explore the “smart skills” mentioned in Figure 4.2 later. Even without a more detailed analysis, there are clearly enormous challenges associated with complexity, digital technologies, and customer-specific requirements. In addition, the level of customer pressure on suppliers is particularly high because of the business impact of complex service solutions. Suppliers also face the pressure of performance-based compensation (e.g., power by the hour models).

The high capability requirements of the suppliers of complex service solutions run the risk of overwhelming traditional industrial companies. Consider the Soarian example. Siemens started by optimizing the very complex processes of one of the best-known hospitals in the United States. The better approach might have been to gradually introduce the strategic option. This corresponds to the philosophy of “solid growth” and implies a gradual increase in the use of digital technologies. Figure 4.3 offers an example from the agricultural industry of this step-by-step approach.

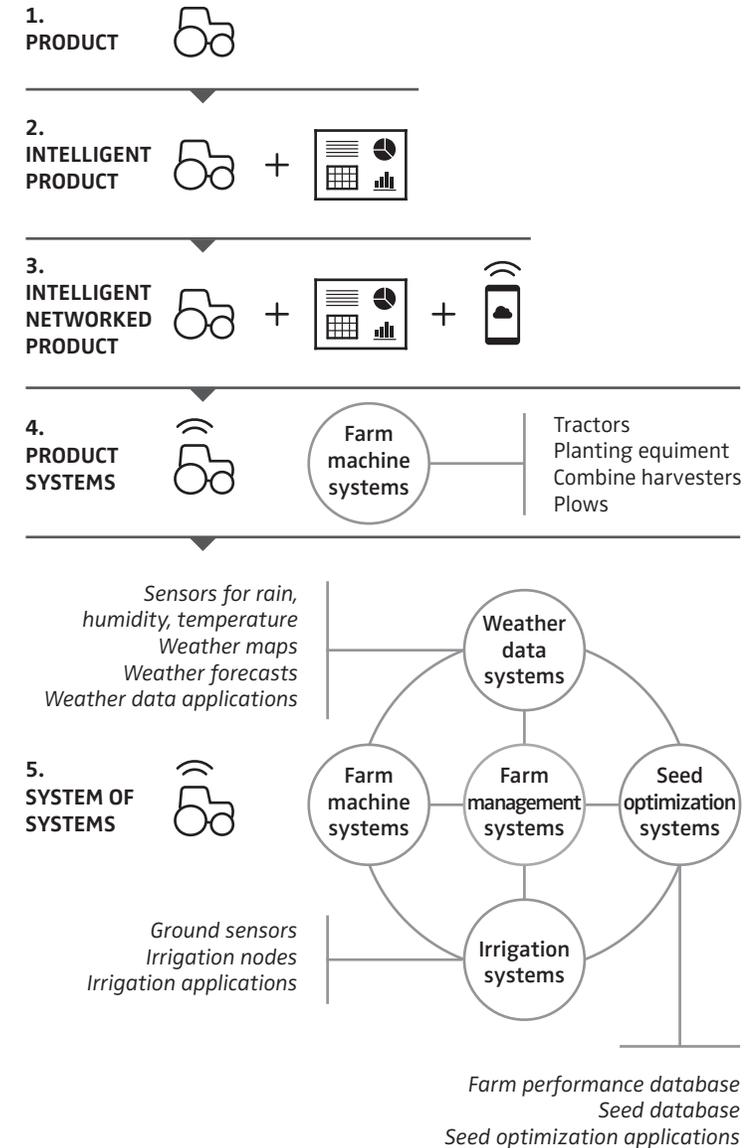


Figure 4.3: Phases of increasing digitization in agriculture (graph based on Porter and Heppelmann (2014)³)

Claas, a leading global manufacturer of agricultural machinery, used digital functionality as early as the 1980s to regulate the speed of its combine harvesters. Over time, Claas expanded its digital offering well beyond combine applications. The company developed digital yield mapping, for example, to help farmers identify harvest yields on individual field parcels. This type of information, however, only provides significant customer benefits if it is networked with other information and processes. By using yield mapping, for example, farmers can improve the next fertilizer application. To this end, Claas founded the subsidiary 365FarmNet in 2013. It offers farmers a digital platform to drive comprehensive process optimization across their entire agriculture operations. Farmers receive harvest day recommendations based on data analysis of the weather, crop growth, and price developments. They also get information on where to obtain specific resources.

Farmers can purchase access to this information separately from other Claas products. In the meantime, Claas is offering a growing number of complex service solutions. These include machine and software product solutions for process optimization, as well as consulting services (i.e., complex service solutions).

The same scenario applies to MAN, a European truck manufacturer. The company has developed a digital service with the "RIO" logistics platform for more efficient vehicle utilization. With RIO, freight forwarders can optimize route management. This allows customers to monitor their usage profile and their truck's technical condition at any time. MAN expanded this functionality to support truck drivers in meeting their safety reporting requirements. Drivers must typically complete lengthy, legally mandated safety reports on the condition of their vehicle lights, wheel nuts, and trailer couplings. With the RIO solution, drivers receive all of the necessary information on their smartphones. At the same time, all information can be viewed at headquarters and archived in the cloud. Similar to 365FarmNet, customers can purchase RIO without having to purchase a MAN vehicle. However, RIO only unlocks the solution's full functionality when customers buy individual digital services together with a complete solution package or complex service solution. This goes hand in hand with business model transformation. In this case, the customer no longer buys vehicles from MAN but leases them. It is the manufacturer who continues to own the actual trucks.

Of course, an industrial company can develop digital services that are completely unrelated to previous products or customers, although this type of diversification is rare. From a competition perspective, it is not very promising. In scenarios like this, industrial companies typically forego their knowledge advantage in "domain know-how." When a supplier's knowledge and skills offer a critical competitive advantage in a given market, existing product and market expertise can provide the necessary edge

for success. This is particularly true when compared to the situation of new competitors from the startup scene or IT companies.

This does not mean that certain knowledge elements cannot be marketed separately. It may even be possible to reach new customer groups this way. Thanks to 365FarmNet, Claas was able to sell agricultural weather data to insurance companies. According to Wixom and Ross, such businesses represent the third stage of a company's development in the use of digital technologies.⁴ The stage model of these two research scientists is shown in Figure 4.4.

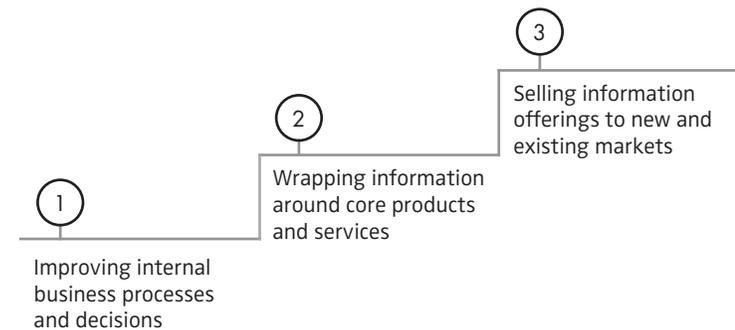


Figure 4.4: The stages of using digital technologies, according to Wixom and Ross

For the majority of industrial companies, the third stage of this model is optional and not part of the core business. The focus on sales occurs during the second stage. This is because of the domain know-how advantage. At the same time, complex service solutions, which include much more than the sale of information, promise greater business potential.

Figure 4.5 outlines the gradual development of traditional industrial companies into complex service solution suppliers. This process begins with the development of innovative digital services that are still closely related to an existing range of conventional advanced premium products. After that, the offer is expanded to other areas of value creation. Suppliers can then fine-tune their business models accordingly.

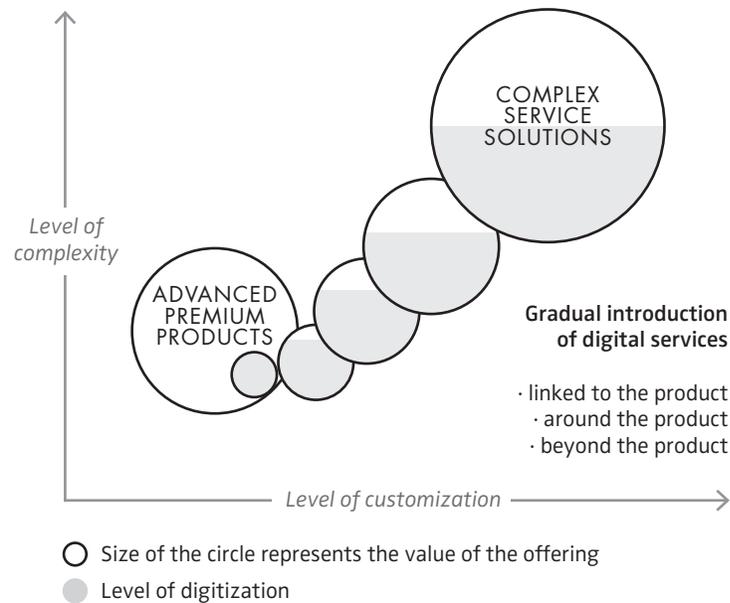


Figure 4.5: Gradual development from advanced premium products to complex service solutions

SETTING THE GOALS

Before suppliers define sales and earnings goals for complex service solutions, they should first be clear about their strategic market relevance. Industrial companies that are successful with advanced premium products must ask themselves the following questions:

- How will our market position develop if we do not pursue this strategic option?
- To what extent will we continue to maintain our quality leadership in traditional markets through constant innovation?
- Can our products be copied?
- Are our high profits in after-sales services guaranteed in the future?

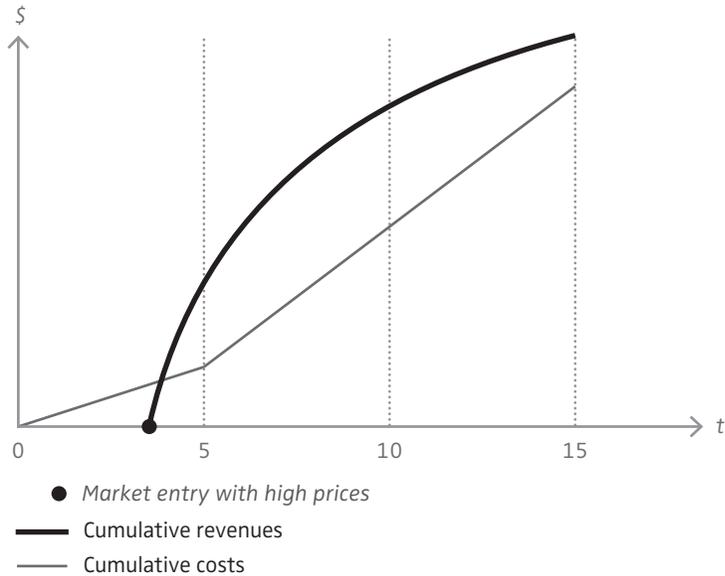
- To what extent will the new digital technologies change our customers' needs, industry value chains, and market position?

An example from the automotive industry illustrates this issue concerning strategic market relevance: The residents of large cities increasingly want to rent cars on short notice instead of buying them. Carsharing is a digital platform-based business model that addresses this need. An automobile manufacturer such as Daimler has to pose a critical question: What happens if a company such as Google achieves a dominant market position in the carsharing business? Daimler could still sell cars. Instead of selling to private customers as before, it would primarily sell to Google. Given the purchasing power of a market leader such as Google, Daimler could hardly expect high margins in this scenario. This is what prompted Daimler to pursue carsharing in its own right.

In addition to such defensive measures, suppliers are trying to generate new sales and achieve profit growth with new strategies. The Soarian example demonstrates why this is not always possible when introducing complex service solutions. In fact, the company did not meet set earnings targets for 12 years. Similarly, profits for Rolls-Royce's power by the hour have not been particularly strong in recent years. In some cases, there have been losses. In both cases, the results fell short of expectations for management, employees, and shareholders. What were the underlying causes?

Erroneous actions or unrealistic expectations are the reasons behind disappointing results. At Soarian, the implementation was clearly wrong. But Tom Miller's mentioning of a different "financial logic" points to false expectations. It is important to realize that complex service solutions follow different cost and revenue stream patterns than the advanced premium products that helped Siemens succeed. These patterns are shown in a simplified form in Figure 4.6.

FINANCIAL PATTERN OF THE TRADITIONAL GOODS BUSINESS



FINANCIAL PATTERN OF SOARIAN BUSINESS

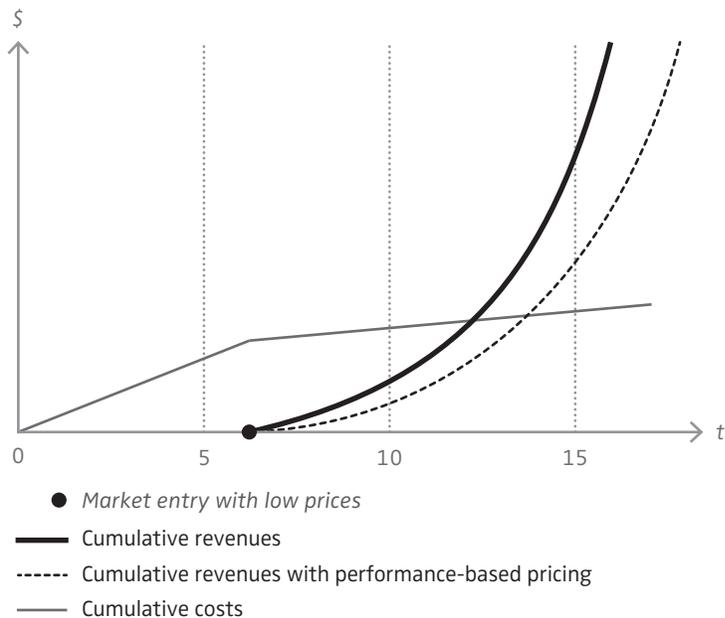


Figure 4.6:
Development of cost and revenue streams for the advanced premium products of Siemens Healthcare (top) and Soarian (bottom)

Imaging equipment manufacturers initially invest in innovative product development. In addition to personnel costs, companies typically incur expenses for production facility equipment, raw material purchases, and parts. Because new product models are more powerful than their predecessors, the companies can command higher prices. If the new devices become technically obsolete over time, the price level drops and the sales curve tips downward. The cost and revenue flow patterns were different at Soarian. The company incurred initial development costs. Yet, no expensive production facilities had to be set up. There was only the need for employees to be hired and trained.

An even bigger difference between traditional product business and complex service solutions is the revenue curve. On top of that, the basis for creating value with data-based solutions must be understood. The more data that is evaluated, the more valuable the analytical results. It generates more valid predictions and actionable recommendations. By engaging with a larger number of customers over a longer period of time, suppliers can build a better knowledge base. Because of constantly improving data analysis, software errors can be eliminated over time with the help of version updates. As a result, an offering such as the one from Soarian provides customers with more benefits over time than during market launch. Customers are aware of this, and it impacts their willingness to pay. The benefits start out small and increase over time. This results in the concave sales curve shown in Figure 4.6. If suppliers link earnings to customer-driven performance improvements (i.e., “performance-based pricing”), revenues are delayed once again. This is because performance improvements will only appear over time. This phenomenon is illustrated in Figure 4.6 with a dashed line.

In spite of this diagram’s simplified approach, it makes one point very clear: The level of profitability of complex service solutions is lower in the early years when compared to a traditional product business. Over the following years, profitability can improve significantly. In the case of Soarian, it may very well be that the time periods shown above actually reflect reality. This is because Cerner, which bought Soarian from Siemens in 2014, is “very satisfied” with Soarian’s results.

As with complex service solutions, revenue curves of this shape can be observed in other categories of offerings. One example is telephony. The telephone’s core customer benefit only exists if other customers have a connection. The more customers there are, the more calls can be made, and the greater the value of the telephone for the customer.

Obviously, the Siemens Central Executive Board and healthcare sector colleagues set overly optimistic financial goals for Soarian. The financial logic and the risks of complex service solutions were misjudged. How can this happen to such experienced managers? Research by Kahneman and Lovallo provides surprising and insightful answers in this regard.⁵ The two scholars (Kahneman became well-known as the winner of the Nobel Prize in Economic Sciences in 2002) examined human risk behavior. They found that people are fundamentally risk-averse. When people are presented with the same probabilities and quantitative effects, they will rate the probability of a potential loss higher than a potential profit. Given the business risks that managers take, the researchers wondered whether or not managers are less risk-averse than other people. They found that this was not the case. Instead, they observed that managers either did not perceive risks, or they overestimated their ability to handle them.

If managers' decisions have led to business success and personal advancement, this can lead to high levels of self-confidence. Such self-confidence can, in turn, lead managers to infrequently seek out other opinions. As a result, they do not receive critical feedback on their own plans and may think they are able to master any challenges that arise. Even when the board of directors' culture allows for an open exchange of views, misjudgments can persist if all involved parties evaluate business matters from a similar perspective. This can lead to the confirmation of wrong opinions. In order to remedy this, Kahneman and Lovallo suggest involving external, independent participants when evaluating ideas or strategic plans.

In addition to the risk of overoptimistic projections, there is the problem of inappropriate target criteria. This often happens when an industrial company deals with complex service solutions for the first time. The new business requires different target criteria than the traditional business. This, at least, is the result of studies by O'Reilly and Tushman, which differentiate between "exploitation" and "exploration" in business.⁶ With exploitation, the focus is on improving the efficiency of existing businesses, including incremental innovations. Exploration, on the other hand, focuses on building new businesses based on extensive innovations. O'Reilly and Tushman demonstrate that each approach requires its own processes, culture, and leadership. The same applies to the target criteria. In traditional business, it is appropriate to set profit margin targets. In new business, it makes more sense to base targets on process goals, including successfully performing certain activities. This is because the information for reliable sales and cost planning does not yet exist. Without these important distinctions, the introduction of complex service solutions quickly generates unrealistic projections. This, in turn, leads to irritation and disappointment down the road.

DESIGNING THE OFFERING

The initiative to develop complex service solutions should come from the supplier, not the customer. This statement is supported by the results of an academic study from 2020. Researchers examined 299 European industrial companies that had introduced complex service solutions.⁷ Managers rated the financial results of internal corporate initiatives significantly higher than the ones initiated by the customers.

How can we explain these results? The second group's decision to start development may have been linked to deadlines or even price commitments. As shown above, these can quickly turn out to be too optimistic. If the commitments are part of a contract, suppliers may earn limited profits. In addition, suppliers can be overwhelmed by inaccurate forecasts. This, in turn, can put so much pressure on employees that their performance suffers. The Yerkes-Dodson law,⁸ which was introduced in 1908, can be applied here as a psychological explanation. According to this research, individual performance levels grow when the level of arousal increases. If the level of activation is continuously increased, performance levels decline. Figure 4.7 illustrates this phenomenon.

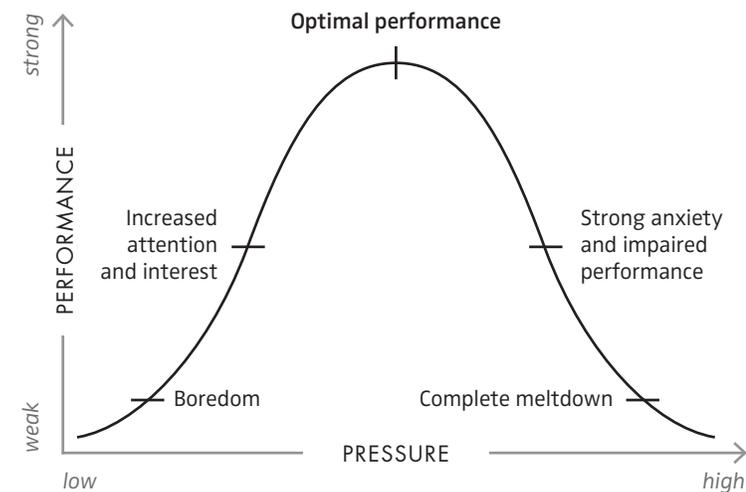


Figure 4.7: Relationship between individual activation and performance (Yerkes and Dodson)

In order to avoid the risk of over-activation, it is better for suppliers to start the development process for complex service solutions before they make firm customer commitments. This process should be customer-oriented. Accordingly, the customer's value-creation processes and related ecosystems must be analyzed first, as this provides the foundation for pursuing potential efficiency improvements. The "design thinking" methodology – a creative procedure for discovering ideas – can be used. It allows companies to create development processes in order to find solutions for complex problems. It helps to shed light on the problems themselves and to find underlying – that is, not obvious – problems. Customers do not actually need to be aware of a specific need. In this respect, this methodology is a particularly suitable option for industrial companies that are pursuing complex service solutions.

The design thinking methodology usually comprises five phases, which are shown in Figure 4.8. These phases do not necessarily have to be followed in consecutive order. They can be pursued simultaneously or repeated in loops.

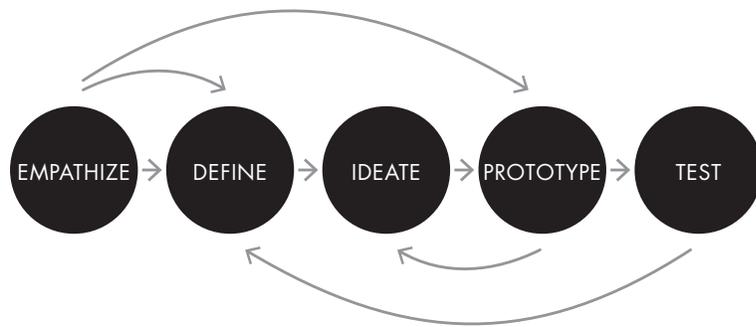


Figure 4.8: The five process stages of design thinking

When analyzing the customer's value-creation process, a so-called persona is often used. It represents the ideal customer type, including specific traits and usage patterns. This analysis helps managers closely align new offerings with actual customer needs and keeps the development process from getting out of hand. Otherwise, suppliers may try to please every customer and lose focus. At Soarian, a hypothetical university clinic in a Western country could have been carefully analyzed. The persona specification could have been as precise as possible without being unique. In this way, at least some of the analytical findings can later be applied to other customers in the corresponding market segment.

For a further examination of design thinking, please refer to the comprehensive literature available.⁹ One aspect should be emphasized here, as it is atypical of the development processes of industrial companies. When using design thinking, people from different disciplines should be involved in the development process (i.e., in so-called focus groups). This recommendation was discussed in the previous section as part of the Kahneman and Lovallo research results. By ensuring a high level of diversity among those involved, managers can minimize risk and avoid errors. At the same time, they can promote customer orientation and creativity.

Anyone who uses the design thinking method will develop a whole range of ideas. These then need to be assessed and prioritized. The key question concerns the extent to which the implementation can improve efficiency in the customer's value-creation process and how it can achieve benefits. This customer benefit should be quantified more precisely over the course of the process. A clear case for customer profits will make a subsequent market launch that much easier.

In addition, managers must keep an idea's feasibility and business benefits in mind. Suppliers should prioritize accumulated ideas by focusing first on the "lowest hanging fruit" – applications that give customers as many advantages as possible, and that suppliers can deliver relatively quickly, cheaply, and reliably. When expanding the scope of an offering, industrial companies that have previously marketed advanced premium products should avoid taking on activities with weak added value or those which require employee qualifications that are seldom available in-house. The mechanical engineering company Voith gained this insight when it assumed system maintenance responsibilities for its newly launched Industrial Services division. This involved taking on numerous employees, who performed simple cleaning jobs and other unskilled activities. The employees benefited greatly from Voith's high level of social benefits. Yet, the high related labor costs made it difficult for the company to become cost-competitive. The loss-making division was sold again in 2016.

The Siemens Building Technology division had a similar experience in the 1990s. Instead of simply selling its hardware products to airports, Siemens wanted to start to partially operate the facilities. As it turns out, Siemens found managing personnel-intensive security services to be overwhelming because of the company's employee culture. The division quickly incurred costs that were significantly higher than those of its competitors. After a short time, the Building Technology division gave up on operating airports. It did not, however, stop pursuing the strategic option of complex service solutions. Managers had learned that complex service solutions should be designed in such a way that modern technology – rather than employees – could assume simple, repetitive tasks. Accordingly, the division developed digital applications

under the name “Navigator.” These solutions made it possible to comprehensively analyze and proactively optimize the energy consumption of buildings. Most of the work is done by sensors and intelligent software programs, which are controlled by a handful of highly qualified employees. Based on that, Siemens Building Technology successfully took over the building management of 1,000 office buildings of the Credit Suisse Group AG. Incidentally, Siemens Building Technology’s primary form of compensation is based on its customer’s energy savings.

When developing software, industrial companies should not adopt the processes and quality standards of their traditional product areas. This is another lesson that can be drawn from the Siemens Soarian case, in which the company developed software to the same high standards that it did with its imaging devices. Yet, it is impossible to design software that is completely free of errors. Even if it were possible, it would cost so much time and so many resources that business parameters would be unmanageable. That is why the famous Mark Zuckerberg rule “Done is better than perfect” still applies to companies such as Amazon, Google, and Facebook. In the case of software-based innovations, advocates of design thinking even advise testing market acceptance with a version that has been reduced to its essentials – a so-called minimum viable product or prototype.

The perfection trap is all the more daunting when a supplier’s market approach includes satisfying every single customer requirement. When suppliers ask customers what they want, it creates customer expectations that are not worthwhile or cannot be realistically pursued. The balance between customer orientation and cost orientation would be lost. At the time, Soarian addressed its customers’ diverse requirements by creating one of the most extensive software products available on the market (measured in lines of code). Yet, it was not completed on time. From a technical perspective, it was almost impossible to manage.

Customer collaboration is nonetheless a key success factor for complex service solutions. As we pointed out above, service-driven offerings require a greater degree of customer co-creation. This means that customers must become an integral part of the actual service provision process. In doing so, they become a production factor.¹⁰ For this reason, it is vital to plan customer collaboration and to align it with the supplier’s own processes.

A helpful approach to visualization was introduced by Lynn Shostak in the 1980s as “service blueprinting.” It was later developed most notably by Kleinaltenkamp and Fliess.¹¹ A service is presented in the form of a chronological flow chart that illustrates work processes from the customer’s perspective. The activities are assigned to specific

action levels. These are then further subdivided according to the following criteria: A customer interaction is required (interaction line), the interaction is visible to the customer (visibility line), and the processes require internal coordination with the supplier (internal interaction line). Figure 4.9 illustrates this approach.

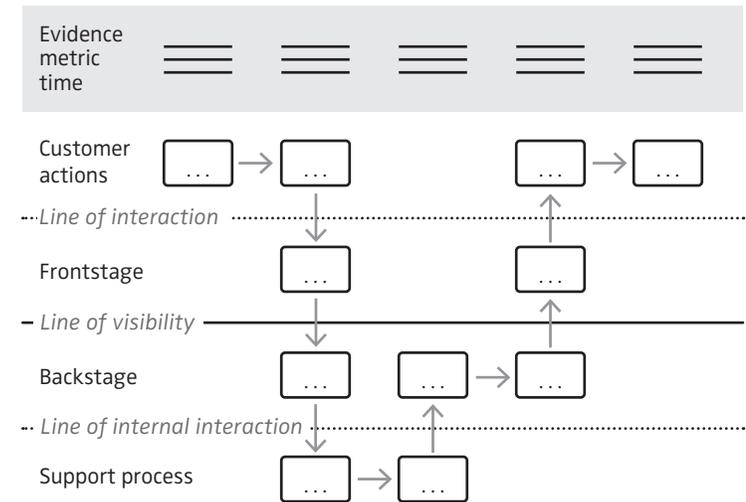


Figure 4.9: Service blueprint

This type of structure helps suppliers develop structured methodologies and workflows, which prevent having to start new projects from scratch. Complex service solutions are difficult to scale, as they are highly complex and customer-specific. We see this as one of their greatest challenges. Yet, that is precisely why suppliers should design individual service elements and processes – so that they can be used in other projects. This provides an important opportunity to generate acceptable profits by keeping costs under control. In summary, the following axiom applies to developing complex service solutions: “As much customization as necessary. As much standardization as possible.”

SETTING THE PRICE

For a traditional industrial company, the development of complex service solutions is associated with radical changes in business models. Companies must redefine the ownership of assets and data. They must assign value-creation processes to market partners. Finally, they must rethink how to redistribute value-added profits among market partners. The structure of the price, terms, and conditions, then, is critically important for these processes.

In many industrial companies, price is still determined on the basis of “cost plus.” Businesses start by calculating direct product costs. A surcharge is then added to cover overhead costs based on a calculated rate. Finally, a profit margin is added. This pricing method, even for advanced premium products, is not a preferable approach. For digital-based offerings, it is outright misleading. Technically, the problem lies in the software’s marginal, individual product costs. It makes no sense to apply related overhead costs. With the cost plus approach, suppliers risk either setting prices too high above the market level, or missing out on profit opportunities due to low prices.

In principle, prices should be based on the value that a service provides for the customer. Hermann Simon, one of the most renowned experts in this field, likes to refer to the Latin word *pretium*, which stands for both the price and the value of a service. The problem is that it is difficult to determine the value of a service to a customer. In B2B markets, for example, several people are often involved in a purchase decision on the customer side. People make different individual assessments, which may be subject to change. We can pour a glass of water at home from the water faucet. We can also reach for that same glass of water in a half-dehydrated state in the middle of the desert. The relative value of these two glasses of water is very different. Therefore, the value of a service is not a stable quantity. It is instead a question of subjective perception at a specific point in time.

Even outside the range of complex service solutions, the problem for many industrial companies is that customers do not recognize the value of a service offering. The amount they are willing to pay is lower than the target price of the supplier. Managers of mechanical engineering companies, for example, report that Asian customers, in particular, are fixated on the purchase price. They do not adjust their willingness to pay according to a machine’s value in terms of long-term consumption savings, even when presented with lifecycle cost analyses. This is true even when long-term consumption costs greatly exceed the purchase price.¹²

In addition to the fundamental difficulty in anticipating the long-term value of a service, customer skepticism plays a role – both in terms of the analyses and promises

that suppliers make. This is particularly important if the customer faces high upfront risks and costs, but the actual benefits of the service only become apparent over time.

This aspect plays a major role in complex service solutions. As mentioned above, the value of an imaging device decreases over time, whereas the value of data-based services, such as those of Soarian, increases over time. One reason for this is rising volumes of data. Complex service solutions make it difficult to compare offers from different competitors due to their high levels of complexity and individualization. For many customers, the technologies are new, and therefore difficult to assess, particularly in terms of their long-term value-in-use. All of this heightens customers’ perception of risk in making a purchase decision. They fear that the long-term benefits may not be worth the cost.

How can suppliers manage this? According to the theory developed by Bauer, perception of risk is based on two factors: the potential consequences of a loss event; and the uncertainty surrounding if and when a loss event could happen.¹³ To perceive a high risk, both factors must be significant. If only one of the two is reduced, the overall risk is perceived as being smaller. Accordingly, as shown in Figure 4.10, there are two ways that suppliers can influence a customer’s perception of risk.

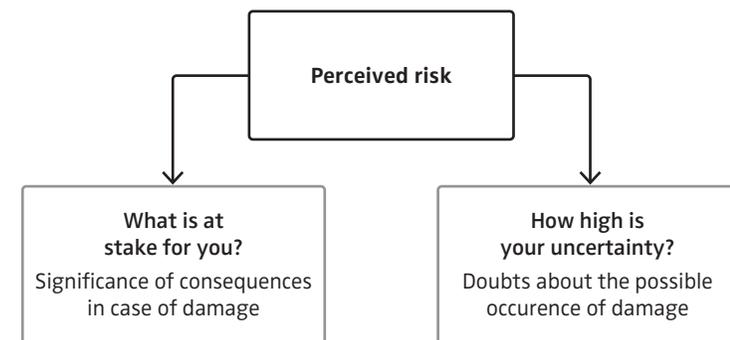


Figure 4.10: The elements of perceived risk

On the one hand, suppliers can reduce the chances of negative consequences resulting from breaking a promise or a loss event. Above all, this affects price, terms, and conditions policies. On the other hand, suppliers can try to convince customers that there are no such negative consequences. To achieve this, they will use marketing communication.

One of the first ways to reduce customers' perceived risk about pricing policy terms is to not charge any money for the service offering at all. In marketing, one speaks of "freemiums" or "freebies" (i.e., free product samples). The terms are predominantly used in the consumer goods sector. For example, everyone is familiar with the strips of perfume samples that are stapled in magazines. Customers can familiarize themselves with a product's quality by testing it first and without having to pay for it.

If an industrial company wants to adopt a gradual approach to offering complex service solutions, free samples can be applied in a similar fashion. By giving customers digital or consulting services free of charge, for example, they can get to know and appreciate the service supplier. After this experience, customers may be ready to pay. This would reduce the level of skepticism about the supplier's promises. As a result, customers may be willing to buy more comprehensive offers. In this context, salespeople speak of "land and expand."

Reciprocity can have an additional positive effect. Cialdini investigated this phenomenon in the 1980s. His research demonstrated that people want to give something back to those who have given them something.¹⁴ However, this cannot easily be transferred to business practice. In the consumer goods sector, for example, it was not worthwhile for television electronics retailers to offer free advice before customers made a purchase. Customers were happy to take advantage of this service, but they subsequently bought their television sets at the supermarket or on the internet at a lower price.

A similar trend was observed in B2B markets for telephone switching systems in the telecommunications sector. In terms of suppliers, this market was dominated by companies such as Lucent, Siemens, Alcatel, and Nortel in the late 1990s. On the customer side, large network operators such as AT&T and Deutsche Telekom led the industry. These operators usually acted as monopolists in their respective countries. With the deregulation of telecommunications markets at the end of the last century, however, they faced new competitors. Yet, the new competitors still lacked the knowledge to design the architecture of a telecommunications network. The established switching system suppliers supported their customers in this regard by providing them with a complex set of consulting services to help them create the architecture design for a nationwide network. The established suppliers did so in spite of the enormous work and effort involved, assuming that the costs would be offset by future switching system sales. In the end, these orders were often awarded to a new network equipment supplier from China: Huawei. At the time, this company could not – and did not want to – provide comprehensive consulting to customers. As a result, it saved the related costs. Instead, Huawei manufactured inexpensive switching systems. They were often

bought by customers who had previously received free advice from an established supplier. Today, Huawei is the global leader in switching systems in the telecommunications industry, and the abovementioned suppliers from North America and Western Europe have largely been pushed out of the market.

That is why it is important to find the right time to switch to sales mode when giving away services. If a supplier is adding value with a growing proportion of new services, long-term business results will deteriorate – even if these services are provided free of charge. This is true for traditional industrial companies that want to develop a complex service solution offering. At least that is the case when service costs are not offset by higher revenues from other offerings. The longer that suppliers give away their service, the more likely customers will become irritated when the strategy shifts to sales mode.

The situation is similar in markets for products in which it is necessary to have a certain number of customers before the products create value. The market for telephones in the last century is an example. The value a customer ascribes to a telephone is low as long as no one else has one. Therefore, the price for those kind of products is low when they are introduced to the market. The higher the number of customers with the product, the higher the value for the customers, so suppliers might increase the price over time. But customers are less likely to accept significantly higher prices during repeat purchases. It is difficult to make the argument to an annoyed customer that the product's value has increased due to better usage opportunities. Instead, customers suspect that the supplier is exploiting the situation for their own financial gain. To prevent this, the supplier should make pricing policies transparent and announce price increases early.

In summary, it should be noted that freebies are not a suitable price concept in all scenarios. They can, however, be helpful during the market entry phase. Although it is far from certain that offering a small gift will result in large sales later. This is particularly true for B2B segments. That is why companies must carefully manage the transition from free services to a profitable marketing mode.

Another pricing policy option is the subscription. Subscriptions make it less expensive to acquire customers, and they reduce customers' perception of risk before purchase. We speak of subscription-based pricing in this context. Similar to leasing, the customer pays relatively small sums at regular intervals instead of a high, one-time purchase price. In addition, customers are sometimes granted the right to cancel the subscription. This pricing model is often used in traditional industrial goods businesses, including large truck manufacturers.

Although low prices are an advantage for customers, they are a disadvantage for the suppliers' cash management. Under this pricing model, suppliers typically continue to own the numerous components of their complex service solutions. As a result, they must show these assets on their balance sheets. This, in turn, requires capital and the related interest costs for the supplier. On the other hand, revenue flows remain constant – something that the financial markets like to see for industrial companies. What makes this pricing model truly interesting for suppliers that launch complex service solutions is the access to customer usage data, which presents a valuable information base for the continued development of innovative products and business models.

There is another subscription-based pricing development that lowers the customer's purchasing risk even further. It does this by linking compensation to a customer's usage time, production results, or market success. This is what is known as "performance-based pricing." Especially with IT companies such as Microsoft and Tencent, it has become common to sell "software as a service." Under this model, customers only pay for the time they actually use the software. At €80 billion, this price model currently accounts for around a third of global software sales, and it will continue to grow in the future.¹⁵ Rolls-Royce's power by the hour pricing model presented above is another example of performance-based pricing. It allows customers to transform fixed costs into variable costs and helps them to avoid the risk of wasting more expensive resources.

Customers reduce the amount of risk even further when they pay based on production output rather than usage time. This is the case if a supplier of beverage filling systems is compensated by the number of bottles filled, or if a copy machine manufacturer is paid by the number of pages printed. An extreme type of performance-based pricing takes place when payment is directly linked to customers' market success – and only indirectly related to the supplier's solution performance. The consulting firm Bain & Company took this path. By offering clients a rate based on their stock market performance rather than the usual per diem rates, the company was able to gain significant market share from its competitors McKinsey and the Boston Consulting Group. Behind this pricing strategy is the increased popularity of a customer-centric mindset. It has also played a visible role in the rise of so-called customer success managers, whom suppliers have been hiring in recent years.¹⁶

The idea of variable pricing models is nothing new, of course. There are stories – albeit without historical evidence – that a Chinese emperor's personal doctor was paid by the number of days that the ruler enjoyed good health. James Watt and Matthew Boulton are further examples. They were only successful with their famous steam engines in

1776 when, instead of selling them, they leased them to mine owners for a third of what it cost them to feed their horses. Rolls-Royce's power by the hour concept is also decades-old. The company trademarked it in 1962, but it only began using it much later with the rise of data management technology.

Supporters of performance-based pricing see it as the ultimate way to overcome the zero-sum game between buyer and supplier. Instead of one party only being able to win something if the other one loses, they now both have a common interest. Rolls-Royce has just as much interest in keeping aircraft in the air as the airlines themselves. The airlines no longer have to fear paying too much for spare parts, and they can manage their costs better with the new business model. They also no longer need to pay fixed salaries for maintenance staff. In light of these customer benefits, it is easy to lose sight of the fact that this model entails higher levels of risk for Rolls-Royce than the traditional pricing model. Aircraft may have to be grounded for reasons other than engine problems. Pilots and crew, for example, may go on strike, which can lead to a loss in earnings for suppliers. Something that was once not a risk at all is now something beyond their control.

Whenever suppliers choose to share their customer's market risks through performance-based pricing, they should know these risks well. Before Rolls-Royce signs a contract with an airline, the company must be able to accurately assess the future strike risk of a customer, just to name one example. The risk probably varies between individual airlines, and even between the number of years a specific company has been in business. Rolls-Royce also needs to know how the customer's flight routes will expand over time. More desert region destinations, for example, mean that the engines require more maintenance because of sand content in the air. As a result, Rolls-Royce must do more than ensure that customers have sufficient resources to buy an engine. Now, the engine maker must assess whether the airline can generate the necessary long-term passenger volume.

In the case of performance-based pricing, suppliers who want to avoid nasty and expensive surprises need to know more about the market situation and customer trends than they did before. In this context, we refer to a supplier's need for a deep customer understanding. It is a prerequisite area of expertise for sales managers, and we visit this topic later in this booklet.

Figure 4.11 summarizes the pricing approaches. They illustrate how risk transfers and payment structures work in the customer's favor.

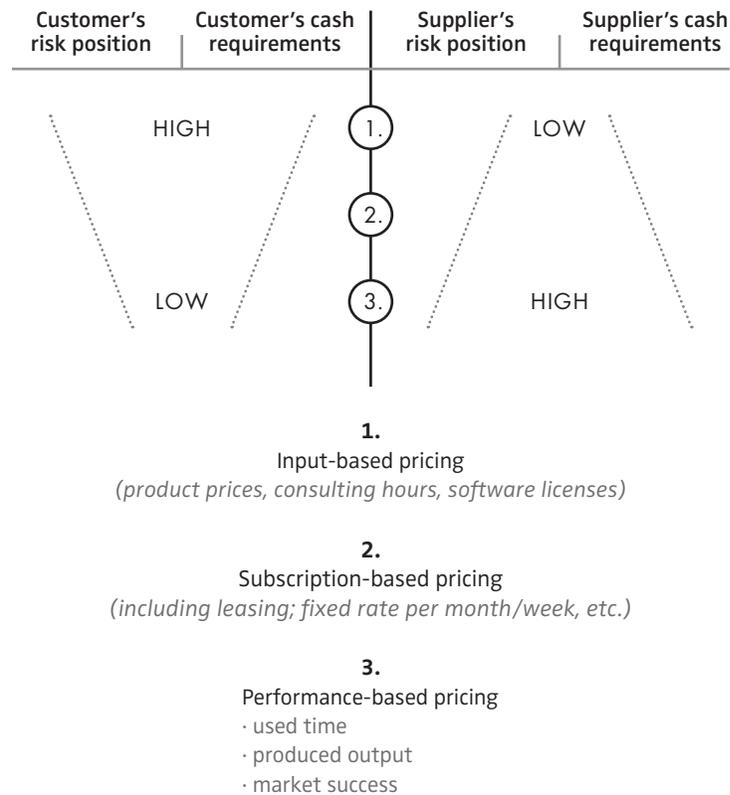


Figure 4.11: Various approaches to pricing of complex service solutions

In addition to its negative impact, performance-based pricing gives suppliers a clear set of advantages. The most important are:

1. Increased purchase likelihood (because customers perceive less risk)
2. Access to usage data (which customers would otherwise prefer to keep to themselves)
3. Market entry barriers for competitors (especially for lower-quality solution suppliers with whom customers cannot achieve any performance improvements)
4. Exceptional revenue opportunities (if the customer achieves exceptional increases in performance)

To illustrate the fourth point, Rolls-Royce's profits increased in the years following its introduction of the power by the hour pricing model to the Royal Navy. The model raised the aircraft's operational readiness from 70 to 80 percent.¹⁷ When a supplier realizes extraordinarily high profits, there is always a question of how long customers will tolerate them. As soon as there are sufficient competitors, customers will pursue more favorable terms once their initial contract has expired. They will take efficiency improvements for granted, and they will only want to allow suppliers to participate in further improvements. This shows that performance-based pricing by no means reconciles the natural conflict between supplier and customer. Both parties will have a common interest in optimizing the shared value-creation process. Yet, negotiations on sharing the related achieved efficiency gains will be just as conflict-ridden as price negotiations in traditional sales processes.

That customers pursue their own interests is a given. Several Soarian projects at Siemens offer some helpful insights. At Soarian, customers could choose to pay for software licenses and consultancy hours at fixed prices or pay based on achieved efficiency improvements. Siemens made several observations. Hospitals that were convinced from the outset that they would achieve the desired efficiency improvements favored fixed-price offers. Customers who experienced internal difficulties in implementing efficiency improvements opted for performance-based pricing. In economics, these phenomena have been analyzed as "moral hazards." They reflect the customer's viewpoint that suppliers are acting opportunistically. The Soarian case example reversed this risk. This forced Siemens to strengthen the sales managers' understanding of their customers. It then adjusted customer assessment and selection processes accordingly.

Yet, even deeper customer insights cannot completely rule out the problem of moral hazard. This also applies to the other supplier risks mentioned above, in which payment is linked to future customer behavior. As long as suppliers are convinced that the opportunities offered by the revenue model outweigh the risks, they will prefer input-oriented pricing approaches. This is in line with the goal of solid growth (i.e., customers pay according to products delivered, hours of consulting, software licenses sold, etc.). In these scenarios, however, it is important to convince customers that the impact of the services business is worth the price. In the context of the perception of risk, suppliers must then reduce the customer's level of uncertainty and create trust through communication activities.

GUIDING MARKETING COMMUNICATION

In order to reduce the customer's level of uncertainty, suppliers must offer targeted information in its marketing communication.¹⁸ What content should these communication measures target?

Whenever companies offer advanced premium products, a large portion of their communication activities are related to their actual products. Marketing materials list the performance data of machine tools, trucks, and gas turbines, showcasing this data at trade fairs. This builds the starting point for subsequent sales discussions, in which salespeople are accustomed to explaining product data in detail. Complex service solutions, on the other hand, only have a few visible product elements that can be put on public display. The solution is created after the purchase decision is made. Even after a supplier has delivered the solution, it cannot be displayed easily in a brochure, on the internet, or at trade fairs. As a result, marketing communication for complex service solutions requires a different frame of reference.

The field of new institutional economics has developed an approach that illustrates the available options. It begins with the assumption that customers seek to reduce the level of uncertainty they perceive during transactions by gathering information about the offering. The approach distinguishes between product performance features that can be verified before or after the purchase decision. In some cases, the extraordinary amount of work involved in verifying each and every performance feature would not make sense. This framework is captured in the matrix structure shown in Figure 4.12.¹⁹

		Ability to verify qualities <i>after the purchase</i>	
		<i>possible</i>	<i>impossible</i>
Ability to verify qualities <i>before</i> the purchase	<i>possible</i>	search qualities	not dealt with
	<i>impossible</i>	experience qualities	credence qualities

Figure 4.12: Ability to verify product qualities

Search qualities can be verified before the purchase. When customers buy a second-hand car from a dealer, they consider specific factors such as the model, trunk size, and color, among other things. However, customers can only test experience qualities after they have completed their purchase. It is at this point that the buyer finds out how repair-prone the car is and how much gas it consumes. Test options like these are not available for a product's credence qualities. One such example is a car's airbag system. When customers sell their cars after a number of years, they typically do not check to see if the system still works. In other words, they buy on trust. In the same way, customers simply have to trust that Soarian will optimize the hospital's workflow processes. They cannot check whether a different process structure would have achieved even better results.

These three product quality categories – search qualities, experience qualities, and credence qualities – create a good foundation for establishing the core marketing communication activities of a supplier. It is important to note first that complex service solutions have a small share of search qualities, as they are only provided once customers have made a purchase decision. There are, however, a few components that can be presented before the purchase decision, such as the solution's standardized, integrated hardware products. Although these items can be communicated to the customer in advance, it may not be enough to significantly reduce the level of uncertainty. Complex service solutions do, however, possess experience qualities. Overall, experience qualities are best communicated through references. Instead of focusing on a solution's specific functionality, communication activities focus on the actual experiences of customers who use, or have used, similar solutions in the past.

This gives rise to two problems for complex service solutions. First, individual projects are difficult to compare because of their high level of customization. This makes it hard for potential customers to draw conclusions about their own projects based on the statements of reference customers. In addition, some customers do not want other market participants to even know that they have been involved in a complex service solution project. They also do not want to reveal the identity of their supplier. This is particularly true when projects have a direct impact on a customer's competitiveness.

Because of the limited communication opportunities for search and experience qualities, credence qualities take on a special role in marketing complex service solutions. In this case, customers do not have access to any related, solution-specific information. Instead, customers have to look at a supplier's credentials and compare the company's reputation with its product offerings. In this case, a complex service solution supplier might want to communicate the company's international locations, its long and venerable history, or its financial strength. Above all, marketing

communication should focus on the people who will manage the projects. Strategy consultants such as McKinsey and the Boston Consulting Group – whose offerings contain a high share of credence qualities – have succeeded in portraying their employees as experts. Their communications strategy is devoted to reinforcing this message. They like to let others know that their recruitment requirements are very tough (see Figure 4.13).

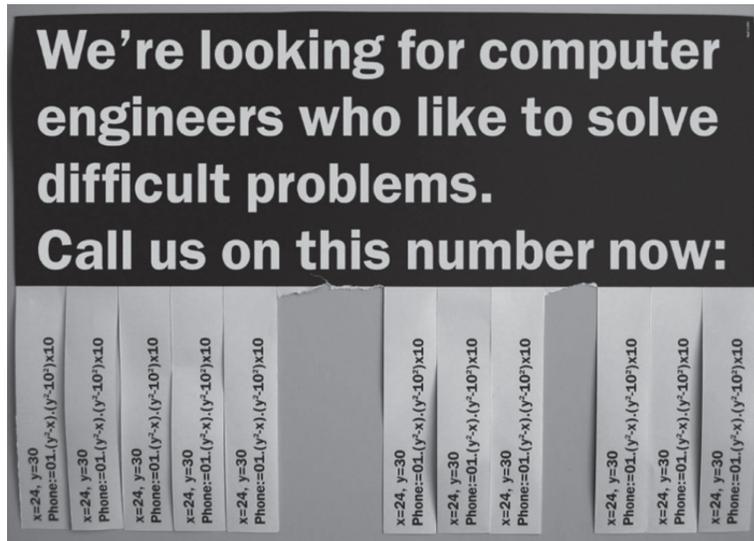


Figure 4.13: McKinsey advertisement

Experienced consultants are also encouraged to build specialist knowledge in specific areas so that they can be positioned effectively in the press. At the same time, the company invests in webcasts and customer conferences to position its employees as professional customer partners among relevant target groups. Another employee-focused communications tactic that consulting firms leverage is to send potential customers the CVs of the consultants who would be working on their project. These CVs often feature the names of renowned universities and outstanding examination results.

All of this information is designed to provide customers with a sense of security, even if the information has no direct bearing on the specific consulting project. To put it

another way: Because customers cannot check the complex service solution before making a purchase decision, they rely on information about the supplier instead. They use this as a basis of trust to compensate for the lack of information. This reduces the level of uncertainty before making a purchase.

A complex service solution supplier must use communication that does justice to this logic. Customer trust can relate both to the company as a whole and to its employees in detail. Corporate trust is closely related to brand management, which we covered in Booklet 2 on advanced premium products. Consistency, authenticity, and longevity are the key aspects here. The image and reputation of well-known technology companies such as IBM, Siemens, and GE provide excellent opportunities for employing brand-stretching tactics. They help leverage the company's brand for complex service solutions. The same applies to the strong reputations of hidden champions in their respective market niches.

Nonetheless, it is ultimately the level of trust between the employees of the customer and the supplier that drives the purchase decision. Given the limited scope for control, customers must be convinced of the commitment and integrity of project participants. Customers must also be confident that the implementation leadership for complex service solutions will remain committed to project success at all times. They expect the supplier to stick to the agreed course of action – even when the customer's employees or others put them under pressure. In addition, customers must be confident that the supplier's employees will treat internal information confidentially. This confidence must even extend to potential projects that involve a customer's competitors, clients, or suppliers.

The customer's expectations of trust toward a specific person are primarily centered on the behavior of a specific individual who has been assigned a project. In doing so, the customer assumes that the trusted individual will not damage these bonds of trust in specific situations. Numerous studies have been conducted to investigate how those involved in a customer-supplier relationship can build trust.²⁰ Consider the following three key aspects:

1. Social similarities among the involved parties are an important factor in building trust. This does not mean that the supplier's employees have to adopt the values and attitudes of the customer for a given project at the expense of their own authenticity. However, social similarities can play a role during the selection of staff for complex service solutions. For example, suppliers with an international customer base should hire employees with diverse backgrounds and take cultural similarities into account when setting up project teams.

2. Reciprocity engenders trust. In other words, one party is more likely to trust the other party when it also feels trusted. Experiments in game theory in particular have shown that people who extend trust receive trust in return. By contrast, general mistrust is a surefire recipe for generating an impasse.
3. Like corporate brands, behavioral consistency plays a key role in building trust. Consistency is used to predict how a supplier will act in the future. In other words, the more often people prove their trustworthiness, the more consistent their image will be. As a result, customers will be more likely to trust that such behavior will be consistent and used during future projects. Such experiences usually develop over the course of long-term business relationships. The fulfillment or breaking of promises takes on enormous significance. This aspect plays a prominent role in the acquisition process, in which rash promises are made, sometimes just to win a contract. Trust is fragile. A single breach of trust can quickly destroy a relationship that has been built up over a lengthy period.

It is important to maintain trusted relationships with customers, even after they have made a purchase decision. This is particularly important with complex service solutions. First, the relationship is necessary to answer open questions and manage conflicts that will arise in the subsequent phases of collaboration. A trusted supplier relationship increases future customer sales opportunities. Finally, this kind of relationship can be used as a reference to acquire additional customers.

Levels of trust rise when promises are kept. Customers must be able to see, however, that this is the case. When introducing a complex service solution and delivering the work, customers' employees are often so focused on their own contributions that they lose sight of the solution's value for the company and the supplier's services. Suppliers need to counteract this by initiating communication processes with the customer on their "value-in-use."²¹ By doing so, suppliers can improve customer satisfaction. At the same time, suppliers can increase the customer's awareness of their performance contributions. While problems and disappointments are likely to be addressed, research has shown that addressing customer dissatisfaction can have a positive impact on the supplier.²² Customers feel that they are being taken seriously. At the same time, suppliers can analyze a complaint – even if the issue does not fall within their area of responsibility. On this basis, they can clear up misunderstandings, address customers' disappointments, and initiate improvement processes in their own company. Each element works together to strengthen a customer relationship that is built on trust.

SHAPING THE SALES PROCESS

The role of trust in purchase decisions for complex service solutions and the need to co-create with customers impact the way businesses organize the sales function. The first fundamental question is: Who should drive the sales? A company's own employees or external trading partners? Careful consideration should be given if it is the latter. From the outset, it is unlikely that external partners can develop the necessary competences to market complex service solutions. Given the necessary investment requirements, these partners may not even want to do so. In addition, complex service solution suppliers are not anxious to see a mediator positioned between themselves and an industrial customer. This is not just about reducing the manufacturer's margin or increasing the price to the customer. More importantly, communication for complex service solutions is highly complex, even in the acquisition phase. Intermediaries can quickly create misunderstandings, especially if they do not have the necessary skills. In addition, customer relationships created through close collaboration are one of the reasons that many industrial companies offer complex service solutions in the first place. They pose higher barriers to entry for competitors. This fact alone is why industrial companies only reluctantly share customer relationships with dealers, particularly if they do not guarantee exclusivity.

In this respect, direct sales are suitable for the suppliers of complex service solutions. But how do suppliers orchestrate that in a global context?

Even before submitting an offer, suppliers must know their customers, processes, and resources well. Suppliers can achieve this more quickly if they are close to the customer and belong to the same culture. Because of the high level of investment associated with building up their own on-site sales resources, complex service solution suppliers should also focus on the most promising countries. Once there, they should identify and proactively target the most promising customers. Acquisition efforts for customers who do not fit into the supplier's target profile should be avoided. This is because demand analyses for complex service solutions are personnel-intensive during the acquisition phase. Only a few employees have the necessary expertise. Staff shortages may exist because employees have to perform analyses of customer needs and create quotes. They must also realize the project once it has been awarded.

This recommended approach addresses the potential friction during the analysis of customer needs, acquisition-phase promises, and the subsequent implementation. The second and more important reason is the customer's uncertainty before purchasing a complex service solution. As discussed above, the supplier's employees should counteract this by gaining the customer's trust in their competence and actions. If this succeeds, customers will feel that they are in good hands. They will be irritated and

disappointed, however, if these same employees are not involved in the project's implementation following the purchase decision. A patient facing a heart operation offers a poignant, albeit somewhat exaggerated comparison. Who would the patient rather talk to: the surgeon performing the operation or the hospital's sales representative?

Strategy consultancies such as McKinsey and the Boston Consulting Group know this. Both companies have branches and partners in all relevant countries, and they maintain strong contacts with potential local customers. These relationships come into play when their corporate management needs advice. The partners who acquire the customer are usually responsible for the project's subsequent implementation. Although they are supported by other employees with comparable consulting experience, it is the partners who remain the customer's central point of contact at all project stages. Sales and production are thus rolled into one. This organizational approach is recommended for the distribution of complex service solutions, but it is unusual for traditional industrial companies.

Traditional industrial companies have always been organized into sales and production. Truck salespeople, for example, may not even know where their product's parts were manufactured, where the body and engine were assembled, or how the vehicle paint was applied. Similarly, managers of development and production divisions may know nothing about target customers, prices, and business models. Unlike consulting firms, there are "silo boundaries" between the individual functional areas: Managers of one area often show little interest in other colleagues' tasks. In addition, senior managers in development and production sometimes enjoy a higher status than their sales colleagues. Being promoted to partner at a consulting firm, though, includes the responsibility for sales.

However, as industrial companies edge closer toward developing complex service solutions, it is not necessary to immediately establish direct distribution channels or even merge sales and production. In the case of existing trading partners and traditional sales areas, it is better to not confront a customer's employees and seek their support in pursuing radical change. As long as the new offering's complexity is limited, training can compensate for a lack of expertise. As the level of complexity increases, traditional sales resources should only act as a door opener. This will help bring customers together with the supplier's team of appropriate experts. So-called double counting incentives can be helpful in this regard. They provide financial incentives for both sales colleagues and experts in complex service solutions.

This is how the previously mentioned truck manufacturer, MAN, pursues its own digital offering under the name RIO. The simpler set of digital offerings are designed to improve MAN's truck and operating costs, and they are marketed by existing trading partners. But for customers who need digital solutions to optimize an entire vehicle fleet, MAN engages a team of its very own experts. This becomes all the more important if the vehicle fleet is not exclusively made up of MAN vehicles, and if the customer has to establish digital connectivity to other partners. The customer does not enter into a contract for such a solution with a trading partner, but directly with MAN.

This approach is nonetheless challenging. Conflicts are inevitable between external trading partners, the traditional sales force, and the business managers responsible for the new digital services. However, as long as complex service solutions become more strategically important and traditional offerings less so, difficult adjustments will have to be accepted. It is important to find a balance between achieving strategic goals and balancing the interests of those involved. When companies remain trapped by traditional structures for too long, necessary changes take place too slowly. Yet, by ignoring traditional structures, businesses run the risk of suffering losses in the traditional business areas, as well as failing to win new business.

In order to remedy these conflicts and their underlying problems, market participants must first be able to recognize them correctly. Within this context, we conducted a research project in 2019, in which we surveyed around 120 managers from 25 global industrial companies. The diverse set of individuals represented different hierarchy levels and regions. We interviewed people in roles ranging from CEO to sales representatives, with a focus on the United States, Western Europe, and China. As it turned out, none of the participants were satisfied with the sales success of their digital service offerings. We were able to assign the causes to four areas: the customer; the sales manager's lack of motivation; the sales manager's inadequate competence; and the company's inadequate framework factors. Participants were quick to mention elements in all four areas. Customers did not recognize the value of innovative offerings. There were no suitable incentive systems for sales managers, whose knowledge of digital technologies was inadequate. At the same time, the company did not invest enough in resource development.

Using in-depth analysis, we were able to identify more fundamental issues behind these initial arguments. It became clear, for example, that customers were merely using the missing customer benefit as an argument of convenience. In fact, customers shared a number of deeper, underlying concerns. They were overwhelmed by the purchase decision. They resisted the organizational changes associated with the purchase. Finally, they wanted to prevent suppliers from gaining too much insight into

their company's processes. The sales team's motivation revealed fears that the new digital services would not be reliable, and that customers would experience long-term dissatisfaction. There were also reservations about sharing customers contact information with other colleagues, especially with teams of experts from headquarters. Some salespeople simply did not have time to deal with the new offerings because their business was already at capacity. At the same time, customer sales discussions on innovative offerings took up an above-average amount of time.²³

When it came to salespeople's lack of competence, the study found that the problem went beyond having too little IT knowledge. Although sales representatives stated that they knew their customers' companies well, they could not recognize any concrete improvement potential in their own value-creation process. In addition, there appeared to be social-skill deficits, particularly in communicating with the top management of large customers.

When it came to framework factors within the company, it became clear that the lack of focus was largely to blame for inadequate investment in resource development. A small number of experts were confronted with too many inquiries. This included projects that, upon closer analysis, did not promise much success. Another reason involved the sales managers themselves, who set unrealistically high sales targets when launching new offerings. They also attributed their company's corporate culture and management style – as well as excessive influence from headquarters – as reasons for unsuccessful business development.

It was remarkable that the differences between regional cultures were less relevant across all responses than those between hierarchy levels and functional areas. Figure 4.14 offers an overview of the most important problems identified in this research project.

	Customers	Sales force willingness	Sales force ability	Corporate framework
Obvious reasons	Perception: Value too low → no willingness to pay	Incentives not attractive enough	Lack of IT competence	Insufficient pre-investment in resources
Beyond the obvious	Organizationally not prepared for the buying decision	Time constraints due to full pipeline (with cash cow business)	Does not understand customer's processes, goals, etc.	Overly optimistic revenue and profit expectations
	Perception of high risk concerning expected changes	Concerns about negative impact on cash cow business	Missing contacts and skills for consultative C-level selling	Focus on plan fulfillment / no error management culture
	Resistance to share (further) insights	Fear of status loss due to team approach	Lack of teamwork skills	Decision-making processes too centralized

Figure 4.14: Problem areas of industrial companies in the marketing of additional digital offerings

These problems not only led to lower sales, they also put the core business at risk. Salespeople who do not properly understand new offerings – yet strongly promote them to customers – run the risk of making false promises out of ignorance. If customers are later disappointed because expectations have not been met, they may call the supplier's other product areas into question. A similar situation emerges if too few resources have been created to provide the service offerings.

Managers can overcome these problems by taking a number of actions. Some of these have already been mentioned above. They include proactively choosing suitable customers, introducing double counting incentives, and systematically developing the trust of customers. To take a closer look at these challenges, we now turn to the topic of skill requirements for sales and project management.

The sales and project manager's competence profiles for complex service solutions are demanding. In addition to in-depth knowledge of customers and their markets, technical expertise is also required – particularly in the field of modern information and communication technologies. Instead of having an in-depth mastery of specific technology elements, it is more important for these employees to have a sound overview of a technology's strengths and weaknesses among various settings. This requires "all-rounders," which is a challenge, given the high degree of specialization among engineers. In addition, solid business knowledge is necessary. This is because the customer's top management team is involved in the purchase of complex service solutions. These individuals are typically more interested in key business indicators than in technical contexts. If managers follow our recommendation and combine the sales and implementation tasks into a single role, then those team members will also need the required knowledge concerning project and cost management. Fortunately, employees can develop competences in these areas largely through training activities. There are only a few hard-to-understand elements that are based on practical knowledge. Among them is so-called tacit knowledge, a skill which cannot be taught.²⁴

Acquiring extensive specialist skills does not guarantee that employees will use them with customers. This requires social skills, or so-called soft skills. Because complex service solutions are tailored to customers' specific needs, cognitive empathy is particularly important. Unlike emotional empathy, which enables a person to feel what others feel, cognitive empathy enables a person to know how others feel. It helps sales and project managers to identify problem areas within a customer's business that are not obvious. Although managers should exercise cognitive empathy with a certain amount of social distance. This will help managers to objectively evaluate the customer information they have received. They can then draw conclusions that are independent of personal sympathy or antipathy.

The social competence to understand another person's mindset and interests goes hand in hand with communication. The sales process of traditional industrial companies focuses on making compelling product presentations. Yet, when it comes to complex service solutions, managers need to be able to ask the right questions. This is the only way to determine specific customer requirements. Training courses on "consultative selling" help to develop these skills. Another communication element is the ability to use a didactic approach in conveying knowledge that customers need for the co-creation process. At the very least, the same should apply to project managers toward their colleagues. After all, not all project team members will have the necessary knowledge from the outset. This, in turn, is a strong indication that project managers must have leadership skills when dealing with their own employees as well as their customers. These skills can then be combined with critical core values, among them

integrity, authenticity, and intercultural openness. Figure 4.15 illustrates the wide range of complex service solution requirements that sales and project managers have to meet.²⁵



Figure 4.15: Sales manager requirement portfolio for complex service solutions

In order to meet this wide range of requirements, managers can build multi-disciplinary teams. The individual members' abilities will not address all areas. Instead, they will complement one another. In order to be able to lead these types of teams successfully, managers themselves should possess as many of these skills as possible. This will ensure that no skill sets are completely absent across individual areas. It is difficult for industrial companies to find such employees on the job market. That is why it is all the more important for complex service solution suppliers to ensure that such employees are on board, feel comfortable, and do not switch to competitors. This touches on cross-company issues that go beyond the sales and project management perspectives.

ALIGNING THE COMPANY

When companies make everyday statements on why it is important to retain competent employees, it is often little more than lip service. Talented people can and do leave industrial companies with established products in the marketplace. Yet, it does not threaten these businesses' existence. For complex service solutions, the situation is different. That is why human resources (HR) management for these companies is a top priority. It is not enough to hire employees, develop them, and cultivate their loyalty. Managers must also terminate employees who are not suited for their role. Tom Miller's poignant quote from the first section of this booklet captures the challenges of human resources during the introduction of complex service solutions: "We underestimated how different the portfolio of skills in our people were required. The people from the traditional business did not even have the right skills to interview the necessary candidates." That is why managers should provide training courses to employees who are directly involved in the value-creation process of complex service solutions, as well as those who work in related administrative areas.

Good HR work includes freeing employees from activities to which they cannot add value. This includes the internal digitization of standard activities. On the one hand, this has an impact on internal processes. That is why HR managers should not only focus on saving resources in administrative areas, but also ensure that employees in operational areas are actually given the proper amount of support. In addition, processes between customers and suppliers must be digitized, at least to the extent that customers are willing to accept it. This can include ordering hardware replacement parts or upgrading the necessary software after implementation of the solution. If the customer buys these elements separately, the supplier's sales staff or external sales partners no longer need to provide personal support. Instead, these purchase processes can be increasingly managed via e-business platforms. This generates cost savings for customers and suppliers alike.²⁶

In order to optimize process digitization, customers will require the right IT systems. Suppliers must keep these IT landscapes up to date with the latest technology. Because these systems are in a constant state of development, this is not a trivial task. Additional complications come into play. For example, the new system must be compatible with the customer's existing IT landscape. After all, these two systems may operate under different technical standards or follow different national compliance regulations. This puts demands on the supplier's IT systems and employees that go well beyond the typical functions of an industrial company's IT department. In addition, complex service solution suppliers have the role of keeping their digital landscapes up to date – a task that is not reserved for the IT department alone. Digitization should involve all corporate business areas with responsibility for complex service solutions.

Accordingly, a Chief Digital Officer should be as dispensable as a Chief Profit Officer. Digitization must come as naturally to everyone as making profits. Managers do not need to develop a separate "digital strategy," because technical development must be an integral part of all planning processes.

Transforming a traditional industrial company requires more than the necessary technical and organizational changes. Managers also have to transform their corporate culture. Critically, that culture must fit the business. If technical and market factors change quickly, agility is one of the most important traits a corporate culture can have. It becomes a tangible factor, both for the speed in which decisions are made and the willingness of employees to adapt to change. For leadership, agility means accepting changes in planning – a skill that is rarely found in industrial companies. "Established companies don't want just plans; they want managers who stick to those plans. They often reward people for doing what they committed to do and discourage them for making changes as circumstances warrant."²⁷

In addition to agility, managers have to be able to openly handle failures and mistakes. Managers must be role models in this regard, in spite of the regional differences in this type of cultural expression. In Asian and Western European cultures, failures and mistakes are viewed as flaws. This has a negative impact on managers' careers. As a result, these leaders tend to keep their errors secret. In North America, people are more open. This is the region where "fuck-up nights" have actually been introduced, in which managers publicly showcase their errors and take responsibility for them so that others may learn. In this respect, it is not surprising that Tom Miller, who disclosed the missteps made during the launch of Soarian, is an American.

When managers deal with mistakes so openly, there is no excessive hierarchical orientation. This does not match the organizational structures required for complex service solutions, which are characterized by flexible project teams. Instead of being fixated on instructions from above, the employees involved must be willing to take responsibility for corporate decisions themselves. In order to accelerate this, many industrial companies have held training courses on "entrepreneurship" over the past few years.

Agility, entrepreneurship, and fuck-up nights: These catchwords seem to offer industrial companies the very model that startups frequently use when they launch complex service solutions. Yet, it would be wrong to adopt this mindset wholesale. High startup insolvency rates alone make them inappropriate role models. If industrial companies actually did succeed in enforcing entrepreneurship values among managers, there is a risk that these very employees might leave the company to start their own.

Instead, industrial companies that want to achieve solid growth with complex service solutions have to find the right balance. This cannot be based on corporate culture alone. Although it is true that these businesses will have to become more flexible and agile in some areas – and that managers need to be less risk-averse in their investment decisions – industrial companies are different. They have greater social responsibility than startups because of the sheer number of employees. Managers need to understand that poor decisions may endanger their company's very existence. Quality management should reflect market requirements and not, as is usual among startups, receive secondary priority. Even if an industrial company took its new offerings to market with a "fake it till you make it" mindset (as it is known in the IT industry), it would impact their trustworthiness in other business areas. Such differences between traditional industrial companies and startups are primarily based on different business objectives. Whereas industrial companies are interested in solid growth and a sustainable existence, many startup owners want to make a lot of money quickly by selling their company in the short and medium term.

Industrial companies that want to market complex service solutions in addition to their established business must therefore find the right balance between modern digital culture and traditional industrial culture. A central question in this context is whether the new business should be an integral part of the existing organization or whether it should be managed separately. Under an integrative approach, there is a risk that the new business will not be able to develop and realize new ideas under the dominant, traditional structures of the parent. Yet, a detached model means that valuable synergy potential may remain unused. In Booklet 5, we revisit the topic of group strategy. In the meantime, we take a closer look at Beumer Group and its approach to overcoming this dilemma.

Beumer Group is a medium-sized industrial company in Beckum, Germany. Its products include luggage conveyor belts for airports. This company recognized that digital technologies would change its traditional business. In order to not lag behind market developments, two new organizational units were created. The first is BG.evolution – a business unit that develops digital services to improve and gradually expand the company's traditional offerings. It is based in Dortmund, near the corporate headquarters. The teams at BG.evolution developed an application that allows airport personnel to find no-show passengers' luggage items in the aircraft hold more quickly. BG.evolution first developed a simple prototype (i.e., a minimally viable product that the company could demonstrate to interested customers). Subsequently, the development department of Beumer Group's traditional business division assumed responsibility for this digital innovation. It was then further refined and adapted to meet the application requirements of individual airports. Beumer was convinced that

generating digital ideas requires a different cultural environment than when implementing them at scale. To this day, those responsible for the established business regard BG.evolution as a young, creative think tank for digital experts with the role of an internal supplier. At the same time, the parent company is not compelled to adopt every idea that BG.evolution develops.

BG.challenge, a different unit of Beumer, though, provides an important counterweight to the internal supplier role. This legally independent unit develops complex service solutions that are designed to deliberately challenge Beumer Group's current business. The unit is working on logistics systems, for example, that allow passengers to drop off their luggage at home or in the shop around the corner. They only reclaim their bags once they arrive at their destination. This would either render airport luggage conveyor belts obsolete or cannibalize the existing business. A young, creative group was set up at BG.challenge. It was located in Berlin, far from headquarters. BG.challenge reports directly to the head of Beumer Group. By adopting this reporting structure, this senior executive is not seeking to avoid disruptive innovations in the company's core business market. Instead, he is seeking to proactively engage and influence them.

By establishing two new business units with different levels of independence from the parent company, Beumer Group tries to find the right balance between its digital and established businesses. In doing so, the company is putting the O'Reilly and Tushman approach into practice. Accordingly, businesses in the "exploitation" phase are pursued differently from those in the "exploration" phase.

Beumer Group regards this solution as a success but remains open to adaptations. Because of the rapid developments in markets and technologies, managers understand that organizational balance must be found again and again. Change is inevitable. Yet, companies often struggle with change. This is one of the reasons that complex service solutions do not always succeed. Consider the problems in the Soarian case mentioned above and Rolls-Royce's financial difficulties in its aircraft turbine business.

There is another side of the coin to these examples. Rolls-Royce has been generating losses with its power by the hour business over the past few years. GE, in contrast, has been posting profits. In 2014, Siemens was happy to be able to sell the Soarian loss-maker to Cerner, which made profits. In addition, despite the bad experience with Soarian, Siemens Healthineers now offers similar complex service solutions and has been successful. Rolls-Royce has recently introduced changes that will improve its business in the aircraft turbine sector again. These developments reveal two critical insights. First and foremost, complex service solutions are neither completely profitable nor loss-making in and of themselves. Instead, their success largely depends on how

they are managed. Finally, despite bad initial experiences, traditional industrial companies see digital transformation as an inevitable strategy for the future. They approach this change with a strategic mix of caution and optimism. Their mindset is reflected in the prescient axiom: “Digital is dangerous. But analog is deadly.”

1. V.A. Zeithaml, A. Parasuraman, and L.L. Berry, “Problems and Strategies in Service Marketing,” *Journal of Marketing* 49, no. 4 (1985): 33–46.
2. Ulaga and Reinartz also refer to hybrid offerings in this context. The focus is only on goods and services, however. They are less geared toward software or digital solutions. See W. Ulaga and W.J. Reinartz, “Hybrid Offerings: How Manufacturing Firms Combine Goods and Services Successfully,” *Journal of Marketing* 75, no. 6 (2011): 5–23.
3. M.E. Porter and J.E. Heppelmann, “How Smart, Connected Products Are Transforming Competition,” *Harvard Business Review* 92, no. 11 (2014): 64–88.
4. B.H. Wixom and J.W. Ross, “How to Monetize Your Data,” *MIT Sloan Management Review* 58, no. 3 (2017): 10–14.
5. D. Kahneman and D. Lovallo, “Timid Choices and Bold Forecasts: A Cognitive Perspective on Risk Taking,” *Management Science* 39, no. 1 (1993): 17–31.
6. C.A. O’Reilly and M.L. Tushman, “The Ambidexterous Organization,” *Harvard Business Review* 82, no. 4 (2004): 74–81.
7. J. Dannenbaum, L.M. Edinger-Schons, M. Rese, O. Plötner, and J. Wieseke, “What Does It Take to Successfully Implement a Hybrid Offering Strategy? A Contingency Perspective,” *Journal of Management Research* 4, nos. 2–3 (2020): 100–20.
8. R.M. Yerkes and J.D. Dodson, “The Relation of Strength of Stimulus to Rapidity of Habit-formation,” *Journal of Comparative Neurology and Psychology* 18 (1908): 459–82.
9. T. Brown, “Design Thinking,” *Harvard Business Review* 86, no. 6 (2008): 84–92. M. Kupp, J. Anderson, and J. Reckhenrich, “Why Design Thinking in Business Needs a Rethink,” *MIT Sloan Management Review* 59, no. 1 (2017): 41–44.
10. Since the publication of Vargo and Lusch in 2004, a new theoretical paradigm has even developed in management science under the keyword “service-dominant logic.” See S.L. Vargo and R.F. Lusch, “Evolving to a New Dominant Logic for Marketing,” *Journal of Marketing* 68, no. 1 (2004): 1–17.
11. G.L. Shostack, “Designing Services That Deliver,” *Harvard Business Review* 62, no. 1 (1984): 133–39. M. Kleinaltenkamp and S. Fliess, “Blueprinting the Service Company: Managing Service Processes Efficiently,” *Journal of Business Research* 57, no. 4 (2004): 392–404.
12. Twenty years ago, Wise and Baumgartner analyzed the difference between a product’s value at purchase and its value throughout the lifecycle for a variety of industrial assets. They found that the costs for working with locomotives are 21 times higher than their purchase price. R. Wise and P. Baumgartner, “Go Downstream. The New Profit Imperative in Manufacturing,” *Harvard Business Review* 77, no. 5 (1999): 133–41.
13. R.A. Bauer, “Consumer Behavior As Risk Taking,” in *Dynamic Marketing in a Changing World*, ed. R.S. Hancock (Chicago, IL: Proceedings of the 43rd Conference of the American Marketing Association, 1960), 389–98.
14. R.B. Cialdini, *Influence: The Psychology of Persuasion* (New York, NY: William Morrow and Company, 1984).
15. Gartner Group, cited from *manager magazine*, July 2019, 96.

16. See B. Hochstein, D. Rangarajan, N. Mehta, and D. Kocher, "An Industry/Academic Perspective on Customer Success Management," *Journal of Service Research* 23, no. 1 (2020): 3–7; or A.A. Zoltners, P.K. Sinha, and S.E. Lorimer, "What Is a Customer Success Manager?" *Harvard Business Review* (2019). Retrieved from <https://hbr.org/2019/11/what-is-a-customer-success-manager> (accessed December 20, 2019).
17. D.J. Smith, "Power-by-the-hour: The Role of Technology in Re-shaping Business Strategy," *Technology Analysis and Strategic Management* 25, no. 8 (2013): 987–1007.
18. In the marketing theory context, or new institutional economics to be more precise, one refers to signaling. See also M. Spence, "Job Market Signaling," *Quarterly Journal of Economics* 87, no. 3 (1973): 355–74.
19. P. Nelson, "Information and Consumer Behavior," *Journal of Political Economy* 78, no. 2 (1970): 311–29. M. Darby and E. Karni, "Free Competition and the Optimal Amount of Fraud," *Journal of Law and Economics* 16, no. 1 (1973): 67–88.
20. O. Plötner, *Das Vertrauen des Kunden – Relevanz, Aufbau und Steuerung auf industriellen Märkten* (Wiesbaden: Springer Fachmedien, 1995).
21. It was Adam Smith who actually introduced the concept of "value-in-use." Smith distinguishes between the "value-in-exchange," which is based on the comparison of buying alternatives, and the "value-in-use," which is the customer's resulting value creation. The latter is also increasingly used in current marketing science, in particular by matching the expected value in use and the experienced value in use. See A. Eggert, M. Kleinaltenkamp, and V. Kashyab, "Mapping Value in Business Markets: An Integrative Framework," *Industrial Marketing Management* 79 (2019): 13–20.
22. J. Ferguson and W. Johnston, "Customer Response to Dissatisfaction: A Synthesis of Literature and Conceptual Framework," *Industrial Marketing Management* 40, no. 1 (2011): 118–27.
23. In a cross-sector study, for example, Steenburgh and Ahearne found that salespeople should expect to invest an average of 35 percent more time in this area. T. Steenburgh and M. Ahearne, "How to Sell New Products," *Harvard Business Review* 96, no. 6 (2018): 131–39.
24. Scientists refer to the concept of tacit knowledge. See Y. Soliman and H. Vanharanta, "A Model for Capturing Tacit Knowledge in Enterprises," in *Advances in Human Factors, Business Management and Leadership*, ed. T. Ahrum and W. Karwowski, International Conference on Applied Human Factors and Ergonomics (Cham: Springer, 2019), 141–48.
25. In the second section of this booklet, we also spoke of "smart skills." This is a key success factor for this strategy option.
26. P. Guenzi and J. Habel, "Mastering the Digital Transformation of Sales," *California Management Review* 62, no. 4 (2020): 57–85.
27. R.M. Kanter, "Innovation: The Classical Traps," *Harvard Business Review* 84, no. 11 (2006): 72–83.

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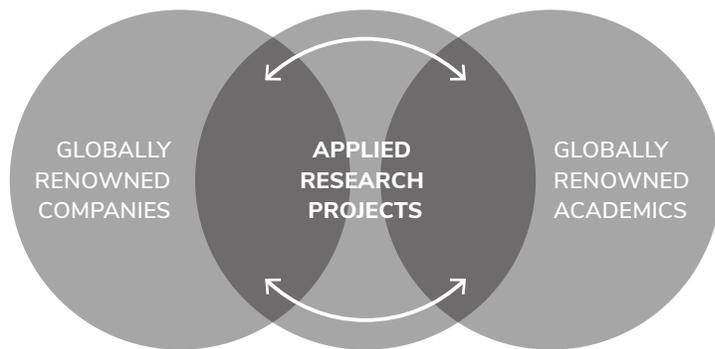
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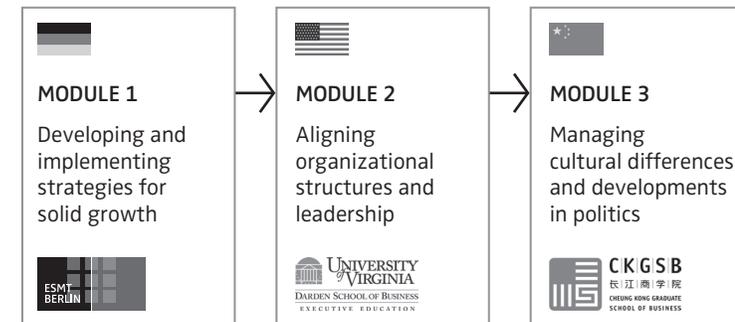


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