Expanding services

How engineering and construction companies can drive growth and profits

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Key takeaways

Criticality of services

Executives view launching new services as the second most important business objective behind reducing operational costs. Expanding services provides a growth engine to help address challenged margins and enhance customer experience.

Learning from leaders to expand services

We identified a small group of engineering and construction leaders—22% of survey respondents—that have a well-defined services strategy. These leaders are effective at launching new services, and they have better revenue growth and profitability than their peers.

4 key actions for success

Leaders set a services strategy, integrate technology into field and service delivery operations, collaborate on data with their ecosystems, and address services talent and change management.

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The need for expanded services

The built environment is a complex combination of social and economic infrastructures. Its major stakeholders include engineering and construction players and owners, manufacturers, building material providers, and governmental and regulatory entities.

The engineering and construction industry is, in turn, a highly fragmented and complex ecosystem. The industry has seen a very slow increase in productivity over the last 50 years, and it has scored at the bottom of the list for digitization. As a result, low profit margins and high costs of failure are the norm. Typical margins ranged from 2% to 7% over the last 5 years.[1]

This ecosystem's supply chains are also highly intricate, with limited collaboration and low visibility. Companies often must join supply chains specific to projects and clients, leading to even greater reluctance to digitize workflows.

In addition, the engineering and construction industry faces a talent shortage caused by a retiring workforce, as well as a major trade skills gap.

The built environment ecosystem as a whole has seen a major influx of venture capital investments. Nearly 1,200 startups worldwide entered into real estate and construction between 2010 and 2017 and received around $19.4 billion in funding.[2] These startups are taking advantage of market opportunities. Meanwhile, existing engineering and construction companies have excelled in business-specific innovations, but they are not focusing on the radical change the industry needs.

Over the next few years, this industry is expected to shift further toward a productized workflow.[3] This approach can reduce the uniqueness of projects by selecting from catalogs or libraries of designs, stabilize the value chain with recurring business, embrace sustainability and circularity at its core, and take out a lot of on-site construction hours known for notoriously low productivity. At the center of this radical shift lies technology as the catalyst and accelerator.

82%

of service superstars are effective at launching new services

60%

of service superstars actively work with partners to create an ecosystem of services and broaden market reach

80%

of service superstars report improved customer benefits and outcomes from their technology investments

In such a challenging environment, service excellence continues to be critical to the success of engineering and construction companies as they work to guard their value add and capture new opportunities. Over the last few years, engineering and construction clients have elevated their expectations for a smarter built environment including smart homes, buildings, and infrastructure. They want to optimize their energy use, resolve service issues immediately, and get more value out of their built assets.

Yet many engineering and construction companies lack the capabilities to meet their customer service aspirations. Based on net promoter score (NPS) benchmarks, the real estate/construction industry lands in the middle of the pack with a score of 27, much lower than healthcare (41) and hospitality/travel (37).[4]

Expanding services can deliver a win-win for engineering and construction companies and for their customers. By offering additional services, companies can enhance revenue, drive better margins, provide sustainable business growth, achieve predictable income streams, and deliver higher levels of customer satisfaction.

The end customers want to pay for an outcome, for an asset that will be productive in the long term, and for a streamlined supply chain. For example, in building infrastructure, outcome-based contracts have been established for air-conditioning systems.[5] A CBRE Occupier Survey shows that 92% of building occupants surveyed have a preference for wellness-capable buildings and 67% see productive and flexible workspaces as vital to achieving their goals.[6] Predictive maintenance helps customers extend their heavy equipment's life span by monitoring assets in real time, resulting in less downtime and better results.[7] In real estate management and architecture, spatial optimization saves floor and desk space, and internal environmental quality monitoring improves health and well-being.

To understand where engineering and construction companies are with their services strategies and delivery, the IBM Institute for Business Value (IBV) and Oxford Economics surveyed 300 executives in 23 countries who are involved in service development and/or delivery at their organizations (see "Study approach and methodology").

56% of executives indicate that traditional business models are not sustainable in the current market environment.

State of services

Engineering and construction executives recognize the business need for expanding their services.

With the commercial real estate market at an inflection point, demand for physical space is changing—and has declined in the retail, hotel, and office segments.[8] In our research, 56% of executives indicate that traditional business models are not sustainable in the current market environment. That same number also report that customer and consumer behavior is shifting from project-based to experience-based. With decreased demand and increased competition, nearly half of respondents agree it's more difficult to differentiate their products/projects, prices, quality, and delivery terms.
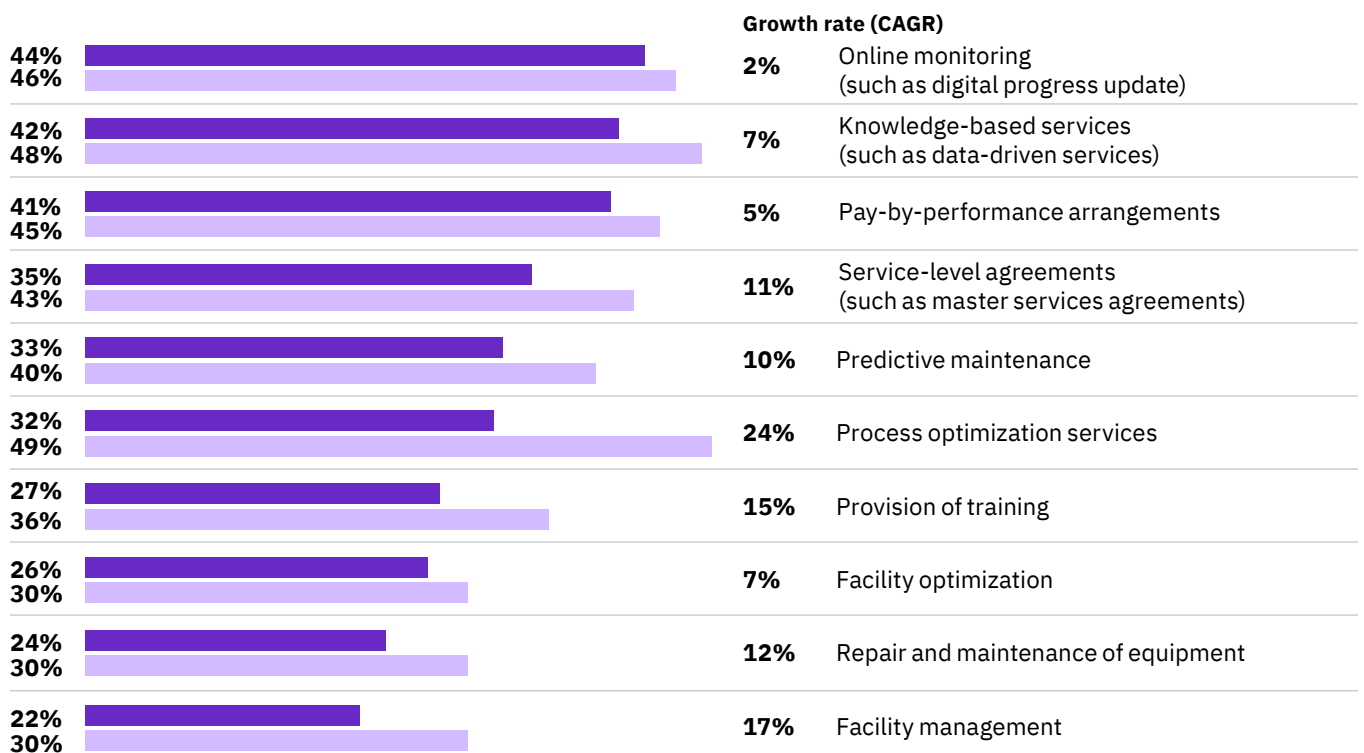
The companies' business objectives reflect the importance of new services. While over 3 in 5 executives surveyed say they are focused on reducing operational costs today, launching new services is second in importance at 48%, followed by improving cybersecurity and introducing more robotics and automation. These companies are growing their service offerings (see Figure 1). The offerings with the highest growth rates are process optimization services and facility management.

However, most engineering and construction companies are facing execution issues with their service delivery. Only 38% of our respondents say their organizations provide seamless customer engagement associated with their services to a great extent. This experience impacts client retention and additional revenues.

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Figure 1

Growth of service offerings

Engineering and construction companies expect to expand service offerings, especially those leveraging data.

	Growth rate (CAGR)	
44% / 46%	2%	Online monitoring (such as digital progress update)
42% / 48%	7%	Knowledge-based services (such as data-driven services)
41% / 45%	5%	Pay-by-performance arrangements
35% / 43%	11%	Service-level agreements (such as master services agreements)
33% / 40%	10%	Predictive maintenance
32% / 49%	24%	Process optimization services
27% / 36%	15%	Provision of training
26% / 30%	7%	Facility optimization
24% / 30%	12%	Repair and maintenance of equipment
22% / 30%	17%	Facility management

Today | **In 2 years**

Insufficient tools hinder service execution. Only half have safety and health monitoring tools that help make work safer and smarter with near real-time insights on worksites and field service technicians. Less than half have field service automation to help optimize service job scheduling. And only 45% have demand forecasting tools, which can accurately predict revenue and cash flow to inform decision making and manage performance.

This limited use of tools makes it harder to empower production, sales, customer service, and field service functions. And that makes it more difficult to form decisions, gain access to expert and customer knowledge, enhance response time, and become highly efficient.

Taking guidance from service superstars

To help organizations improve their service capabilities, we analyzed survey responses and identified a small group of engineering and construction organizations we call service superstars, comprising 1 in 5 (22%) of our survey sample. These executives report that their organizations have a well-defined services strategy that their employees understand. Their most important business objective is launching new services, compared with their peers' top priority of reducing operational costs (see Figure 2).

Service superstars deliver better financial performance than industry peers—27% better for revenue growth and 25% better for profitability. These service leaders also report performing 59% better than their cohorts for innovation, which is vital to creating new services.

Figure 2

Ranking of business objectives

Service superstars emphasize new services.
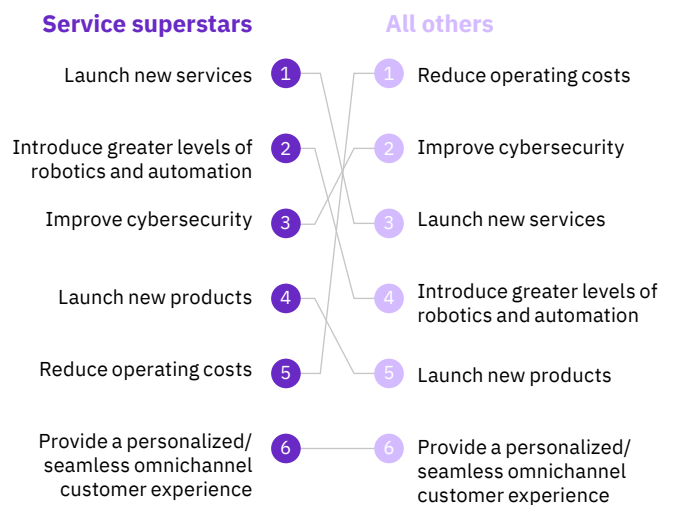
Our research indicates service superstars drive services transformation through 4 actions:

1. Establish expanded services strategy and governance.
2. Leverage technology.
3. Act on data and insights.
4. Address change and talent.

Service superstars have made expanded services an enterprise priority.

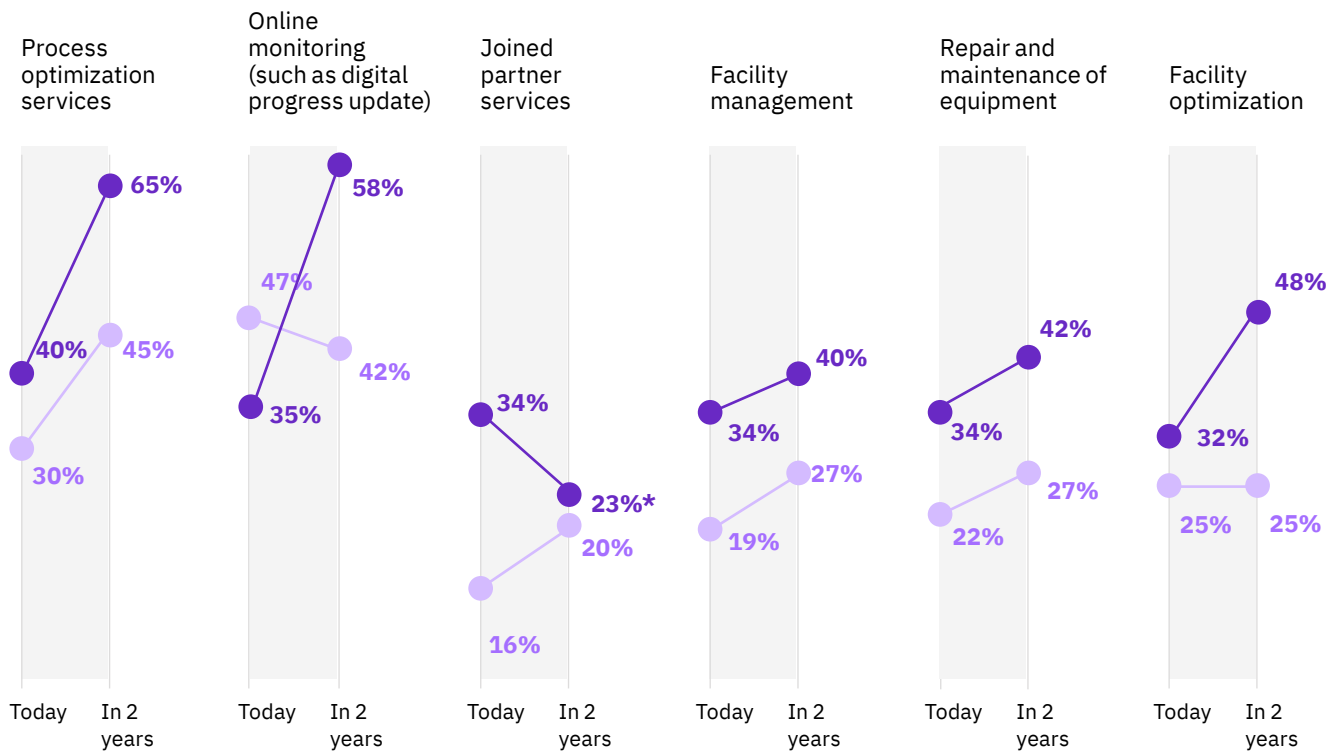## Establish expanded services strategy and governance

Service superstars have made expanded services an enterprise priority. This service emphasis puts the customer and the user experience at the center of attention. That's evidenced by service superstars providing more services today, especially related to joined partner services, facility management, and equipment repair (see Figure 3).

Service superstars recognize that service excellence is about delivering value to the customer. This represents a significant mindset shift and requires different data sets and insights to define service contracts, risks, and pricing.

In the future, these leaders expect to leverage analytics and digital to provide premium expanded services in areas such as process optimization, online monitoring, and facility optimization. Process optimization services improve both the processes and the operations within a customer's facilities. Online monitoring helps with digital progress updates and asset portfolio optimization through real-time data. Facility optimization drives energy optimization and connected buildings.

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Figure 3

Offering more

Service superstars actively develop new services.

Process optimization services
- Today: 40%
- In 2 years: 65%
- Today (all others): 30%
- In 2 years (all others): 45%

Online monitoring (such as digital progress update)
- Today: 35%
- In 2 years: 58%
- Today (all others): 47%
- In 2 years (all others): 42%

Joined partner services
- Today: 34%
- In 2 years: 23%*
- Today (all others): 16%
- In 2 years (all others): 20%

Facility management
- Today: 34%
- In 2 years: 40%
- Today (all others): 19%
- In 2 years (all others): 27%

Repair and maintenance of equipment
- Today: 34%
- In 2 years: 42%
- Today (all others): 22%
- In 2 years (all others): 27%

Facility optimization
- Today: 32%
- In 2 years: 48%
- Today (all others): 25%
- In 2 years (all others): 25%

Service superstars | All others

Results using low counts are statistically unreliable but can be considered directional.

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Sund & Bælt and IBM: Managing and monitoring aging infrastructure[9]

Deteriorating infrastructure is a global challenge. Organizations struggle with aging facilities, the difficulty of physical inspections, and the high cost of continued maintenance.

Sund & Bælt, which owns and operates some of the largest infrastructure in the world, is collaborating with IBM to develop an AI-powered IoT solution that helps prolong the life span of aging bridges, tunnels, highways, and railways. The new industry solution can help these organizations manage, monitor, and administer their infrastructure assets and reduce overall maintenance costs.

The solution consolidates various sources of data, including maintenance and design details, near real-time IoT data generated from sensors placed on structures, wearables from workers, stationary cameras and drones, and weather data. The consolidated data assists clients in identifying and measuring the impact of damage such as cracks, rust, and corrosion, as well as displacement vibrations and stress.

By implementing predictive and prescriptive maintenance strategies, coupled with AI visual recognition tools, organizations can endeavor to model, map, and monitor each structure. This can help them perform rapid assessments to prioritize maintenance decisions that target critical repairs, and address compliance issues to help meet regulatory obligations.

Service superstars take both an inside-out and outside-in approach to service development. More service superstars are building an ecosystem of partners to help them design and develop services and transform the customer experience. Leveraging ecosystem resources allows them to innovate more quickly than they would if relying on internal resources alone. 3 in 5 service superstars, compared with just 37% of their peers, are actively working with partners to create an ecosystem of services to broaden market reach.

For service superstars, services are a company-wide, management-led approach. Over 3 in 5 have established cross-functional key performance indicators (KPIs) to support client satisfaction, revenue, and service levels, compared with 40% of their peers. Delivery of process- and outcome-based services requires business alignment across legal, commercial, human resources, IT, and operations.

By quantifying their expanded services, service superstars know what they want to achieve and have a clear focus on service accountability. They also reward both their field service organization and their sales force to drive expanded service engagements. Three-quarters have incentives in place for the expanded service organization to sell parts and services. And nearly two-thirds have established financial incentives for the sales force to sell new service solutions.

Leverage technology

Service superstars view technology as a critical enabler for the digital transformation of the service experience. 4 in 5 report their clients benefit from the company's use of technologies to increase agility and responsiveness in expanded services, compared to 43% of their peers.
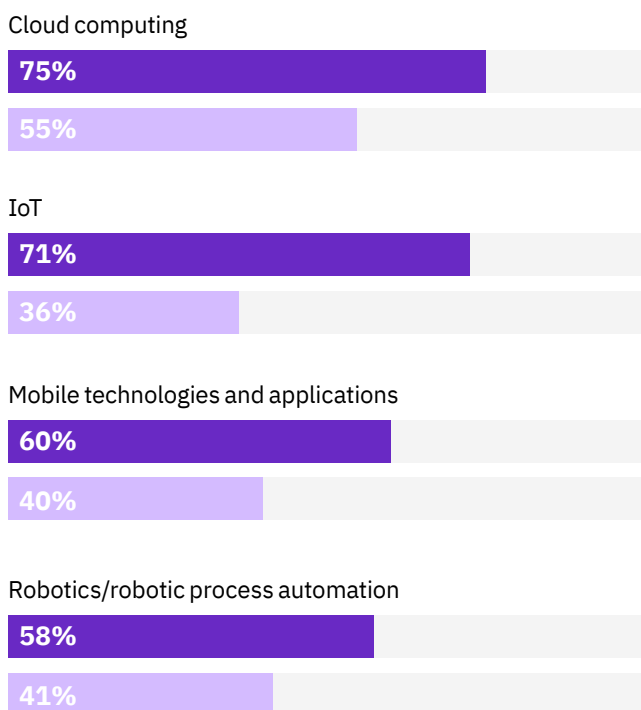
Leaders have achieved nearly a third higher return on investment on their service technology investments than their cohorts.

Superstars confirm that a collection of technologies underpins their service delivery (see Figure 4). IoT solutions permit continuous monitoring of assets and process data to provide health status. Cloud computing can be used to run service applications, develop and maintain data related to customer touchpoints, and share information across locations. Mobile technologies allow ubiquitous access to information, promote sharing of project data, and help with field service execution such as inspections. Automation improves the productivity and efficiency of technical work order flow.

In fact, these leaders have achieved nearly a third higher return on investment on their service technology investments, 26.8% versus 20.2% for their cohorts.

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Figure 4

Harnessing the power of technologies

Service superstars take advantage of cloud, IoT, mobile, and robotics in their service delivery processes.*

Cloud computing
75%
55%

IoT
71%
36%

Mobile technologies and applications
60%
40%

Robotics/robotic process automation
58%
41%

Service superstars | All others

Current implementation (operating or optimizing).

Cementos Pacasmayo: Achieving operational excellence to open up new construction markets[10]

Cementos Pacasmayo S.A.A. produces, distributes, and sells cement and cement-related materials and services in northern Peru. In the high-growth market of Peruvian construction, the company decided to expand beyond product-based sales and offer value-added construction services.

CIO Luis Miguel Soto explained, "We realized that the most promising growth avenue for our future was in becoming a construction solution company: instead of selling cement through our distribution partners to construction companies, Cementos Pacasmayo can offer complete services, such as building roads and bridges, and many other concrete structures."

Rather than selling to a set group of distribution associates, this new business model would involve transactions with thousands of buyers. But as the company embarked on this new strategy, it rapidly became apparent that its existing ERP systems and infrastructure could not handle the complexity.

Cementos Pacasmayo chose to migrate to a comprehensive suite of ERP applications. As a result, the company gained the agility and operational insight to support its new customer-focused business model.

Customer satisfaction through reliable and punctual distribution is essential. Accelerated sales and distribution processes based on the company's ERP applications help ensure that its buyers receive their orders on time. Market intelligence enables the company to predict future demand and adjust production accordingly and to provide customers the right products and services.

Greater data visibility also yields insights into supply chain management, so the company can deliver critical maintenance parts and tools to teams on time. This helps avoid manufacturing breaks, eliminate the costs associated with ordering surplus equipment, and meet delivery commitments to customers.

Sixense: Mapping out the future with transformative technology[11]

As buildings move from design to construction to operations, valuable information gets lost at every stage. Sixense saw an opportunity to transform the building industry by creating Beyond: a digital platform that combines building information modeling (BIM), 3D mapping, and Internet of Things (IoT) technologies to provide new insights across project lifecycles.

Part of VINCI Group, the world's largest construction company, Sixense has global expertise in technical, digital, and scientific solutions for the construction, civil engineering, and infrastructure management markets.

For the Beyond platform, Sixense established the foundations of a new cloud architecture. Instead of requiring companies to rip-and-replace their existing systems, the platform acts as an integration layer, using APIs to flow data from legacy source systems into a new central cloud repository.

Once the data is available, the platform can then empower users to interact with it in entirely new ways—for example, combining mapping and 3D modeling data to create a virtual replica of each project site and enable stakeholders to gain a 360-degree view of progress.

In the future, service superstars expect to implement additional exponential technologies in their service delivery processes aimed at enhancing visibility and transparency and increasing speed and scale. Specifically, over half say they expect to leverage AI, compared to 34% of their cohorts. For example, a construction AI assistant can evaluate data from a project's specifications and generate project scheduling options optimized for time and cost. Such a solution can reduce project time and cost by as much as 15 percent.[12]

Service superstars have put in place the necessary enterprise IT architecture to support their service delivery. Over three-quarters provide flexibility and openness through hybrid multicloud to support the services strategy, compared to 45% of their peers. Nearly two-thirds of service superstars establish a comprehensive enterprise architecture in alignment with business activities, versus 42% of other respondents.

Using cloud technology, construction companies can properly manage employee communications, equipment or asset management, and bid or proposal management along with field service.[13] This foundation allows them to scale, provides openness, and enables a seamless flow of data. For modular builds, implementing a cloud solution enables each employee to function and communicate with other workers across multiple devices, whether they are in the factory building home modules, in transit delivering modules, or at the construction site.[14]

3/4 of service superstars have built a data-driven culture associated with their services strategy and delivery.

Act on data and insights

Service superstars use richer insights to make informed decisions about expanding services. Three-quarters of service superstars have built a data-driven culture associated with their services strategy and delivery, compared with 49% of their peers. These leaders can take advantage of the 95.5% of captured data that goes unused in the engineering and construction industry.[15]

Platforms known as Common Data Environments enable the collection and use of data from a job site, from various devices, and from different software platforms.[16] As such platforms get developed, the need for data interoperability emerges as a core functionality to develop and maintain integrated intelligent workflows, from design and construction to operations and maintenance.

For expanded service delivery, service superstars recognize that success comes from inside the organization with its core capabilities, as well as from outside entities that leverage those enterprises' strengths. These ecosystems accelerate the rate and adoption of complementary services.

Service superstars have established supporting processes and data and information sharing with their partners (see Figure 5). For instance, three-quarters of service superstars report they are either operating/optimizing or implementing data sharing and analytics between themselves, owners, suppliers, and partners/service providers, compared to just 46% of others. These leaders are leveraging insights to create flexible service delivery operations for procuring, dispatching, and tracking materials.

Figure 5

Improving service delivery through collaboration

Service superstars share data, information, and processes with their ecosystem partners.*

Data sharing and analytics between engineering and construction, owner, supplier, partners/service providers

75%

46%

Standardized detection-to-correction process with early-warning systems

63%

40%

Access to diagnostics data for investigation of issues and root-cause analysis

55%

39%

Standardized early-warning information between engineering and construction, owner, supplier, partners/service providers

51%

37%

Service superstars | **All others**

External collaboration initiatives in service delivery processes (implementing, operating, or optimizing).

Engineering and construction companies need to address the talent requirements for their expanded services strategy.

Address change and talent

Almost 7 in 10 service superstars say that change management supports their expanded services strategy, versus 45% of their peers. Given the need to create new services, service superstars have not underestimated the scale of change associated with establishing a cross-business services mindset, executing efficient processes, creating real-time visibility and monitoring, and using exponential technologies and tools.

Service superstars have made more talent improvements to support new services than their cohorts (see Figure 6). They have placed skills at the center of their services strategy, and they aim for deep visibility into the skills position across their enterprises. Over two-thirds have a formal process to address skills for their expanded service workforce. The combination of hard and soft skills and technical knowledge produces both the traditional and new skills necessary for expanded services. Particularly since engineering and construction companies already struggle with labor availability, they need to address the talent requirements for their expanded services strategy.

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Figure 6

Talent enhancement

Service superstars have made talent improvements to support services.

Training new and expanded service employees
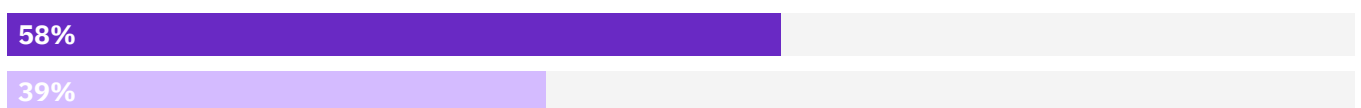to use digital technologies

69%

43%
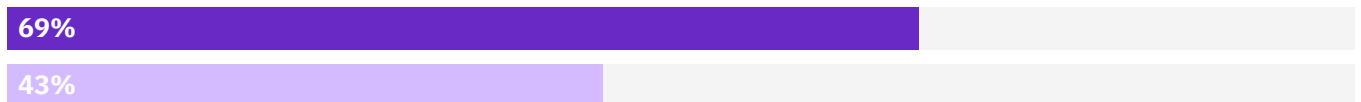
Implementing a formal process to identify
needed skills for expanded service

68%

45%

Creating attractive career
paths for service staff

60%

37%
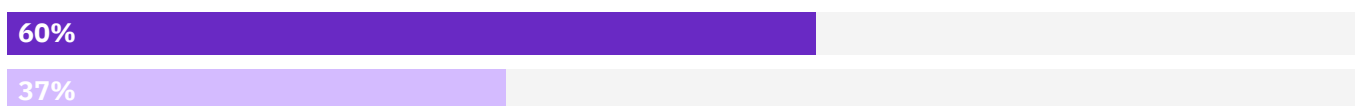
Introducing flexible employment
practices and culture

58%

39%

Service superstars | **All others**

Service superstars are uniquely tailoring service employee career, skill, and learning initiatives to employee experiences, goals, and interests. This involves knowing where the company and its service resources want or need to progress and creating an attractive career path. Additional investments in digital technologies training and mentorship programs reinforce needed skills. They also help retain talent and build the expanded services workforce.

To address changing dynamics and opportunities, these leaders invest in new ways of working. They take an enterprisewide perspective to determine the operational model, cross-business impacts, and platforms needed to deliver services excellence. Flexible practices allow service superstars to shift actions based on real-time feedback in service development and operational processes. As a result, expanded services can be supported by digital and physical cognitive assistants, centralized remote support, and less onsite demand for expert knowledge.

Wood and IBM: Transforming asset lifecycle management[17]

A global leader in the delivery of project, engineering, and technical services for energy and industrial markets, Wood provides performance-driven solutions throughout the asset lifecycle—from concept to decommissioning.

In 2018, Wood and IBM announced they would jointly create compelling new digital products and services to advance operational efficiencies for customers in industrial and energy markets. This multi-year agreement combines Wood's engineering innovation and industry expertise with IBM's advanced market-leading technologies in areas such as AI, blockchain, and analytics.

The collaboration's initial phase focuses on 3 key areas:

– Project design and planning: combining digital processes and data management tools to provide predictable costs and seamless integration, from design to commissioning

– Asset insights: providing leading-edge analytics platforms that offer insights to asset owners and operators looking to improve operational efficiency, predict operational or safety issues, and drive down costs associated with brownfield assets

– Project execution excellence: using blockchain and cognitive capabilities to help ensure the effective and safe execution of the work scope through solutions that manage worksites, personnel, materials, and equipment in accordance with the project plan.

Action guide

Expanding services in engineering and construction

Service superstars have created a framework for transforming their services strategy and delivery. Your organization can as well, by focusing on these 4 key actions:

1. Drive a unifying vision.

Make services expansion an integral part of your organization's mindset, supported by offering development, delivery, and governance:

– Determine your expanded service ambition to transition from traditional project delivery services to added-value and outcome-based services.

– Establish a clear expanded services strategy and plan covering customers, employees, and partners and enabling cross-business and operational alignment (vision, strategy, objectives, and goals).

– Incorporate services KPIs and incentives to measure business value and promote success.

– Add expanded and innovative services ownership to your C-suite to drive alignment of business functions, enabling transparency, collaboration, and control.

2. Integrate data and insights for better engagement.

Combine new services data with project delivery data to generate insights and improve efficiency and experience:

– Make sure your services strategy targets both the structured and unstructured data needed to understand customers' processes and address their engagement objectives.

– Connect data horizontally (transparency among traditional project execution data, marketing, sales, service, field service, legal, and pricing) as well as vertically (built asset lifecycle and owner engagement, built asset performance, and resource management).

3. Overlay your expanded services functions with digital.

Equip marketing, sales, and new services with digital technologies, and infuse digital into specific areas:

– Create cross-business intelligent workflows that link processes, people, and insights.

– Infuse digital technologies to optimize processes.

– Streamline and link service operations with asset performance management, advanced analytics, and AI.

– Add automation for service process flow.

– Deploy hybrid multicloud to access data, put it to new use, and house workflows.

– Move to strategic platforms that enable agile business, operational, and IT practices.

4. Build the right team.

Enhance services' talent, and manage change:

– Develop expanded services skills, capabilities, career paths, and new ways of working.

– Determine actions to close the talent gap created by retirements and the difficulty of attracting a younger workforce.

– Add data, personal, and tech-savvy skills to supplement existing services resources.

– Capture and disseminate knowledge to enhance skills and service efficiencies.

– Develop proactive change management since services expansion involves significant change in the business, operations, and talent.

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Study approach and methodology

In cooperation with Oxford Economics, the IBV surveyed 300 engineering and construction executives in 23 countries from July to September 2020. The 300 executives come from different roles and geographies and from organizations of varying sizes. All data is self-reported.

Role

	%	
■	38%	Chief Executive Officer
■	7%	Head of Strategy or Innovation
■	13%	Head of Products/Services
■	5%	Chief Digital Officer
■	9%	Chief Financial Officer
■	8%	Chief Marketing Officer
■	8%	Chief Operating Officer
■	11%	Chief Information Officer

Region

	%	
■	9%	North America
■	17%	Latin America
■	26%	Europe
■	19%	Middle East and Africa
■	29%	Asia Pacific

Annual revenue

	%	
■	11%	$250–499 million
■	18%	$500–749 million
■	13%	$750 million–1 billion
■	25%	$1–5 billion
■	19%	$5–10 billion
■	14%	$10+ billion

Note: Due to rounding, percentages may total slightly above or below 100%.

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