

# Connected Machines and Servitization

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## KEY TAKEAWAYS

- Servitization, data monetization, and digital services are gaining momentum in the manufacturing sector.
- As companies develop servitization initiatives, they must address customer, operational, and financial concerns.
- Digital services add new dimensions to customer relationships.
- Since servitization impacts the entire organization, taking a holistic approach to implementation is essential.
- Companies need to generate support for digital service initiatives and then ensure their long-term sustainability.
- To get started with servitization, manufacturers must understand their customers, conduct benchmarking, and monetize their install bases.

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## OVERVIEW

In the next three to five years, 75% of industrial B2B supplier manufacturers expect services to be a significantly bigger part of their business, with revenue from “advanced service contracts” anticipated to more than double by 2024. Across industries, legacy products without digital features are losing out in the marketplace. In response, manufacturers are developing connected product solutions that provide proactive predictive maintenance, production optimization services, and “outcomes-as-a-service.” Successful servitization initiatives depend on a holistic approach. This includes deeply understanding customers and the competition, as well as engaging all parts of the organization to support a comprehensive program.

## CONTEXT

Randy Cox, Daniel Scharfen, and Gahl Berkooz discussed trends and leading practices associated with connected machines and servitization.

## KEY TAKEAWAYS

### **Servitization, data monetization, and digital services are gaining momentum in the manufacturing sector.**

Connected technology is core to the servitization movement. It transforms products into smart, connected solutions with services that go well beyond standard dashboards and diagnostics. Connected technology supports proactive predictive maintenance, product optimization, and outcomes-as-a-service.

Randy Cox highlighted three important aspects of the servitization trend:

1. This movement is business and strategy focused, rather than IT-led.
2. Servitization is accelerating within industrial firms. Surveys have revealed that digital services revenue will more than double between 2019 and 2024. In addition, mature companies reported that 60% to 80% of their profits came from lifecycle services.
3. Manufacturing firms report increased revenue due to digital services and monetization, as well as increases in traditional service and parts revenue. As companies get closer to their customers, they also see higher levels of loyalty and growth in product sales.

Infineon Technologies and ZF Group both illustrate how manufacturing firms are incorporating servitization into their operations.

- Infineon’s power control division sells large insulated-gate bipolar transistor (IGBT) and silicon carbide power modules for high power applications. This division recently created the first service business unit within the company. Infineon offers two types of digital services: simulation-as-a-service and real-time analytics for predictive maintenance. Both of these programs are designed to estimate the lifetime of Infineon products. Infineon’s teams collect massive amounts of data during product development and failure analysis. From this information, they build digital models which are the basis for digital services.
- ZF Group started its digitalization journey about four years ago. The team recognized that test and learn cycles in digital spaces are moving so fast that they can’t be accommodated in the planning cycles and structure of a traditional company. As a result, ZF Group deployed a digital venture accelerator which enables the company to rapidly spin up internal startups. ZF Group currently has four startups in the venture accelerator focused on advanced driver assistance systems (ADAS), field digitalization

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services, carbon dioxide and energy management, and digital bus fleet services. The ZF Digital Entrepreneurial Operating System guides how the start-ups operate and collaborate with different divisions in the company. ZF Group has discovered that digital services generate revenue on their own, but they also boost core business sales.

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**When you incorporate digital features into products, it makes those core products more desirable. We have examples where we have closed traditional OEM business because our products have digital features.**

*Gahl Berkooz, ZF Group*

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## **As companies develop servitization initiatives, they must address customer, operational, and financial concerns.**

Siemens Advanta provides comprehensive consulting and professional services to lead clients through their digital transformation journey. Advanta has found that manufacturing companies often struggle with three challenges when entering the servitization space:

- 1. Customer-related issues.** Teams must segment customers and package new service offerings to meet their needs. Key considerations include pricing and sales strategies, as well as addressing customer concerns about data and cybersecurity.
- 2. Internal operations.** As companies transition to a business built on digital services with an enabling Industrial Internet of Things (IIoT) architecture, some get caught in a cycle of never-ending proof of concepts. Other operational issues include transforming the sales organization into a culture focused on customer value and lifecycle relationships vs. a focus on transactional product sales.

- 3. Financial considerations.** As teams develop new digital service offerings, they must identify the right business model, level of risk, and amount of investment that will be required before the company sees returns. Siemens Advanta Consulting recommends using an agile approach with build and learn cycles. It is also essential to take a holistic view that simultaneously incorporates business, operations, and IT perspectives.

The concept of customer success is also critically important when it comes to servitization. Customer success is pervasive in the software industry and in the years ahead, it will become more important in manufacturing. It requires a company-wide commitment to ensuring that customers are successfully using your products. Suppliers must understand their customers' KPIs that their products drive and enable, and then proactively work to improve those KPIs. Customer success protects revenue, expands relationships, and generates loyalty.

## **Digital services add new dimensions to customer relationships.**

Infineon's digital services are the first of their kind, allowing the system designers at customer companies to perform power and thermal dimensioning, as well as a complete lifetime calculation based on a machine's mission profiles. Infineon recognizes that it cannot provide services that compete against its customers. Instead, it builds digital services that enable customers to design systems faster and differentiate their businesses.

Secure data transmission is also essential. For customers who don't have their own Internet of Things device management system, Infineon offers a cloud service. In some cases, however, interpretation of Infineon's digital models must be performed locally on the machine. Infineon has the expertise to help customers incorporate this functionality into microcontrollers.

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**Our recommendation to customers is don't try to collect data about power semiconductors by yourself. We have that information already because we process more data from these semiconductors than anyone on the planet. By providing data-as-a-service, we can help customers accelerate their activities.**

*Daniel Scharfen, Infineon Technologies*

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Like Infineon, ZF Group has found that its digital services enrich its customer relationships. Servitization establishes the company as a thought leader, opens new markets, and improves the competitiveness of the firm's solutions. ZF Group's ADAS venture, for example, has created a marketplace for ADAS datasets and a transformation marketplace, so data generated in one vehicle program can be applied to another. These marketplaces offer an attractive value proposition, since they accelerate customers' ADAS function development and reduce validation costs.

**Since servitization impacts the entire organization, taking a holistic approach to implementation is essential.**

Servitization affects company strategy, sales, the product team, marketing, engineering, field service, customer support, finance, and more. As a result, organizations must think about these initiatives holistically.

It is helpful to frame servitization strategy around the three innovation dimensions originating from IDEO:

1. **Customer desirability.** It is essential that companies develop services that customers want and value. Co-creation with trusted customers is one way to identify marketable digital services.
2. **Delivery feasibility.** Consider how big a leap servitization will be within the organization from several perspectives—process, organizational structure, responsibilities, culture, and technology.
3. **Business viability.** Evaluate whether the transformation will be profitable for the company and think holistically about this—i.e. not only near-term digital services revenue but also systemic improvement in customer understanding and thus loyalty.

**Companies need to generate support for digital service initiatives and then ensure their long-term sustainability.**

In a traditional company, new projects are based on the accuracy of sales forecasting. That information, however, is unavailable for digital startups. When ZF Group starts a digital business, it develops a hypothesis based on customer problems, market needs, pricing, and synergies within the company. This approach makes the new venture transparent and understandable to everyone in the organization. Bridging that gap is key to generating internal support.

Once a digital service shows potential, it must be incorporated into traditional product roadmaps to ensure that it remains funded and is sustainable over time. Folding digital features into product roadmaps is a focus area for ZF Group in the coming year.

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## To get started with servitization, manufacturers must understand their customers, conduct benchmarking, and monetize their install bases.

The panelists offered three recommendations for both companies that want to start and those that want to expand their digital services:

1. **Start with the customer.** Understand how your products support your customers' businesses and how you can make them even more successful. Visit customers, observe them using your solutions, and take a design thinking approach. What big problems are out there for you to solve?
2. **Perform benchmarking.** Identify what competitors are doing in your industry, as well as what players in adjacent industries are doing.
3. **Monetize the existing install base.** For companies just starting, find ways to derive more revenue from the data coming from your already installed connected products.

[Click here](#) for more information.

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**There's a tsunami on the horizon. If manufacturing companies aren't leaning into the digital transformation around servitization, they risk being consumed. History has shown in industry after industry that the unimaginable can happen. Don't get commoditized. Think big, but take small steps to pursue that vision.**

*Randy Cox, Siemens Advanta*

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## BIOGRAPHIES

### Gahl Berkooz, Ph.D.

Vice President of Data, Analytics, and Monetization, ZF Group

Dr. Gahl Berkooz is vice president of data monetization and venture acceleration for the ZF Group, a \$40 billion global automotive supplier. At ZF he is responsible for delivering revenues from data generated by ZF products and systems, and supervising ZF subsidiaries in Digital and Connectivity. Prior, he was the chief of analytics for General Motors' Global Connected Customer Experience Division, responsible for all data, analytics and data science in the connected vehicle experience (OnStar) and all digital touch points, driving the best customer experience in the industry. Before GM, he established the Information Management and Analytics function at Ford Motor Company. He built the function to over 100 professionals and delivered close to \$2 billion of monetization. He has worked across a variety of industries including aerospace, auto, financial services, defense, and cybersecurity. Dr. Berkooz obtained his Ph.D. in applied mathematics from Cornell University where he demonstrated one of the first applications of big data analytics to analyze and control complex dynamics. He holds a Six Sigma Black Belt and is a graduate of Harvard Business School's General Management Program. He has published with *Harvard Business Review* online, CIO.com, Cambridge University Press, and scholarly journals.

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## Randy Cox

VP/Partner, Digital Consulting, North American Practice Leader, Siemens Advanta

Randy leads the Digital Consulting practice in North America helping clients innovate, grow, and leverage emerging technologies such as IIOT, cloud, data analytics, and cybersecurity. He serves clients in the automotive, manufacturing, smart building, and energy industries. In helping clients transform from a product-focused business to one that is driven by enabling their customers' success, he relies on project experience in the areas of product development, strategy, quality, sales, customer experience, and analytics. Prior to joining Siemens, Randy was the VP of consulting with CDK Global (the largest provider of automotive dealership software), a partner with IBM Global Business Services, and a consultant with EY. He began his career as an engineer designing HVAC systems for large industrial facilities. Randy earned a B.S. in Mechanical Engineering from Washington University and a M.B.A. from Cornell University.

## Daniel Scharfen

Vice President BI & Systems, Infineon Technologies

Since mid-2021, Daniel Scharfen has been vice president of the industrial service business in Infineon. This new approach covers both digital and non-digital services which enhances the traditional industrial semiconductor business of Infineon. Before this, he was responsible for the strategy development of the industrial division of Infineon as a vice president and head of business and market intelligence for high power semiconductors. This function was accompanied by the task of heading a system marketing organization to connect application solutions with the product level of the organization. In earlier years, Daniel was active in various management roles in marketing and business development for telecommunication markets in Infineon and Lantiq. Before his marketing career he built technical knowledge in former R&D positions in application engineering in the area of data transmission, IP networks, and M2M communication as well as IoT.