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DIGITALIZATION AND SHARED SERVICES

The Roadmap towards a
"New End-to-End"

How digitalization and automation transform the value chain for shared services
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How digitalization and automation transform the value chain for shared services

Contents

Introduction

Digitalization, i.e., the use of digital technologies in business and society, is one of the most fundamental drivers of change for companies in the 21st century.

Novel digital technologies enable companies to further improve service performance and are the basis for innovative products and services. To remain competitive, companies initiate a digital transformation and continuously adapt their capabilities to use these digital technologies. The challenge is also of high relevance for the shared service sector: Organizations that capitalize on new digital opportunities can expect long-term benefits, including greater transparency, hyperautomation, and forward looking staff – all of which increase the service organizations' efficiency as well as effectiveness. More importantly, shared service organizations that seamlessly integrate service capabilities with digital technologies may provide a new dimension of end-to-end business process experience for their customers, and, thus boost the organizations' all-round performance and positive perception.

Optimized processes being one of shared services' major value propositions over the last decade, the operating model in the shared service sector appears well-placed for leveraging novel digital technologies. For example, Siemens Global Business Services (GBS) has been continuously scrutinizing its operating model for using innovative technologies, e.g., Artificial Intelligence (AI), Business Process Management (BPM)

Optimized processes being one of shared services' major value propositions over the last decade.

platforms, and Robotic Process Automation (RPA), and thus has become a pioneering organization when it comes to value creation through digital transformation. This paper describes how digitalization and automation transform the value chain for shared service organizations, from shared service centers to digital solution providers that enable a "New End-to-End" experience for their customers. The paper explains the fit of shared services' operating model for leveraging digital technologies, and introduces three of these digital technologies, RPA, BPM and AI, and their application for value creation for the customers.

The remainder of this paper is structured as follows. Chapter 2 defines "digitalization" as a megatrend that shapes businesses and society and describes the impact of digital technologies on the shared services sector. Chapter 3 depicts the journey of shared services, from transactional shared service centers towards a provider of a unique, end-to-end business process experience. Chapter 4 focuses on the strengths of shared services to mobilize their operating model as a platform for new digital technologies. Chapter 5 presents three digital technologies, RPA, BPM, and AI as well as their value contribution for customers. The paper is concluded with a summary of Siemens Global Business Services.

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Digitalization: a 21st century inflection point

Companies need to embrace digitalization and accomplish the digital transformation jointly with their employees. Organizations' future competitiveness depends on it.

The advancing digitalization of industries and societies is one of the megatrends that shape the 21st century. The megatrend parallels the industrial revolution in terms of its significance and the scale of its impact (cf. Boes, Kämpf, Tobias, Langes, Barbara & Lühr, 2018, p. 11). The description of digitalization as an inflection point facing business and society therefore appears adequate. The new information and communication technologies that come with digitalization are penetrating, integrating, and changing every area of life and commerce (cf. Bundesministerium für Wirtschaft und Energie [BMWi], 2017, p. 15).

"Digitalizing industry will open up potential additional cumulative added value of €425 billion by 2025 in Germany alone. Projections put productivity gains at up to 30%, annual efficiency gains at 3.3% and cost reductions at 2.6% annually." (BMWi, 2017, p. 28)

Digital transformation does not only comprise automation, but describes the adaptation of organizations' capabilities to enable the use of digital technologies, data, and knowledge in an attempt to sustain competitiveness (Fischer, Lueg, Schneck & Brühl, 2020, p. 3):

"The digital transformation is a holistic transformation: digitalization needs to be consistently aligned with the needs of users and stakeholders and to support them as well as possible with seamless electronic workflows and new ideally matched propositions. Realizing the associated potential will quickly require developing new skills,

putting appropriate organizational and technological structures in place [...]." (Destatis, 2019, p. 7)

A recent study (Bitkom, 2020) about German companies based on a representative sample of 603 entities depicts how deeply digital technologies and digitalization already affect firms' businesses, cf. Figure 1.

While 90% of the companies regard digitalization as an opportunity for their business, 63% notice increasing attacks on incumbents' traditional markets by IT firms or Internet firms. Of the larger companies in the sample (more than 2,000 employees), 86% made targeted investments into digital business in 2020. This corresponds to 75% of companies adapting their existing product or service portfolio in response to digital change, and
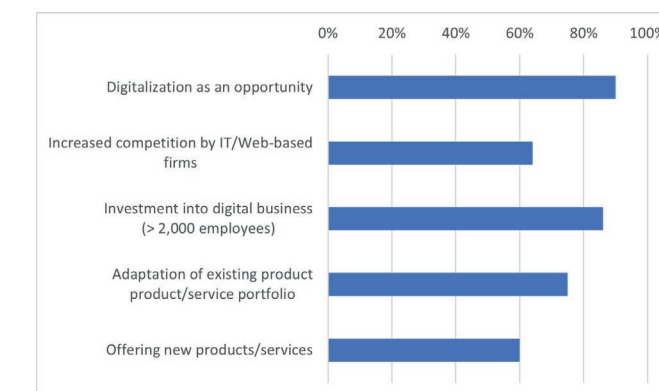
Figure 1: Impact of digitalization on German companies (source: bitcom 2020)

60% offering novel products or services to their customers.

The impact of digitalization on companies' business has various implications for shared services (cf. Fischer, Lueg, Schneck & Brühl, 2020). On the one hand, shared services face new requirements from changed business models of internal and external clients, e.g., processing high data volumes from pay-per-use contracts. On the other hand, combining shared service capabilities with digital technologies raises huge opportunities for the organization to increase efficiency and effectiveness in shared service processes and provide a

[1] Averaging the entire sample, only 24% of firms made such investments in 2020.

90 %

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60 %

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Shared service organizations that succeed in meeting this changed demand and leverage the opportunities may antici- pate the disruption of their business by group-external competition.

new dimension of end-to-end experience for customers.

Shared service organizations that succeed in meeting this changed demand and leverage the opportunities may anticipate the disruption of their business by group-external competition. Those that do not fully embrace digital technolo- gies in their value-add chain as well as their product and service definition risk losing competi- tiveness in the medium range, even from a strong, mandated position within the group or company. The next chapters elaborate in detail on the devel- opment of shared services and their capabilities (Chapter 3) and the strengths of the shared service operating model to incorporate digital technolo- gies (Chapter 4).

CHAPTER 2

From traditional shared services provision to the "New End-to-End"

The digital transformation of shared services benefits all: company, staff, and customers alike.

The traditional shared services concept in place since the 1990s (cf. Dressler, 2007, p. 19) centers on the premise of providing services centrally for all parts of a company that need the service types concerned (cf. Westerhoff, 2008, p. 58).

The synergies generated by provision of a portfolio of standardized services from a central unit can be multiplied greatly by the possibilities of digitalization: "Industry is also faced with a broad field of new possibilities, with companies having infinite opportunities to try out new things and to penetrate new growth areas." (BMWi, 2017, p. 17)

Shared services that maintain progress along the path of the digital transformation may harbor a wealth of benefits for the company, staff, and customers alike.

"The optimal service of the future is digital and intelligent. [...] Those who seize these opportunities can use Shared Services as an engine for digital transformation." (Lueg, 2019b)

These benefits are manifold, driving both financial and non-financial objectives, and involve various maturity levels of the digital transformation.

As Kai-Eberhard Lueg, Chief Operating Officer of Siemens GBS, explains: "[...] it sounds surprising, but digitalization keeps Shared Services attractive. [...] Many regard service costs in Germany as high – but digital innovation enables even more attractive solutions for your customers." (Lueg, 2019a)

Digitalization of processes and automation enable to f**ocus on the core activities**, e.g., by eliminating manual administrative and repetitive activities. Another long-term benefit is **transparency for customers**: an organization that has real process expertise also has the capacity to identify potential for optimization and share respective benefits with customers (cf. Lueg, 2019a).

Digitalization can have positive implications for the workforce too, because it compels employers to make their **employees fit for the future** (cf. Lueg, 2019a). Shared services business stands and falls with its staff, so even the best digitalization initiatives can only ever be as good as the people who implement and operate them (cf. Lueg, 2019a). In general, driving the digital transformation through shared services means that the organization can raise substantial opportunities by **exploiting the synergies** between corporate functions and business units (cf. Lueg, 2019a).

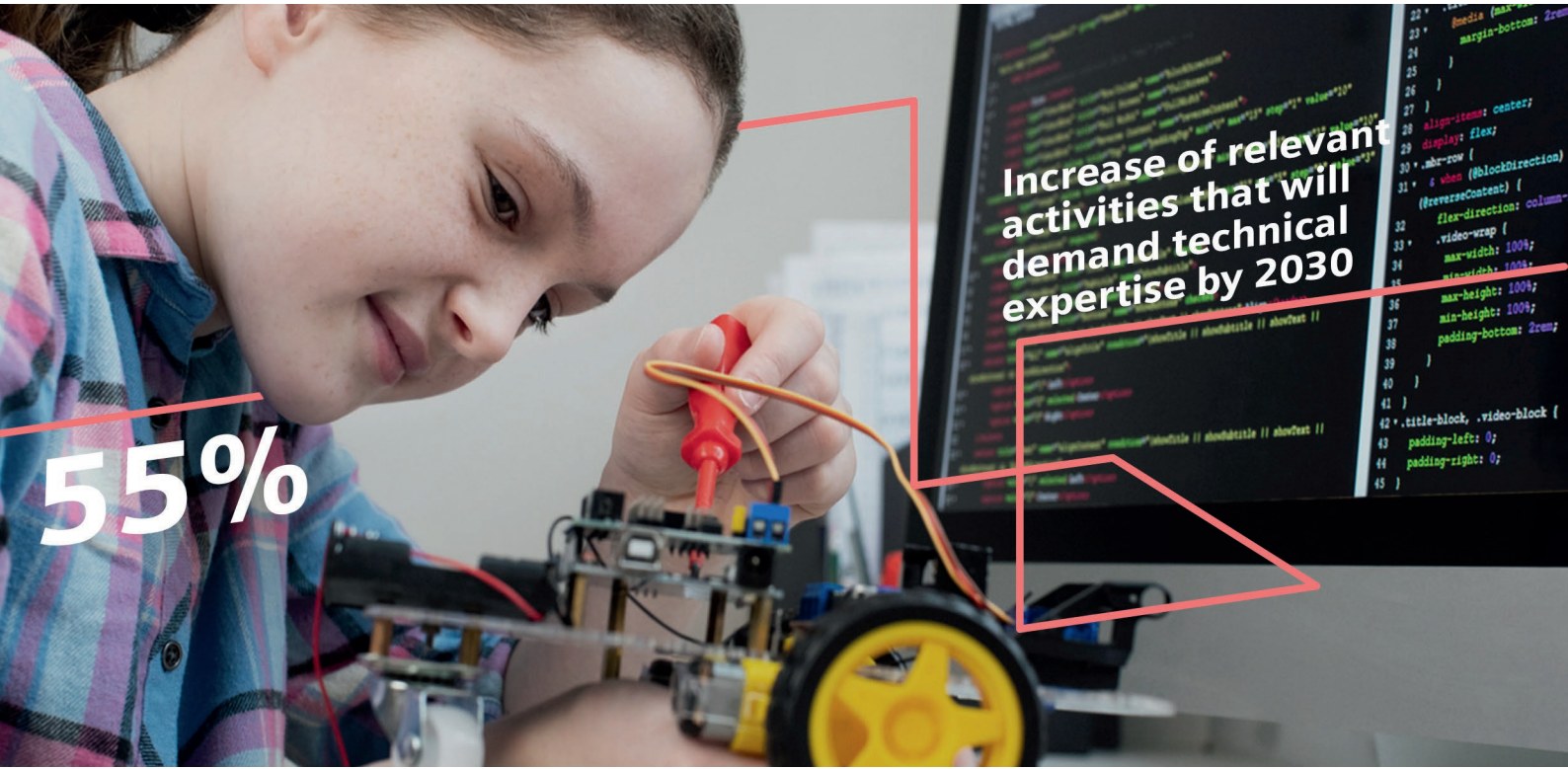Kai-Eberhard Lueg, COO Siemens Global Business Services

Beyond these isolated benefits, shared services with high digital maturity present the opportunity to transform the company's value chain – at Siemens GBS this vision is termed the "New End-to-End".

While end-to-end optimization commonly refers to cross-functional process approaches, the "New End-to-End" focuses on the supplier-customer value chain, optimizing user experience and reducing efforts on the customer side when using digital solutions and workflows. "New End-to-End" exploits the advantages of shared services and digitalization in a unique approach, leveraging three core capability sets, i.e., dynamic capabili-

ties, distributed service networks, and a digital service management platform.

Dynamic capabilities are the capacity of an organization to adapt its resources to changes in the organizational environment (cf. Helfat et al., 2007; Teece, 2007). Levers at GBS to build the dynamic capability base up are a strong focus on strengthening the organizational culture, system-

atic people development, and shaping an extensive ecosystem of partners.

It is the staff who hold the knowledge. Their expertise and innovation are essential in assessing the opportunities and challenges presented by new technologies to make the most of the available potential for customers (cf. Lueg, 2019a). Siemens GBS furthers this expertise and innovative capabilities through establishing an innovation culture and systematic development programs, driven by a global function specifically dedicated to the "Future of Work".

The proportion of relevant activities that will demand technical expertise will grow to 55% by 2030; the proportion of activities requiring emotional and social skills is expected to increase by 24% over the same period, and the proportion that requires creativity by 8% (cf. McKinsey Global Institute, 2018, pp. 4–5).

Sensing technological trends and sizing cutting-edge digital technologies, e.g., for automation and AI, are enabled through intensive exchange and co-development with technology providers. Siemens GBS relies on a technology ecosystem and strong partnerships with high-tech providers internal and external to the Siemens group, e.g., with Siemens IT, KPMG, Pega, and Celonis.

A distributed service network means moving away from hard-wired supplier-customer relations to a platform model, providing flexible connections between suppliers, main locations, satellites, potentially selected external workforces and on the other side a broader base of internal and external customers. Through intelligent work package routing and automated translation across locations, both efficiency and resilience can be improved. A **digital service management platform** interlinks Siemens GBS' digital solutions and platforms in a reliable and secure backend. Unified frontends establish clear interfaces and enable a unique usability and user experience for the customer as part of the service provision.

Given the "New End-to-End" as a foundation for a unique business process experience, the next chapters describe how digital technologies can be leveraged by shared services' operating model and exemplify how three of these technologies provide value for customers.

Increase of relevant activities that will demand technical expertise by 2030

55%

CHAPTER 3

Shared services:
an operating model made for digitalization

A platform for integrated, cross-functional, end-to-end processes – shared services can, indeed, become a driver of the digital transformation.

The traditional shared services operating model is founded on the principle of centralized but shared resources. A shared services center typically operates as an independent organizational unit providing specific services for a number of different parts of the company (cf. Breuer & Breuer, 2008, p. 98). These services relate to support processes that are centralized with the aim of reducing costs and boosting quality. The core competencies of the shared services center thus reflect the services pooled and centralized under its responsibility (cf. Brühl et al., 2017, p. 3). The shared service remains as an entity within a company rather than being entrusted to external service providers as in the case of outsourcing (cf. Breuer & Breuer, 2008, p. 98).

Activities that can be standardized occur within the company at high frequency and involve core tasks that are particularly suitable for embedding in a shared service (cf. Breuer & Breuer, 2008, 98 and 105). These include activities from areas such as central accounting, finance, human resources, procurement, logistics, consulting, and IT services (cf. Breuer & Breuer, 2008, p. 98). Centralizing these activities in a shared service enables the organization to reduce redundant structures (cf. Westerhoff, 2008, p. 58). This, in turn, paves the way for cost savings and, simultaneously, quality gains (cf. Westerhoff, 2008, pp. 61–62). The organization is freed up to focus predominantly on its core competencies and company-wide standardization and harmonization become much more feasible (cf. Westerhoff, 2008, 61-62). At the

same time, the implementation of digital platforms makes customer-specific process interfaces and service variants increasingly economically feasible as well.

The operation of organizing activities in a shared service according to the traditional lift-drop-change model involves a number of phases (cf. Lueg, 2013), starting with the transition, in which the activities are transferred from a corporate or business unit to the shared service organization. The processes involved in service provision at the new shared services center are initially unchanged from those used at the old corporate unit. The next phase is transformation, in which activities and processes are improved to enhance the price/performance ratio. Another method used to introduce a shared service is the lift-change-drop model, according to which digital products and solutions are used to modify and optimize processes and then relocate the activity concerned to the shared services center.

Why does the operating model of the shared services sector lend itself so readily to the digital transformation?

The factors that determine the success of a shared service include excellence in the transformation phase as well as highly efficient service provision, clear structures, and the definition of consistent activities (cf. Westerhoff, 2008, p. 62). Optimizing processes is thus one of the most important ways in which the shared services sector can make a difference (cf. Westerhoff, 2008, p. 58). It is easier to optimize processes when services are highly standardized (cf. Lueg, Georgi, Duck, & Multerer, 2017, p. 64) – which is the original core function of a shared service. Currently, most shared service organizations are choosing automation to optimize services (cf. Lueg et al., 2017, p. 64).

Today, most products and services already include value-added components. Therefore, "smart", integrated systems have become increasingly common and require firms to set up new operating models (cf. BMWi, 2017, p. 15). The end-to-end process approach, as adopted by many shared service organizations, is a strong enabler for a comprehensive and sustainable digital transformation (cf. Jäckle & Wolf, 2013, p. 300). The approach resolves discontinuities in the process flow and breaks up silos within the organization and its departments:

"A new role model for Shared Service Organizations (SSOs) needs to be established in order to realize the revenue potential of digitalization: by providing a platform for integrated, cross-functional, end-to-end processes, SSOs will become the in-house drivers (transformation agents) for the digital transformation, supported by their strong dynamic (change) capabilities." (Lueg, 2019b)

This is something that also very much facilitates the deployment of universal digital solutions. When a company opts to establish a central shared services unit, it does so in the pursuit of competitive advantages. However, these advantages can only accrue if the services provided are at least as mature, in quality terms, as those of leading competitors (cf. Westerhoff, 2008, p. 59).

The targeted deployment of digital solutions can generate precisely the competitive advantages sought. Simply investing in digitalization will not be sufficient on its own either in the short term or in the long term: new operating models are essential (cf. BMWi, 2017, p. 28):

"Our customers rightly expect an increase in performance, each and every year. Not only by shifting tasks and optimizing working steps, but also by new concepts and solutions. It is like in the automotive industry: at a certain point the customer no longer wants to pay for owning a car, but for the mobility that comes with it. Through digitalization, we can do the same analogously in the service industry." (Lueg, 2019a)

CHAPTER 4

Digital trends
in the shared
services sector

Innovative technologies and methods speed up the digital transformation
within companies. This benefits customers as well.

Digitalization represents one of the most
important levers of all for the evolution of shared
services. The range of services and products to be
considered in this context is broad, extending
from individual solutions to standardized products
used in bulk (cf. Lueg, 2019b).

**"Digitalization has many faces: its reach
extends from single products right up to
end-to-end solutions, and from standardized
mass products right through to single custom-
ized mass items." (Lueg, 2019b)**

The currently most promising technologies for
business service providers – introduced below –
are RPA, BPM, and AI.

DIGITAL TRENDS IN THE SHARED SERVICES SECTOR

Robotic Process Automation

We believe that robotics inspires.

RPA involves the performance of specific activities by a robot.

A robot, in this instance, is a software program rather than a physical device. This technology has initially most to offer in the processing of recurring tasks operating on structured data, e.g., logging into systems, amending lists of data and sending documents. The robot here uses the same input that employees would use. It is able to log into and out of systems and to perform tasks and advance them to the next step. A robot can progress through entire work processes in this way. The situation outlined can be described as a non-invasive method in that, unlike traditional approaches to automation, it requires no technical integration. This can be particularly useful when seeking to automate processes whose legacy systems are more difficult to integrate.

Siemens GBS has been implementing this technology since 2017 to automate processes more effectively across the company and simultaneously improve performance for customers. The introduction of the first RPA led to a notable increase in the complete automation of customer inquiries and to a high rate of customer satisfaction.

Siemens GBS has come to see robotics not just as a technology but, in combination with technologies from other domains, as the answer to major challenges of the future. GBS was honored with the SSON Automation Impact Award 2019 in recognition of its consistent development of Robotics 2.0. The jury singled out the evolutionary development from the introduction of RPA to the successful combination of RPA with AI and the IoT for special recognition. By combining these technologies, deployment of RPA technologies increasingly allows exploitation of unstructured data sources as well.

We believe that there is a better way to structure processes

DIGITAL TRENDS IN THE SHARED SERVICES SECTOR

Business Process Management

A second reliable technology for digital shared services is Business Process Management (BPM).

BPM platforms are quite different from RPA, involving sophisticated automation platforms with cloud-based and mobile applications rather than independent rule-based software programs. In short, they represent the result of an evolution of middleware solutions (connecting different IT systems), operating platforms (middleware plus own processing/automation logics) and the ability to be flexible and easily adaptable, thus reducing implementation efforts and operations flexibility in further development (e.g. by using low-code capabilities). This amounts, in essence, to a virtual layer that enables the cross-functional mapping of workflows across different applications and systems, which will often be local solutions, in one standardized and intelligent application with a higher degree of automation. The result is more efficient, harmonized, automated processes that can also be much more user-friendly.

This technology is used at and by Siemens GBS in areas such as fixed asset management, digital order management, master data management, cash collection and for purchase-to-pay processes, e.g. in the NextGenP2P project that Siemens GBS develops jointly with KPMG and Pegasystems in a joint co-development, for the Siemens group and also for external customers. The objective is to harmonize and automate the P2P process by introducing a central platform, and thereby create a fully integrated solution that offers possibilities including BPM, RPA, and low code development. The purchase-to-pay process at Siemens, as at many companies, is highly heterogeneous and complex. The complete process chain, from ordering through invoice verification to payment, and creation of appropriate bookings, involves many different systems and applications across the company.

Siemens uses a low-code platform as its central integration and orchestration basis for mapping and controlling the P2P process. The platform integrates all the systems employed in the process and meets all requirements, from the ability to cope with different kinds of posting logic to the consideration of country-specific tax laws. Thereby, the solution enables the optimization and automation of operating workflows, reduces costs, and increases the company's agility. There is also a strong focus on improved User Experience (UX) and reduced efforts on the customer side - not only for the shared services provider.

We believe in the transformative power of artificial intelligence

DIGITAL TRENDS IN THE SHARED SERVICES SECTOR

Artificial Intelligence

AI - one of the most innovative and most widely discussed disciplines of all in the digitalization sphere.

AI, being enormously versatile, can be used to good effect in all manner of ways. The term "Artificial Intelligence" is used to refer to the development of intelligent helpers that have their own independent problem-solving capability (cf. Buxmann & Schmidt, 2019, p. 6).

"AI is traditionally seen as a sub-field of information science concerned with the automation of intelligent behavior." (Hildesheim & Michelsen, 2019, p. 122)

General AI, which would mimic human thought processes, empathy, and consciousness, so far remains out of reach. The intelligence software solutions that we see today all fall into the category of narrow AI, which is concerned with developing algorithms for specific problems rather than

solving general, unspecific tasks. The ability of the relevant systems to learn is a key factor here (cf. Buxmann & Schmidt, 2019, pp. 6–7). References to AI often imply the use of techniques from machine learning, which provides methods that enable the independent acquisition of knowledge and independent problem-solving using computing power. The machine learning field is booming now (cf. Hildesheim & Michelsen, 2019, pp. 122–123). This is substantially due to the neural networks developed for deep learning applications (cf. Hildesheim & Michelsen, 2019, pp. 122–123). More affordable access to more powerful computers and the exponential growth and collection of data resources have also enabled the application of machine learning techniques.

Neural networks consist of artificial neurons, whose attributes are already known, arranged in a series of layers that enable the system to establish connections and recognize patterns independently. The more layers of neurons there are, the more complex the range of tasks the system will be able to tackle (cf. Hildesheim & Michelsen, 2019, p. 123).

Neural networks used in this way can enable computers to understand written and spoken language, images and videos, draw appropriate conclusions and, then, interact with humans (cf. Hildesheim & Michelsen, 2019, p. 123).

Machine translation, which enables users to translate entire texts or documents almost instantaneously, is a prominent and very practical example of AI.

Machine translation relies on neural networks, translating based on various algorithms by calculating the probability of different words and sentence pairings occurring together. Machine translation systems can also be trained with
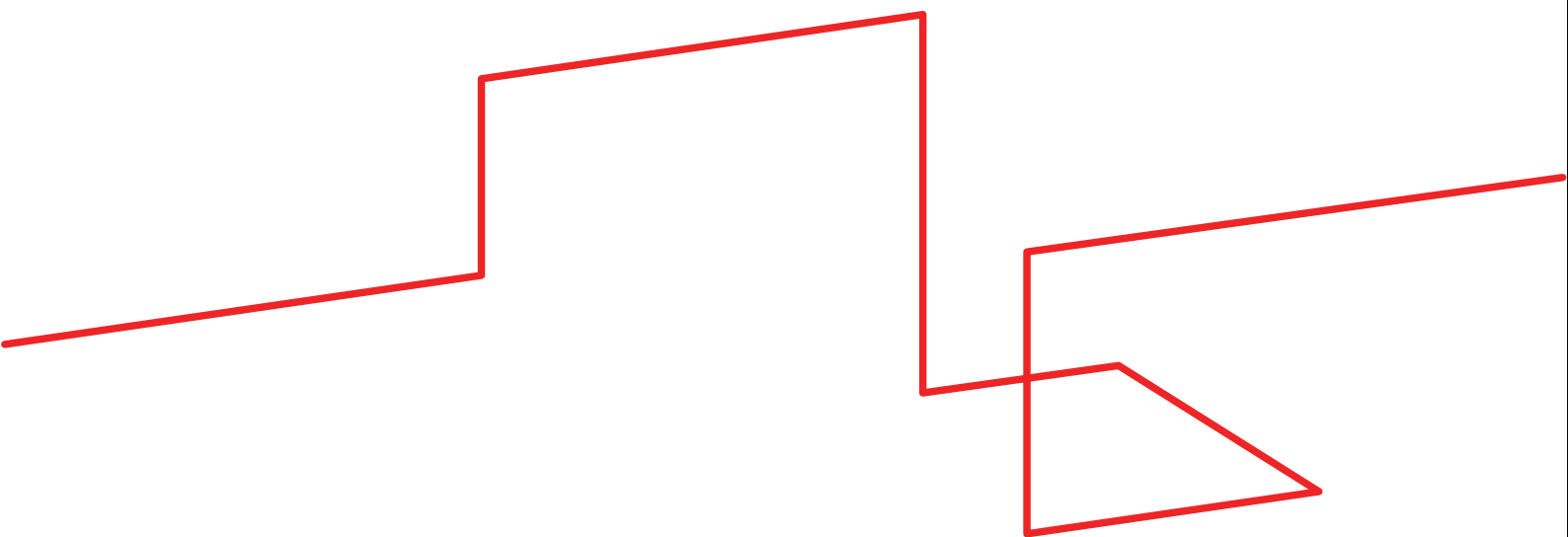

customer-specific data to yield more accurate translations for the specific field or department concerned. Multilingual vendor invoices, IT support tickets, and chat bot conversations are just three of the many scenarios in which machine translation can be used to remove language-dependency along entire process chains and open additional optimization and pooling opportunities for shared services organizations. Reduced language dependencies, decrease in "hard-wired" service location – customer connections allow for

higher risk resilience and higher flexibility also resulting in improved service performance.

Siemens GBS was recognized by the Everest Group as a "Pinnacle Enterprise in Intelligent Automation" in 2020 for its pioneering role in the systematic utilization of technologies like RPA, AI, BPM, advanced data analytics and IoT.

Siemens Global Business Services (GBS) designs, innovates, and efficiently operates business services for Siemens AG units worldwide as well as external customers. Its portfolio comprises transactional and expertise-driven services – with a strong focus on digitalization in areas like business administration, human resources, supply chain management, sales, marketing, and engineering.

In fiscal 2020, Siemens GBS provided business services worth €500+ million for Siemens AG, Siemens Energy AG and Siemens Healthineers AG, which together generated nearly €100 billion sales volume. Siemens GBS serves its clients globally out of eleven major delivery locations with about 10,000 employees. Siemens GBS headquarters are based in Munich, Germany.

For more information, visit **www.siemens.com/gbs**

Terminology

AI	Artificial Intelligence
BPM	Business Process Management (automation)
IoT	Internet of Things
End-to-end process	Seamless, cross-departmental processes
"New End-to-End"	Unique end-to-end business process experience for shared service customers
RPA	Robotic Process Automation

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Siemens Global Business Services -
Ambition made possible

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