Operational excellence 2.0

How digital supply chain transformation is affecting operational excellence

EY
Building a better working world

Operational excellence 2.0

Contents


P
POSTAGE PAID
STANDARD
PRICING
PRIORITY MAIL
SHIP TO: 123 MAIN ST
TOWN, PL 87654
0 12 42139 84007 21165 39200 749
TRACKING # 8523117059642

1 Introduction

Customers are demanding better, faster and more agile delivery of products and services. As digitalization transforms supply chains and what they can achieve, nothing less than a seamless customer experience has become a basic requirement. To become – or remain – successful, companies must achieve excellence across all their functions while keeping up with the accelerating pace of change.

For decades, operational excellence (OPEX) has been the primary tool of choice to achieve best-in-class, streamlined operations. Today, smart sensors, cloud IT, automation, robotization and block chain are widely available, thus disrupting the way operations are managed.

By combining the power of technology with that of OPEX, organizations and eco-systems can balance the competing pressures of an increasingly sophisticated demand side, rapid pace of change and the need for flawless operations. In doing so, their customer relationships – and their businesses – will remain successful.

2

Can operational excellence still deliver?

OPEX aims at enabling organizations to achieve excellence along the entire value chain. Entities pursue this goal mainly through continuous improvement, driven by operational targets and systematic problem-solving methodologies. Since the advent of mass manufacturing, OPEX has evolved into sophisticated disciplines such as Six Sigma, lean management, production systems and business excellence.[1]

Organizations embracing OPEX generally aim to achieve five major objectives:[2]

1. **Cost reduction**
2. **Dependable delivery**
3. **Quality improvements**
4. **Faster delivery**
5. **Shorter innovation cycles**

Although today's supply chains are all about customer centricity, the creation of customer value does not feature in the current top five objectives of OPEX. However, most methods, such as Six Sigma or lean management, put customer value at the heart of any process optimization or problem-solving initiative. This establishes an inherent customer focus in all OPEX programs.

OPEX is typically driven by participants in their respective stage of a linear value chain (figure 1). This can lead to a narrow definition of customer value. Improvement initiatives are often set within an organization's legal boundary or across the interface to the direct supplier or to an immediate downstream operation. Integration across an entire ecosystem is limited. Only a small proportion of OPEX programs is adopting a more holistic approach.

The reduction of waste in processes – driven by and realized through the adoption of an operational leadership cycle – is a major goal of OPEX (figure 2). However, processes are often not considered from an end-to-end perspective, frequently confined within the boundaries of a department or the overarching organization itself.

1 *Operational Excellence Disrupted,* EY, 2019.
2 *Benchmarking – Lean 2020 – The Future of Operational Excellence,* St. Gallen, October 2018.

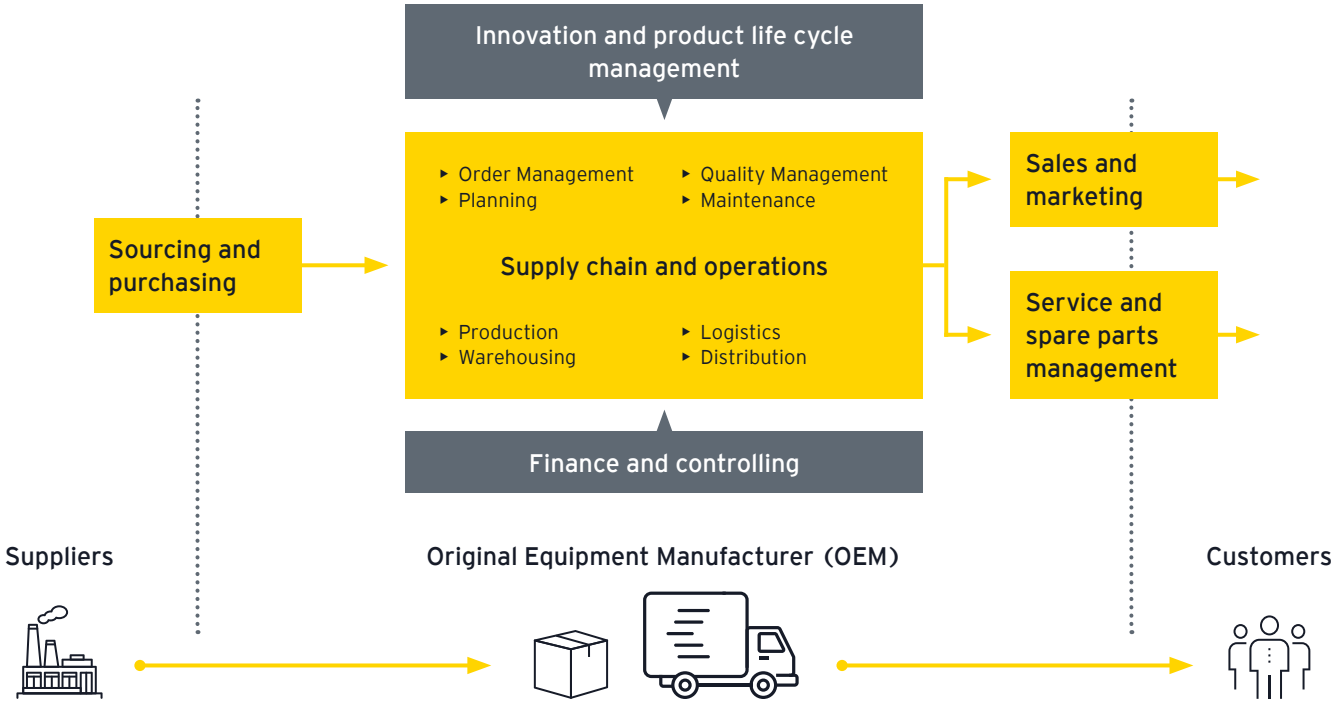


Figure 1: Traditional supply chain

Figure 2: Operational leadership cycle

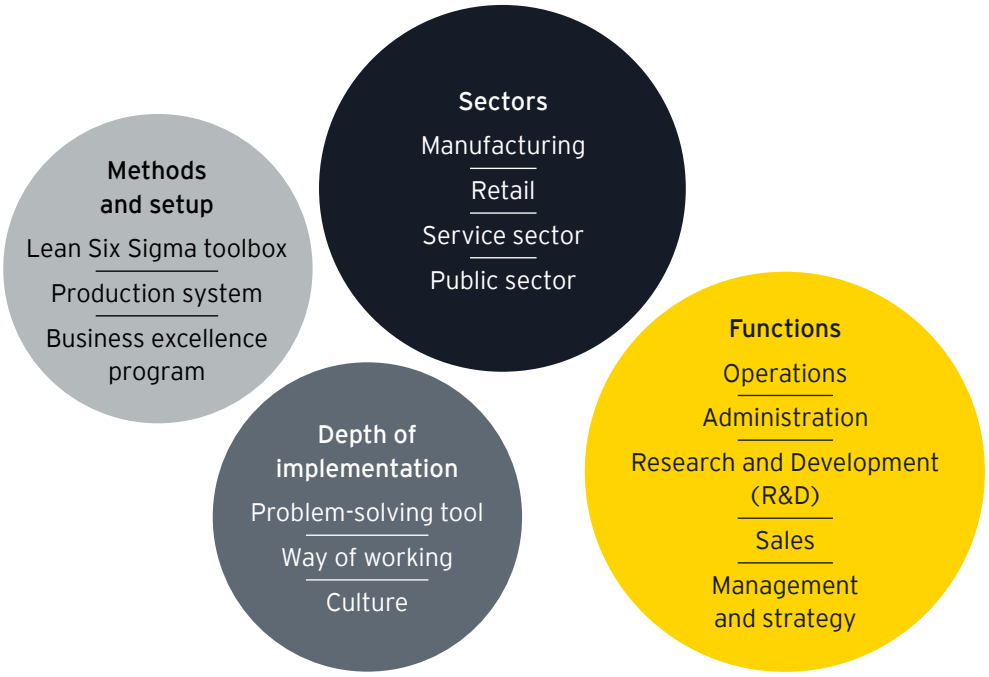


Figure 3: Different maturity levels of OPEX reach and scope

OPEX is widespread across organizations, although at varying maturity levels (figure 3). For more than 25 years, OPEX has been particularly popular in the manufacturing sector and in company operations divisions, where eliminating waste in processes and applying Lean Six Sigma tools has boosted efficiency, quality and cost effectiveness. Other functions, including R&D, sales, marketing and administration, typically lag behind. The vast differences in the extent of implementation mean that OPEX rarely becomes embedded in the culture of an entire organization and frequently remains more of a problem-solving tool.

The disparity reflects a linear and fragmented perception of supply chains. To fully leverage OPEX, for example, by implementing a holistic production system or a truly integrated value chain excellence program, a different approach is required.

Widespread reorganization of the supply chain has fueled the need for organizations to extend OPEX beyond the shop floor to all value chain functions and supply chain players. In the past decade, many organizations have bundled together functions, such as customer services, logistics and planning at a regional or global level, creating service centers in best-cost locations. In such cases, the functions' traditional proximity to physical value creation processes has diminished, with new interfaces in end-to-end processes. With process teams located in different places, often in new structures within the organization, it has become much more challenging to optimize processes and analyze root causes.

The relationship between operational improvements and an organization's financial and reporting systems also supports the wider integration of OPEX across corporate functions. Whereas major OPEX improvements, such as efficiency and productivity gains, increased throughput, inventory reduction and higher quality are plainly visible on the shop floor, the link between OPEX and such advances is rarely explicitly presented in the company balance sheet or profit and loss statement.

OPEX efforts usually manifest themselves in increased revenue, due to higher throughput, and lower costs, arising from reduced use of raw materials or less overtime and weekend shifts. Additional benefits, such as delayed or canceled asset investments (CAPEX), directly impact profit and loss statements and take the pressure off current budgets. Such financial gains are often seen as a welcome extra buffer, for example, to fund building provisions. Unfortunately, the necessary follow-up actions are often neglected, with companies rarely making such improvements permanent by updating the enterprise resource planning (ERP) master data in order to build the foundation for future budget planning. Leaner processes, in combination with a more productive workforce, strongly influence direct product costs that, in turn, can for example, support sales in enabling price reductions or put competitors under pricing pressure. Improved operational parameters must therefore be cemented in ERP work plans and parts lists. Only then will OPEX gains penetrate the whole organization and shape corporate figures reported to shareholders and other stakeholders.

To ensure future growth and even business survival, the OPEX approach needs to change. The way services are delivered and how far companies offer a seamless customer experience will become a primary future differentiator. Excellence in operations and adaption to the new pace of change will become a basic requirement for all thriving businesses.

3 Factors shaping the new digital supply chain transformation

Digitalization is heavily impacting organizations and all aspects of their supply chains. Technologies, such as cloud IT, block chain, smart sensors, automation and robotization are becoming more easily available, and thus a key success factor in satisfying growing customer expectations.

We have identified four megatrends that will radically change the current supply chain environment:

- **Linear value chains will become highly connected ecosystems or networks, dissolving operational boundaries**
  In the traditional linear supply chain, individual elements and members are not fully connected. Barriers exist even within entities, leading to increased waste, such as duplicated work and long lead times. On-premise IT infrastructure can cause particular problems, due to system incompatibilities between supply chain constituents such as supplier and manufacturer, and even between different company functions. Companies will only be able to deliver products and services with the quality and speed that customers demand when such barriers are overcome.

- **Accelerated sensorification and cloud IT will amplify data and real-time transparency**
  Increasing sensorification of assets and processes throughout the supply chain value creation process will create data that enables live monitoring of processes. This will allow organizations to make data-based decisions about their operations and how they can be improved. Companies will be able to draw on greater real-time data-backed insights both from within their own organization and across entity boundaries. Cloud technology enables supply chain members to share information with each other, for example, showing precisely where a product or service currently is in the value chain. This can provide crucial intelligence for all entities to react effectively to changes or disruptions.

- **Robotic process automation (RPA), collaborative robots and Karakuri will enable more flexible automation**
  New automation technologies enable organizations to automate aspects of all corporate functions, not just manufacturing. RPA can deliver efficiency and cost advantages in indirect processes; collaborative robots can increase the manufacturing efficiency of the human workforce, and Karakuri can realize the benefits of "soft" energy-efficient automation. To fully leverage such benefits, companies need to eliminate waste in physical and digital processes before they start to automate them. OPEX is therefore an essential step in fully realizing the benefits of automation.

- **Industry 4.0 will lead to new manufacturing paradigms**
  Industry 4.0 aims to connect people and things anytime and anywhere. Smart factories, which enable the holistic exchange of information between humans, machines and products, are at the core of Industry 4.0. This dialogue is achieved via advanced information and communication technology, which enables the full integration and interconnection of data-collecting sensors and data-based controlling actuators. As a result, factories will become fully digitalized, enabling manufacturing units to merge customized product design, operational processes and product delivery in line with ever-growing customer expectations. Moreover, lot sizes will become increasingly smaller for bespoke products or services due to

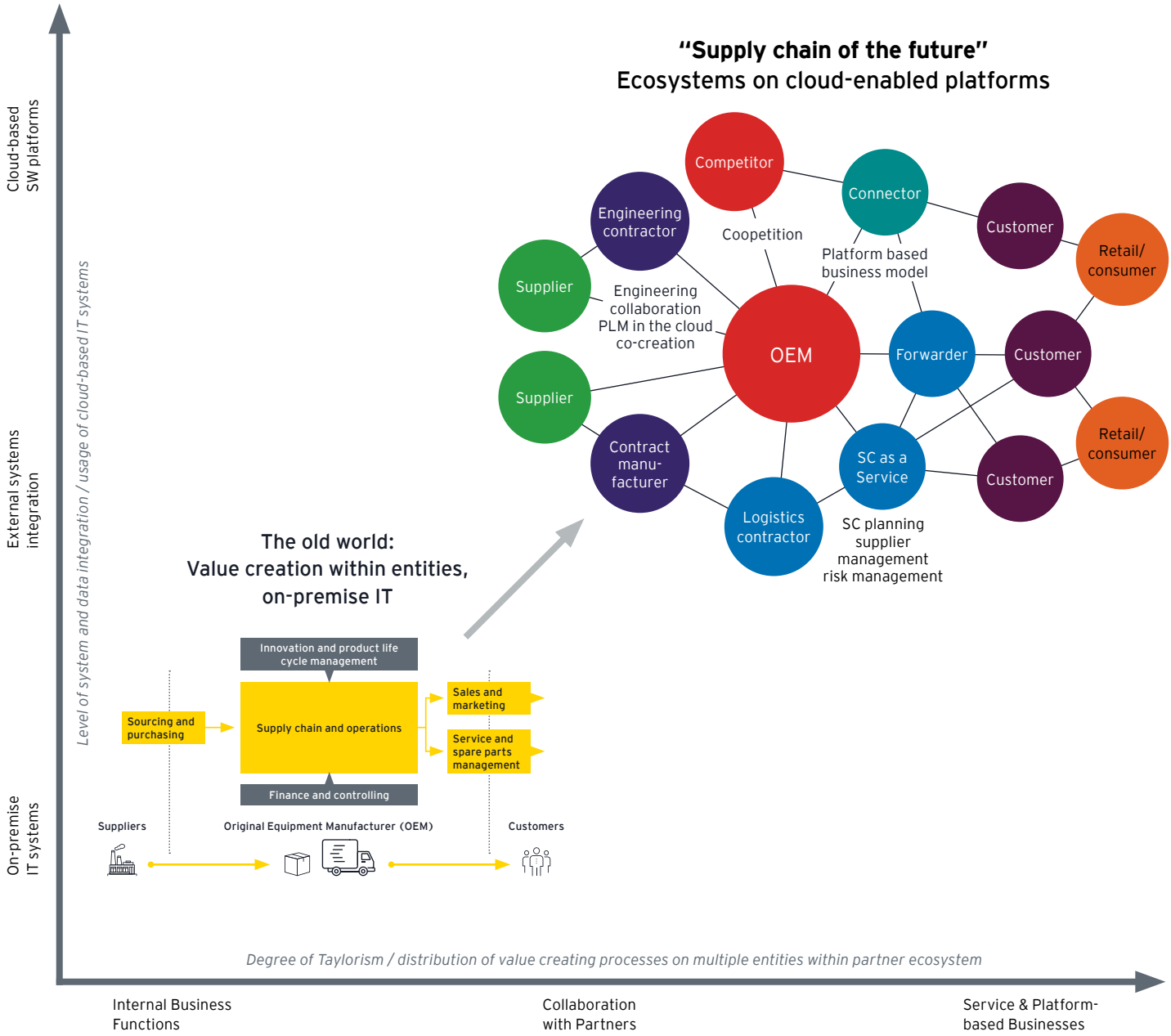


Figure 4: The future of supply chains

rising demand for individualization. These trends present considerable challenges for organizations across their supply chains: from product and service development, the need for digital interfaces with customers and the conversion of mass production operations, to decreasing SKU sizes and rapidly changing delivery needs.

To respond effectively to such digital supply chain transformation trends, industries must move from a linear supply chain and on-premise IT to cloud-enabled networks (figure 4).

4

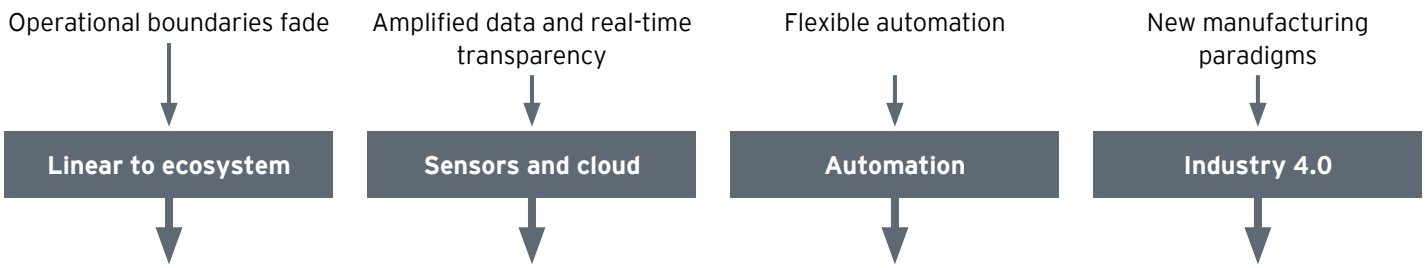
The future of operational excellence: EY hypotheses

OPEX must change if it is to cope with technological transformation and the fast-changing environment. This becomes clear from analysis of the trends shaping the digital supply chain as well as from the current state of OPEX itself.

We have developed five hypotheses on the possible future development of OPEX (figure 5):

1_ OPEX will become the cross-entity improvement engine and language

The discipline will gain a stronger role in all supply chain entities, complementing its already central position in manufacturing. The transformation from a linear and compartmentalized supply chain toward a highly connected ecosystem which delivers effective and efficient operations will require all supply chain players to align on OPEX practices and frameworks. The supply chain network will only yield targeted improvements, such as shorter end-to-end lead times and improved customer centricity if each entity provides excellence in its part of the value creation process. To ensure this, OPEX will become the commonly accepted value and principle that drives holistic improvements along the whole supply chain and value creation process. In a supply chain ecosystem, the voice of the customer will be integrated from the beginning of the value creation process by using augmented reality to let users test early stage prototypes. Customer feedback will shape development, enabling the delivery of higher quality products and services.



1_OPEX will become the cross-entity improvement engine and language

2_Data-driven methods are on the rise

3_Automation and technology will become part of OPEX

4_Automation requires more process standards and increased process capability

5_OPEX framework and 4.0 paradigms merge

Figure 5: The future of OPEX

2_ Intensifying data-driven methods

Increased sensorification of assets and processes across the supply chain will provide vast amounts of data of a varied nature and origin. Big data, generated by connected machines, mobile devices and supplier and customer interfaces, will enable new ways to optimize all stages of the value chain. Consequently, OPEX methods and tools that address manipulation, processing and data-based decision-making will gain strong momentum. Increased data availability and use will fundamentally change the basis of decision making – from historic data to real-time information. This will enable supply chains to have a proactive or predictive character rather than a reactive one. The combination and correlation of lagging and leading indicators across the entire supply chain will enable organizations to realize efficiency, quality, cost and safety gains and simultaneously deliver increased customer value.

A key question, however, is: who will transform the data into meaningful information that can be used to optimize processes? Various attempts to take shortcuts in root cause analysis by deploying data scientists and artificial intelligence (AI) algorithms to analyze the multiple correlations have not yielded satisfactory results.

There are two major obstacles:

- The data scientists' lack of process know-how can lead to incorrect findings or massive data complexity because the basic assumption is often "everything could correlate with everything else."
- The data structure. Using various data sources can be tricky, especially when adding "big data," due to the missing link between the detailed data sets, such as an accurate time stamp or order number. Additionally, measurement system accuracy is often neglected, which can be a critical flaw.

Due to these challenges, typical OPEX disciplines, such as measurement system and process analysis are likely to play an integral part in attaining meaningful and fast results when applying data analytics and AI.

3_ Automation and technology will become part of OPEX

Many organizations consider automation to be an all-purpose weapon to realize process improvements and efficiency gains. Such confidence has been dented by the neglect of key realities. A process does not perform better or more efficiently just because it is automated. In many cases, analog process waste has just been "digitalized," leading to frustration and disappointing results. Automation will be a major element in OPEX's future toolbox for realizing major improvements, yet never as a stand-alone or as an alternative to proven OPEX tools and methods. Automation and increased technology need to be integrated into the OPEX framework and management system as cornerstones. The great challenge for organizations in the future will be the merging of analog and digital systems into a highly connected ecosystem where technology and automation and traditional OPEX systems do not compete but rather interconnect, with technology-based automation a key performance driver.

4_ Automation requires more process standards and increased process capability

Increasing automation heightens the need for standardization and high-process capabilities. To fully leverage the benefits of automation in the supply chain ecosystem, processes must be based on common, universally accepted standards. Such standards ensure that a former analog process can be executed by a machine in a more efficient way than by a human being. Only then can machine-based decision making be superior, for example, in terms of speed. In contrast, a "wasteful" and individually designed process will need the support of human experts due to the lack of applied standards. Higher process capabilities are needed as AI is still not able to overcome insufficient process capabilities nor fully replace a highly qualified and experienced expert in managing a process or asset. This means the role of humans is also shifting dramatically. Clearly defined process standards and capabilities become even more important for the workforce of tomorrow when supply chain ecosystems will be dominated by machine resources. OPEX will need to focus even more on developing the human resource with the right capabilities for the future.

5_ OPEX framework and 4.0 paradigms merge

The future OPEX framework will merge with Industry 4.0 paradigms on the back of the increasing digitalization of operations and the growing availability and use of new technologies in supply chain ecosystems. Interconnected machines in a network of smart factories will change the nature of decision-making. The system that connects all entities and supply chain members will visualize the entire value chain and, due to constant communication between machines, smart factories and supply chain stakeholders, will make superior decisions on its own. The combination of the Industrial Internet of Things (IIoT), cloud enabled technologies and cognitive computing will change the application, and in some cases even the existence of OPEX tools and methods. Due to the vast amount and complexity of data, Six Sigma tools that focus on statistical data evaluation methods, such as hypothesis testing, will be replaced by deep learning technologies. Further well-established concepts like Kanban will be fully taken over by AI technologies. By contrast, classic OPEX tools, like spaghetti diagrams, will be strongly supported by digital technologies, yet they will not become obsolete. For example, it will be possible to equip or attach sensors to virtually all elements in a production process and the creation of spaghetti diagrams, via an online tool, will make the whole process much more efficient and less time and labor intensive. OPEX of the future will therefore include Industry 4.0 paradigms in its framework, with a toolbox rooted in new technologies.

Step changes in mastering process capability

Smart and soft sensors can deliver real-time data, information and insights on details of industrial processes. This amplification of data is likely to herald the next step change in the improvement of process capabilities.

Three fundamental improvement levers are on the horizon:

- AI-powered algorithms will be able to predict critical process parameter deviations and either correct them before a failure occurs or instantly flag the items that may be affected.
- Once process data gets stored and/or processed in the Cloud, systems will be able to learn – not only from their own data history – but also from all comparable processes around the globe. This will make process optimization more automated and faster.
- Real-time sensor data on specification-relevant data will allow a partial "spec-matching" process, that is, parts at the high or low side of the specification limits will be matched before assembly. This will deliver the correct overall tolerance in products.

SPOTLIGHT 1

AI, data scientist or lean six sigma black belt?

Organizations are constantly trying to find short cuts in complex root cause analyses or to locate the needle in the data haystack that will allow them to exploit certain patterns in processes or market behavior. But what resources do you need to spot meaningful opportunities or to really understand cause and effect in business processes? The main strategies are to use data scientists and/or AI on big data or – in the more conservative approach – lean six sigma black belts that typically can identify correlations and cause and effect relationships within a defined scope and limited or pre-filtered data sets. Lean six sigma black belts, or at least their project team members have a sound understanding of the processes under investigation and related scientific laws and models. The data scientist and/or AI approach often fails to meet expectations in various ways. This may be due to too little attention being paid to data quality and the capabilities of underlying measurement systems, to identified correlations not having a true cause and effect relationship, or in the worst case, to correlations being merely coincidental. Lean six sigma black belts, on the other hand, frequently narrow down the scope of their investigation and rely on data samples rather than big and connected full data sets. Although critical influencing parameters are often identified, many analyses leave a residual variation open – and solutions cannot be easily rolled out unless processes, equipment and raw materials are identical.

Reviewing the proven approach 'define, measure, analyze, improve, control' (DMAIC) and loading it with big data analytics and AI combines the best of both worlds. The measure phase focuses more on the quality of data sources, that is, the measurement system, and would profit from using data analytics and process mining results to identify possible critical process parameters. Combining process knowledge with AI-driven data analysis adds significant effectiveness to the Analyze phase. The Improve phase, meanwhile, can benefit from a new set of solutions. These include using AI in predictive analytics to boost real-time process control; for example, by replacing traditional statistical process control (SPC) with real-time, AI-based parameter prediction and full automation of process control.

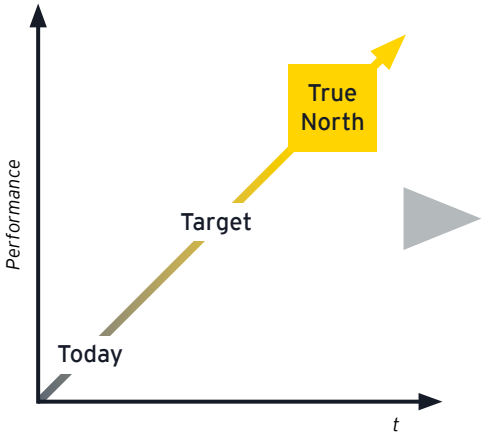
5

Operational excellence 2.0

If OPEX is to evolve to drive digital supply chain transformations, key changes must occur in two major dimensions. Organizations must reshape their approach to target setting and adapt a more comprehensive OPEX framework. Targets must include embedding customer centricity across the whole value chain and developing an agile implementation approach.

OPEX will need to become the common language across the end-to-end supply chain, with targeted process innovation throughout the entire ecosystem. Major barriers to overcome will include the traditional mindset that separates suppliers and customers, sales and purchasing and the unbalanced distribution of power within value streams. True step change improvements will be achieved across entity boundaries and will require an open mindset to share insights, data, challenges and realized benefits. Initially, a neutral third party may be necessary to establish a safe environment to embrace new thinking.

- Set targets for the ecosystem, e.g., agility, flexibility, resilience, waste elimination
- Establish cross-entity OPEX structures
- Agree on benefit sharing



SPOTLIGHT 2

Automation strategy in administrative processes

Most administrative processes are fighting complexity for two reasons: First, because processes have been bundled in shared service centers without upfront standardization. Second, the escalation of new system layers and the spiraling number of useful apps that require updating. Companies often act to make small improvements like these, not realizing that such adaptions can be a barrier to more radical simplification. This is a poor starting point for large-scale robotic process automation (RPA):

only a limited proportion of activities can actually be automated, many processes are not lean, and digitized waste is still waste.

Why did this strategy go down the wrong path? The focus was on costs, not on achieving the best possible processes. While they achieved initial cost savings, rising wages and limited resources eroded the early advantages gained. Such additional cost pressures prevented the completion of necessary process "homework". The result:

unstable and complex processes are automated, with a significant impact on service quality, client experience and flexibility. It is necessary to make administrative processes lean and robust before automation is initiated. Once more differentiated or customized services are introduced to the market, the problem becomes even more evident. The longer organizations wait to clean up, the ultimate goal – of cost savings, greater speed and more process coherence – is further away than ever.

- Start OPEX at the design phases of offerings, products, services and processes
- Go to market fast, check acceptance, then optimize
- Expand CI activities across entities in the ecosystem

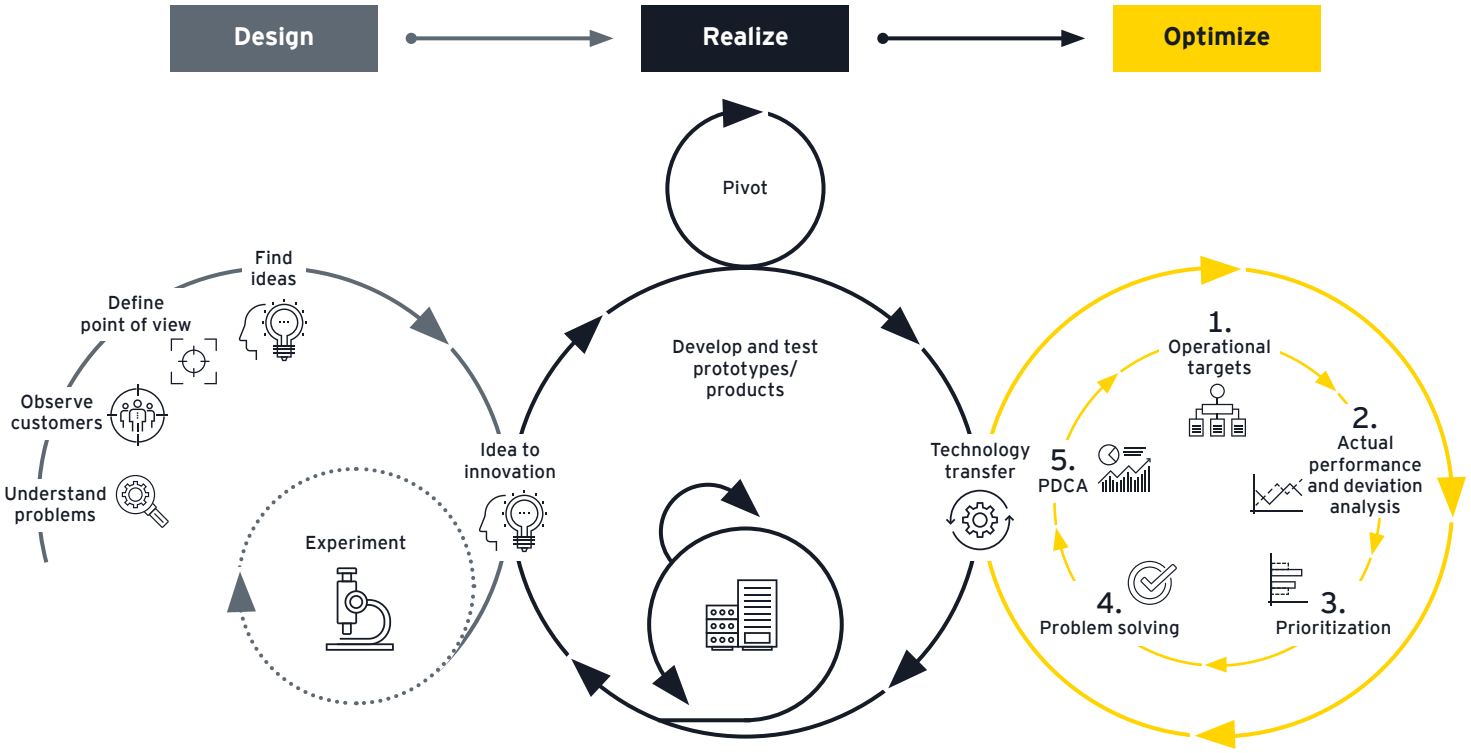


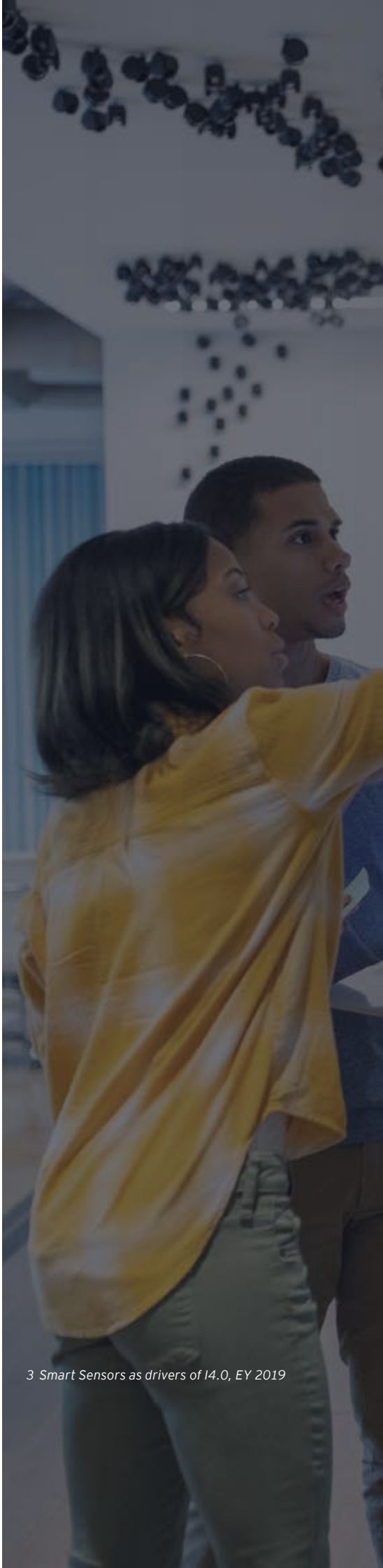
Figure 6: OPEX 2.0 – Targets and framework

Target setting

In digitally transformed supply chains, targets must be set for both individual entities of supply chains and across entity boundaries, for the whole supply chain ecosystem to be fully effective. This cross-supply chain entity approach is the only way that targets – such as implementing an agile approach, being more flexible and resilient, and focusing on eliminating waste – can be fully effective. All members in a highly connected and intertwined ecosystem must accept and commit to defined targets; this will attach greater importance to both the targets themselves and the process of setting them. The establishment of cross-entity OPEX structures and the equitable sharing of benefits within the supply chain ecosystems will help underpin this approach. Such steps will make improvements visible across the entire ecosystem, ensuring collective buy-in and increasing the overall likelihood of success.

OPEX framework

In the future, OPEX must be applied from the beginning of a product/service lifecycle, not just in the later phases (figure 6). This will enable organizations to deliver superior products and services that reflect desired customer expectations and lead to competitive advantage. By expanding traditional OPEX frameworks to the design phase of a product, process or service, a pull effect will involve all members of a supply chain ecosystem and all members of the supply chain. Future OPEX frameworks will also include stakeholders from outside the core entity. By approaching the market in the design phase itself and obtaining feedback to improve initial concepts, more promising prototypes can be developed in the realization phase and consequently can be brought to the optimization phase. This future critical success factor can only be achieved if OPEX and continuous improvement activities are extended across all supply chain entities. By delivering superior performance, this integrated approach will ensure OPEX becomes the defining culture for supply chain ecosystems.



3 Smart Sensors as drivers of I4.0, EY 2019

SPOTLIGHT 3

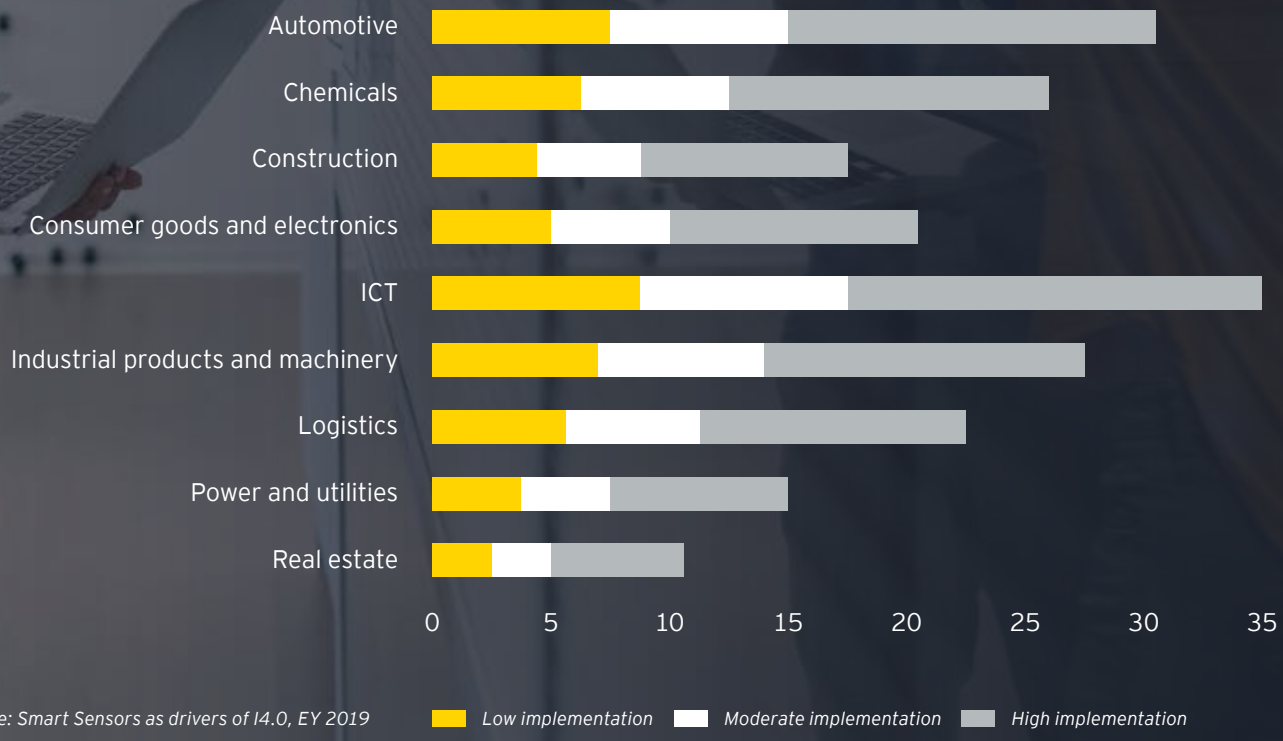
Quantifying the effects of OPEX 2.0

The impact of taking OPEX to the next level can be discussed from two perspectives:

1_ Companies need to compensate against the head winds: customization is leading to smaller batch and lot sizes; labor costs are increasing in former "best cost" regions while simultaneously time-to-market is decreasing dramatically. In this case, OPEX 2.0 would help keep margins at a reasonable level.

2_ OPEX 2.0 is key to unlocking the next 20%–40% of efficiency gains. This approach needs a very open-minded setup, typically targeting the losses at the interface between functions and across legal entities along the value chain. It will lead to extensive automation, redesigned manufacturing and logistics footprints using the full 24/7 capacity of productive assets to convert potential gains into actual savings.

In both cases organizations need to consider sector-specific parameters, such as the maturity of supply chains, the degree and speed of innovation, legal boundaries and the mindset and change readiness of business leaders. EY's 2019 study, "Smart Sensors as drivers of I4.0,"[3] quantified the potential impact of adopting smart sensors in 4.0 applications to achieve process mastery for different sectors. The findings, illustrated in the bar chart, may be seen as a good first indication of the benefits that are still locked in many value chains. For optimum implementation, OPEX 2.0 needs to be implemented in combination with Industry 4.0, based on augmented, high-quality data sets generated with smart sensors.



Source: Smart Sensors as drivers of I4.0, EY 2019

Figure 7: Potential percentage increase in EBITDA margin under three scenarios, 2019–2030

6 Use cases

Tier 1 OEM supplier

Challenge: Recurring gearbox damage with unclear root cause/geographical location of damage, leading to delayed customer deliveries.

Chain of events in a traditional linear and compartmentalized supply chain in response to damaged parts:

1_ OEM makes claims against Tier 1
2_ Tier 1 performs root cause analysis and finds goods were intact on leaving the assembly line
3_ Tier 1 makes claims against logistics provider
4_ Logistics provider performs root cause analysis and identifies that the damage occurs while unloading at a port in North America
5_ Refunds are made through transport insurance
6_ New parts are ordered and delivered

By applying OPEX 2.0, in a supply chain ecosystem where each member is connected via block chain, the problem can be solved at root cause:

1_ Sensors detect shocks throughout the entire logistics chain
2_ A strong shock at unloading triggers a new shipment of gearboxes and the production schedule is changed
3_ The dealer is informed of the new vehicle production date
4_ Block chain allows Tier 1, OEM, logistics provider and insurer to access data
5_ Root cause analysis with all parties involved detects loading aids are incompatible with forklifts in the North American port
6_ Tier 1 modifies loading aids to eliminate root cause

Take-away:

Sensorification of the whole supply chain enables reaction to shocks in real time. Changes in production and delivery schedules are communicated to all members of the supply chain ecosystem to minimize disruption. By providing data and information to all supply chain players, root causes can be identified and solved faster and more effectively.

Use of digital twins to improve KPI monitoring and shop floor management

Challenge: Process deviations are often overlooked or addressed too late to realize real-time process improvement due to low visibility and a lack of clarity on out-of-control action plans.

Chain of events in a traditional system for shop floor observation and management:

1_ A process deviates from the standard resulting in out of specification products or services
2_ Management finds out about process deviations – after an average time delay of 24 hours – during daily performance meetings
3_ With the root cause for process deviations unclear, scrap production mounts
4_ The time window for taking appropriate countermeasures elapses
5_ Blame game ensues between supervisors
6_ Irretrievable losses in production time and yield

By applying OPEX 2.0, the implementation of digital twins in combination with automated process mining supports human action and decision-making. Traditional lean principles are therefore brought to the next level:

1_ A real-time digital twin mines process data, identifying process deviations as they occur.
2_ The digital twin is connected to a real-time KPI dashboard via a standardized work flow.
3_ Real-time comparison, if set specification and control limits are violated, with visualization in KPI dashboard via color coded alarm mechanism.
4_ Visual management triggered by digital twin, for example by color-coding an alarm device on supervisor's desk. This highlights the point in the process where deviation was detected.
5_ The supervisor acts immediately and "goes to the Gemba" (that is, visits the shop floor in lean terminology). Understanding the issue, they trigger appropriate escalation mechanisms and identify immediate remediation measures.
6_ Business loss is kept to a minimum, due to the real-time visual management triggered by the digital twin and the supervisor's real-time root cause analysis.

Take-away:

Digital twins, as virtual models of a process, product, component or service, can act as a bridge between the physical and digital worlds. They can thus minimize losses by real-time notification, with the opportunity to take countermeasures for deviations from a defined standard. The chance of minimizing the time between a deviation and remedial actions minimizes business losses. Furthermore, the value-added applying of proven lean principles to tangible business measures is boosted by enriching analog concepts with innovative digital systems.

Technology-driven continuous improvement in delivery logistics

Challenge: Delivery delays due to external disturbances, such as traffic jams disrupt production and internal logistic schedules for clients that depend on just-in-time delivery of materials.

Chain of events in a traditional supply chain, without the use of 4.0 technologies:

1_ Delivery schedule for three clients within the supply chain, based on a fixed milk run route from the warehouse with defined delivery times for ordered materials
2_ Truck driver faces multiple time delays due to traffic jams on the defined delivery route, resulting in late delivery at all three clients
3_ No real-time update to clients of new delivery times – nor information to delivery supervisor – leads to production hold-ups at all three client sites that run according to just-in-time production with efficient stock volumes
4_ Late delivery and low transparency due to the lack of real-time delivery updates mean all three clients face production losses and must ramp up their own coordination and communication

By applying OPEX 2.0 – and leveraging cloud-based real-time information about events that jeopardize defined delivery schedules – data-based alternative routes can be explored, minimizing delays and losses for all members of the supply chain:

1_ Delivery truck driver receives real-time notifications about traffic situation and delays on defined delivery route.
2_ Information about alternative routes received on mobile device. If other options exist, truck driver deviates from initial route. If no alternative routes are possible, delivery supervisor receives immediate automated information.
3_ Supervisor informs clients about updated delivery times and evaluates options to minimize delays.
4_ Supervisor decides to service last client on original milk run route with a spare truck, realizing on-time delivery for this one client.
5_ The two other clients are informed about the updated delivery times, enabling them to adapt production schedules if necessary.

Take-away:

Real-time information about supply chain disruptions, using apps and push notifications in combination with real-time data-based decision-making, enables decision makers to minimize losses within the supply chain ecosystem. In addition, increased transparency via real-time information use gives all supply chain members the maximum time to adapt their plans or take appropriate action to minimize externally induced losses.

Opera excellence tional 2.0

Martin Neuhold
Leader EY GSA Supply Chain & Operations

Ernst & Young GmbH Wirtschaftsprüfungsgesellschaft
Leader EY GSA Supply Chain & Operations

martin.neuhold@de.ey.com
+49 621 4208 13716

Contact

BY MARTIN NEUHOLD,
DR. CHRISTOPH KILGER,
CHRISTIAN POESCHL

MARCH 2020

EY | Assurance | Tax | Transactions | Advisory

About EY

EY is a global leader in assurance, tax, transaction and advisory services. The insights and quality services we deliver help build trust and confidence in the capital markets and in economies the world over. We develop outstanding leaders who team to deliver on our promises to all of our stakeholders. In so doing, we play a critical role in *building a better working world* for our people, for our clients and for our communities.

EY refers to the global organization, and may refer to one or more, of the member firms of Ernst & Young Global Limited, each of which is a separate legal entity. Ernst & Young Global Limited, a UK company limited by guarantee, does not provide services to clients. Information about how EY collects and uses personal data and a description of the rights individuals have under data protection legislation are available via ey.com/privacy. For more information about our organization, please visit ey.com.

EYG no. 003242-20Gbl
GSA Agency
KKL 2005-800
ED None

ey.com