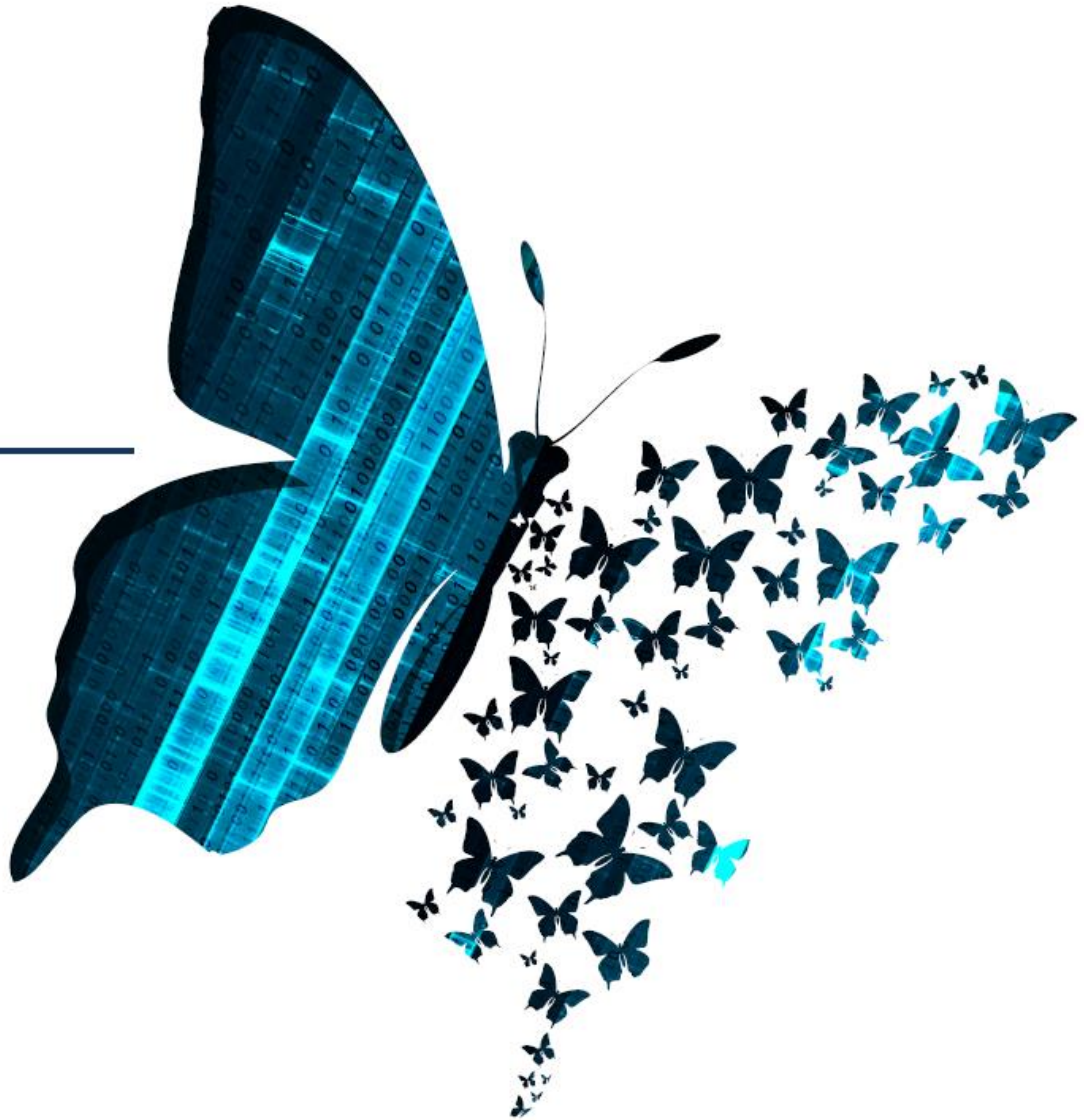
EMERGENCE: THE FUTURE OF OPERATIONAL EXCELLENCE

What Will Business Process Look Like in 2025?

PEX Network Annual Report 2016



PEX PROCESS EXCELLENCE NETWORK

In association with:

Appian

Pega

softomotive

bpm'online

promapp smarter processes

stereologic

Table of Contents

Table of Contents 2

Foreword 4

Introduction 8

The Changing Face of Business Operations 11

Prediction# 1: Successful companies will manage their processes as strategic assets 22

SPOTLIGHT INTERVIEW: Promapp on Ensuring Strategic Focus for Process Excellence 25

Prediction #2: Modularity and flexibility will be built into processes to enable rapid business change 27

SPOTLIGHT INTERVIEW: Stereologic on Today's Process Challenges and New Rapid Methods of Process Mapping and Measurement 30

Prediction #3: Customers and employees will be able to design and customize processes 33

SPOTLIGHT INTERVIEW: Appian's Michael Beckley on What the Low Code Revolution Means for Business 36

Prediction #4: Companies will dramatically increase investment in process automation capabilities 38

SPOTLIGHT INTERVIEW: Softomotive on the Future of Robotic Process Automation 42

Prediction #5: Incorporating "big" and "small" data into processes will be a key focus 44

SPOTLIGHT INTERVIEW: Pegasystems on How the Internet of Things Will Reshape Business Operations 49

Prediction #6: Getting the process basics right will be THE critical foundation (but it's not enough on its own) 52

Process Capabilities of the Future 58
Conclusion 63
Interested in Learning More? 64
Report Sponsors 65
Acknowledgements 69
About PEX Network 70
Sources 71

Foreword

By Dr. Setrag Khoshafian, Chief Evangelist & VP of BPM Technology Pegasystems

With the advent of the 4th Industrial Revolution, disruptions in digital technologies have transformed the way we connect, interact, and innovate. Technologies in connectivity, social, mobility, IoT, artificial intelligence, and analytics are converging – thus producing a new era of consumers that expect a more connected experience that is contextual, specific, and instantaneous. Consequently, enterprises today need a continuous delivery model that can rapidly bridge the technology chasms and concurrently, allow enterprises to provide differentiated products and services to keep pace and adapt to increasing customer expectations.

It can be tempting to look at Operational Excellence and the underlying Business Process Management (BPM) and Dynamic Case Management (DCM) technologies as being passé in this digital era of rapid change. However, you may be surprised to learn that instead of fading quietly into the background, these technologies have been revamped, modernized, and are at the core of empowering digital transformation of enterprises that are succeeding in this new era. After all, if technologies are disrupting business models, enterprises need a way to manage business change and the ripple effects throughout their own organization, partners, and customers.

Targeting this new generation through digital innovation, while embracing well-proven disciplines of process improvement, is not an easy task. Here's a quick overview of some of the key considerations from the PEX report that enterprises should consider:

Faster and More Agile businesses: Given the speed of change on technologies and business value, enterprises will need to

simplify technology portfolios including reducing data centers, platforms, and applications to drive IT efficiency and improve alignment between business and IT.

Digitizing Value Streams: Digital Transformation will increase transparency, visibility, and control of the value stream. Digital enterprises need to realize that the end-to-end value chain of work assigned to different units is as strong as the weakest link. The entire stream needs to be digitized and optimized: not just individual links within business units. These value streams now have connected devices (Things), people, partners, enterprise applications and even customers as participants. Automation with robotics as well as people and devices is transforming entire industries.

Demanding Customers: The new generation of customers is increasingly demanding. With the convergence of various technologies in social, connectivity, mobility, and IoT, customers demand a connected experience that is contextual, meaningful, instantaneous, and entertaining. Furthermore, social networking channels have given them a powerful voice, allowing them to instantly provide feedback (good and bad) and share ideas about products, services, and companies.

Decisions and Analytics Driving Processes: One the most disruptive trends in the digital era has been the impact of "Artificial Intelligence" upon many business operations and processes. AI here is used as an umbrella that encompasses business rules, analytics (deep or shallow) as well as cognitive computing. But AI needs a context. What is discovered and mined from data – Big or Small – need to be operationalized and executed. Above all, it needs to continuously improve processes.

The Rise of Things: From wearables to smart homes and cities. From connected cars to digital devices in transportation, utilities and manufacturing, the connectivity of humans that was launched through the Internet revolution is about to explode with a massive network of connected sensors and actuators. The Internet of Things is has become unique, addressable devices over the Internet. Things, of course, are manufactured and increasing the level of connectivity between the manufacturer and consumer. IoT is disrupting process improvement in all industries: manufacturing, energy, transportation, insurance, and healthcare – to name a few – with smart and connected devices in processes.

The Sixth Prediction is extremely important. It goes back to the aforementioned balance as well as the modernization and digitization of Operational Excellence. Process improvement in adaptive digital enterprises needs to be holistic. Increasingly, real-time responsiveness for

Operational Excellence is becoming commonplace – and sometimes essential for mission critical applications. The speed and agility in building and changing new innovative digital Operational Excellence solutions are paramount.

Through a clear articulation of proven process improvement approaches in the context of emerging digitization trends, PEX has succeeded in capturing the essential pillars for success. It is an important and seminal work. Taken to heart, it could help adaptive digital enterprises embark upon digital innovation initiatives while avoiding waste, improving customer experiences, and keeping their processes in control in real-time. In other words, the Future of Operational Excellence for a digital era!



Dr. Setrag Khoshafian, Chief Evangelist & VP of BPM Technology Pegasystems


“The future is here. It's just unevenly distributed.”
William Ford Gibson, Science Fiction Writer

Introduction

A lot can change in ten years. In 2006, Jack Dorsey had sent the first tweet – "just setting up my twttr" - on a little known website and Apple's visionary CEO Steve Jobs was hatching up plans for his company to launch into the mobile phone market (which was to be released in 2007). If you had heard the term iPad at the time, you might be forgiven for thinking that it was a new sanitary product rather than a powerful computing device that would change the way that people accessed the internet and information (it wasn't released until 2010). Facebook started the year as a platform for university students and didn't open its doors to all users until September 2006.

Meanwhile, some commentators were beginning to question the risks associated with something most people had heard nothing about: sub-prime mortgages. It would be another 2 years before the failure of Lehman brothers, and governments had to step in to save banks and stop the world's economy from grinding to a halt.

Ten years on and these are just a few of the headwinds that have created something that businesses now accept as the "new normal." Social media and the ubiquity of mobile and new digital platforms have increased the power of consumers and enabled entirely new ways of working. Continued low growth in developed economies and uncertainty over the sustainability of growth in developing economies, particularly China, means that businesses must eke out productivity improvements and identify new sources of revenue growth through innovation.

These changes have brought with them entirely new ways of thinking about business operations and processes.

But what will the future hold? What are the demographic and economic trends that will shape markets and businesses tomorrow? Which technologies will drive fundamental changes to our ways of working, living and developing as individuals and employees? More importantly for PEX Network's community, what will the impact of these big picture changes be on approaches to Operational Excellence and the profession itself?

PEX Network believes that the companies that will survive and thrive in the decade ahead will be those that truly understand shifting market dynamics and be able to harness new digital technologies to design effective experiences for both customers and employees. This means continuing to make processes simpler, easier and better. But it also means going beyond these basics and looking at how emerging technologies can enable new ways of delivering value, freeing up employees for more productive and creative tasks. It means moving beyond the limits of merely "process thinking" and adopting new approaches to tackle the challenges and opportunities that lie ahead.

Above all, in a way similar to the consumer technology revolution precipitated by Apple's Steve Jobs who emphasized that technology isn't just about utility, the successful business operations of the future won't be driven merely by the principles of "engineering" and "function" but will also incorporate "design" and "form". It won't be enough to have processes that merely work. Business processes will need to become engaging and understand how to help people – whether customers or employees – drive desirable outcomes.

In essence, business processes need to create more effective user experiences across the myriad of digital and social platforms through which people carry out work.

The current challenges that businesses face are already starting to emerge. The impact of predictable demographic change and technological capabilities that are creating the conditions that will allow a new version of business processes to grow. Those who anticipate and drive this future will most effectively deliver value to their organizations and their customers.



"The current young generation is very savvy in using social media applications such as Facebook and Twitter. When dealing with service providers, they want quick responses and ease of interaction. They have little patience for navigating through burdensome processes. And they are not going to be shy in sharing their experiences, good and bad, with others in their network and beyond."

Atul Bhatt, Enterprise Architect at Wells Fargo

The Changing Face of Business Operations

The business landscape has changed dramatically over the past decade. Digital technology (which will be discussed more widely in the next section) has had wide reaching consequences in enabling new ways of working and driving changing business models. Meanwhile, the demographics of both customers and employees have also shifted enormously, opening up new opportunities for process change but also increasing pressures on business to raise productivity and efficiency.

The rising power of the Millennial Generation puts pressure on businesses to simplify, automate and speed up processes

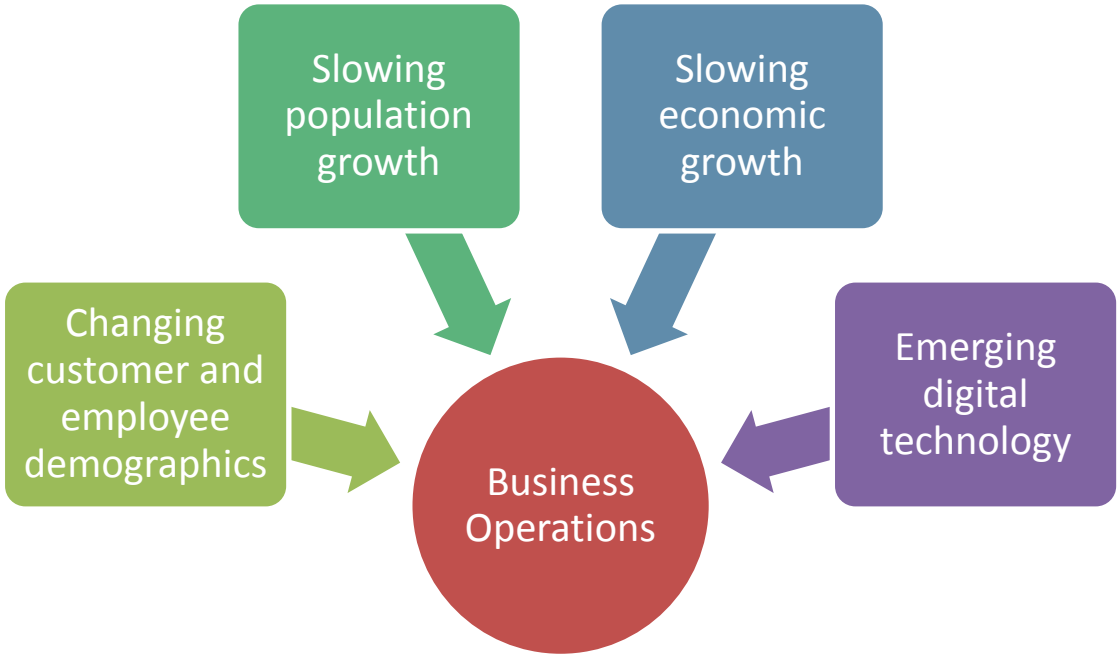


Figure 1: The key forces of business change in the decade ahead

The widely discussed Millennial generation (those people born between 1980-2000), for instance, are becoming an increasingly powerful demographic. Currently, approximately 25% of the workforce in the United States is made up



The Millennials have come of age with digital technologies and expect processes to be simple, technology-based and fast

of Millennials, according to a report by consultancy PWC. By 2020, the report predicts, Millennials are expected to form more than 50% of the global workforce. As they reach their peak earning power and move into more senior management roles, the impact of Millennials will be more widely felt both as consumers of company goods and services and also increasingly as the generation driving those companies.

That's one reason that this generation has been the focus of many reports to understand their particular characteristics. Millennials are perceived to be less loyal to employers - 44% of millennial employees expect to change employers within the next 2-3 years, according to a Deloitte 2016 Millennial Survey – impatient for career progression and change, critical of manual processes and outdated systems, and hungry to make an impact within their organizations.

"What millennials bring is newness to the workforce," observes Dennis Narlock, Director of Operations at manufacturing firm Catalent Pharma Solutions. "They have a lot less patience and want to move quickly, which I think aligns to the direction that process excellence is going. It's more about how do we get better

today? We can't wait six months for things to get fixed."

Atul Bhatt, Enterprise Architect at Wells Fargo, agrees. "The current young generation is very savvy in using social media applications such as Facebook and Twitter. When dealing with service providers, they want quick responses and ease of interaction. They have little patience for navigating through burdensome processes. And they are not going to be shy in sharing their experiences, good and bad, with others in their network and beyond."

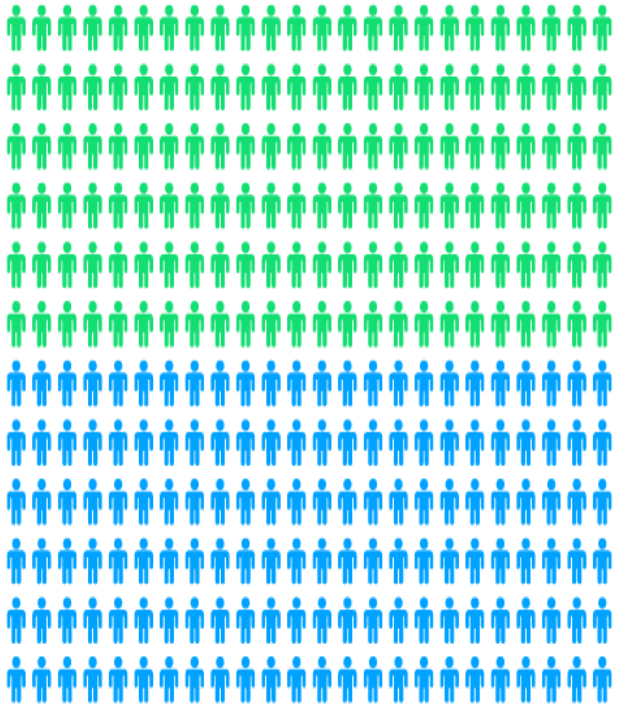
It is difficult to say whether their attitudes are markedly different from those that have gone before (current studies do not have comparative data of previous generations at a similar stage in their career and lives) but what is certain they have grown up at a time of remarkable technological change. Digital technology has been widely available throughout their lives. This has changed social interactions, increased response times, and improved access to information.

"Changing demographics is subtle but it's at our peril if we don't pay attention to it," says Brent Harder, Director at BNY Mellon. "To operate in the future - with its new ways of interacting with customers through social and other online media and the speed at which those transactions will occur - we need to fundamentally change the way we think."

Companies wishing to get out in front of the demographic curve need to start preparing for a future where processes and digital experiences will be designed to compete with best in breed consumer platforms.

By 2020, millennials will form 50% of the global workforce.

Source: PWC: Millennials at work: Reshaping the workforce



> *"Students will ask why this organization can't deliver services in the same way as Amazon or Apple. That may be a big ask, but people have high expectations now. Things don't have to be complex; they just need to work and to feel like the customer is at the heart of that service."*
>
> *Marc Grey, Program Director for Operational Excellence, Imperial College*

Marc Grey, Program Director for Operational Excellence at London's Imperial College, says that the students they see coming through our college don't understand why their interactions with a company's processes aren't as easy as those on the digital platforms that they've grown up with.

"If we have apps or services that they [the students] engage in through mobile channels and they are clearly not competing [...] then it distracts from the overall experience," he says. "Students will ask why this organization can't deliver services in the same way as Amazon or Apple. That may be a big ask, but people have high expectations now. Things don't have to be complex; they just need to work and to feel like the customer is at the heart of that service."

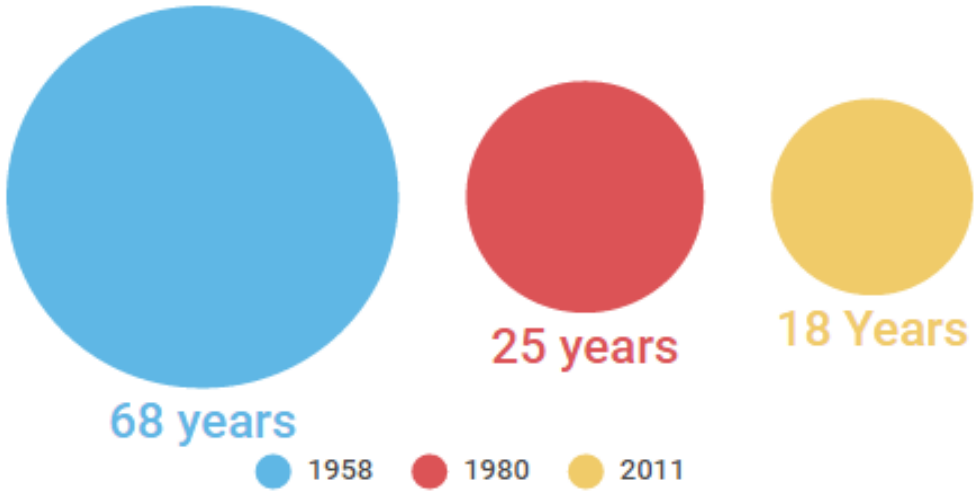
Those companies that can adapt their processes to deliver these new kinds of engaging and simple experiences, products and services that millennial customers and employees expect, will see success in the future. That means first making sure that processes work then thinking through what you want users to understand, experience and do as they progress through the process.

Slowing population and economic growth requires both growing efficiency and innovation

Demographic change will also put pressure on businesses to increase labour productivity. Global population growth is expected to decline from an average of 1.3% over the period between 1980 and 2014 to an annual average of 0.5% during the years up to 2050, according to the

The average lifespan of an S&P 500 firm is 18 years today down from 61 years in 1958. By 2027, new firms will replace 75 percent of the companies that were in the Index in 2011.

Source: Innosight Consulting Research



Economic Intelligence Unit (EIU). The global growth rate of the working-age population will also slow to 0.3% compared with an average growth rate of 1.7% between 1980-2014

Companies can, thus, no longer rely on population growth alone to drive economic advancement. Developing economies will need to "make gains by moving from less technologically intensive production to capital-intensive manufacturing production," according to the EIU report. "But for more advanced economies it will be gains from the more efficient usage of capital through increased technological progress as a result of investment in research and development (R&D) that will boost growth."

That means it will be harder for companies in developed economies to maintain their competitive advantage for any length of time without continual

improvements in products and services and how they are delivered. The pace at which innovations and improvements need to be delivered is growing ever faster: companies are going extinct or losing market share at a pace unprecedented in history.

An analysis of the S&P 500 index, conducted by strategy consultancy Innosight, for instance, found that the average lifespan of an S&P 500 firm was 18 years in 2011 down from 61 years in 1958. By 2027, the company claims, new firms will replace 75 percent of the companies that were in the Index in 2011.

"Companies have to develop their innovation capabilities and this includes culturally learning to accept some failures as they iterate their offerings, or they're going to go out of business," says David Hamme, a consultant and Shingo Award Winning Author. "They need to keep an eye on the future customer and continually seek to learn about those product attributes that will cause them to purchase their product versus the competition."

Process and operational excellence will have an important role to play to enable organizations to innovate.

"Having structure in place for the stuff that is boring and that you have to do, gives you space in the day to create the things that are innovative," argues Ian Gotts, CEO and founder at Q9 Elements. "Innovation isn't about everyone coming in everyday and being wacky and asking what should we do tomorrow? Instead it's thinking about, within some parameters, how can we genuinely change things that will improve the customer, employee or partner experience?"

The need to do things differently is likely to increase as economies become increasingly global and the companies in developed economies experience competition from not only Silicon Valley disruptors like Uber and AirBnb but also from fast growing companies in emerging economies like China and India. Indeed, China's nominal GDP is expected to overtake that of the United States by 2026, according to the EIU and India's economy is expected to grow to third largest in the world, with growth averaging around 5% to 2050.

Powerful, but simpler and more user-oriented technology platforms enable entirely new ways of working

Technology has been an integral part of improving efficiency and effectiveness in business operations for decades. Innovations in the conveyer belt system allowed Ford to roll off thousands of his black vehicle faster than his competitors. ERP systems in the 1990s enabled companies to automate and better

control core processes such as inventory and order management. The more recent past has seen the rise of self-serve systems (for instance in ATMs or supermarket checkouts, for instance) as companies use digital technology to automate customer service functions.

The impact of technology is wide reaching in scope. According to the United Nations global internet usage, for instance, has increased from 6.8 per 100 people in 2000 to 38.1 people in 2013 while mobile cellular subscriptions have increased from 12.1 to 92.6 per 100 people over the same period. Unprecedented numbers of people have access to what are, in essence, powerful pocket computers. This, in turn, is enabling new business models (for instance, Uber would not be possible without ubiquitous smart phones) and new ways for companies to serve and interact with their customers and employees.

Futurist Ray Kurzweil predicts that by 2019 the power of a $4,000 computer will surpass that of the human brain

Source: Wikipedia



Even technology that once seemed the domain of science fiction has now started to bear fruit. When a computer program, "AlphaGo," beat one of the world's top Go players earlier this year (a South Korean game considered the "holy grail" of Artificial Intelligence because of the number of potential moves an individual player can make), it was seen as evidence that Artificial Intelligence had truly come of age. The program, developed by Deepmind, an artificial intelligence company acquired by Google in 2014, surpassed all expectations as the ability for a computer to beat a professional Go player was a capability thought to be another decade away. Meanwhile, futurist Ray Kurzweil predicts that by 2019, the computing power of a $4,000 computer will surpass that of a human brain.

But as the technology world races ahead with incredible new capabilities including process automation, data analytics, robotics, wearable technology, cloud computing, low code and artificial intelligence, it will take some time for organizations to work out which technologies to implement for what purposes and in which ways.

"From a technology standpoint, we have unbelievable capability today," says Dan Morris, Author and Managing Principal of Wendan Consulting. "But we, as an industry, are not yet taking advantage of those capabilities. It's like having a Ferrari that we use to carry tomatoes."

Management theorist and consultant W. Edwards Deming once said: "If you don't understand how to run an efficient operation, new machinery will just give you new problems of operation and maintenance. The sure way to increase productivity is to better administrate man and machine."

That maxim rings true today as many businesses get into trouble by expecting technology to resolve the issues that they're having in their operations and

"From a technology standpoint, we have unbelievable capability today. But we, as an industry, are not yet taking advantage of those capabilities. It's like having a Ferrari that we use to carry tomatoes."

Dan Morris, Author and Managing Principal of Wendan Consulting

processes.

"Anything you're going to do in an automation, robotics, or improvement perspective, you have to understand what you do first. You have to understand what you are improving. You still need to understand the complete understanding of process," observes Brent Harder of BNY Mellon.

Additionally, although business technology, in general, has made great strides in the last decade towards greater simplicity, ease of use, and lower cost of implementation, we have yet to see an "Apple" revolution in business process technology.

"You go on your favorite website to shop or browse and that experience and the process is seamless. The content is relevant and being served in a visually appealing way," says Vince Pierce, Chief Strategy Officer at financial services firm Ryan. "But the solutions we ask our employees to use are often terrible. We need people who can design intuitive systems. The process needs to be fluid, make sense and even be enjoyable for people. You can apply Lean principles and good process excellence principles to those systems."

As more vendors start to provider low cost, user-friendly alternatives to existing business technology and as organizations mature in their control and understanding of their business operations and processes, these more advanced technologies will play an even greater role in running efficient and customer-oriented business operations.

bpm'online

Process-driven CRM software for marketing, sales and customer service automation

Process-driven CRM enables to:

1. Gain the agility to change processes in the CRM faster than ever
2. Align marketing, sales and service on a single CRM platform

Bpm'online products help thousands of companies worldwide to streamline customer-facing processes and improve operational efficiency. The solution received multiple product awards and has been widely recognized by key industry analysts, including: Gartner, Forrester, Nucleus Research, Ovum, ISM and Hypatia Research.

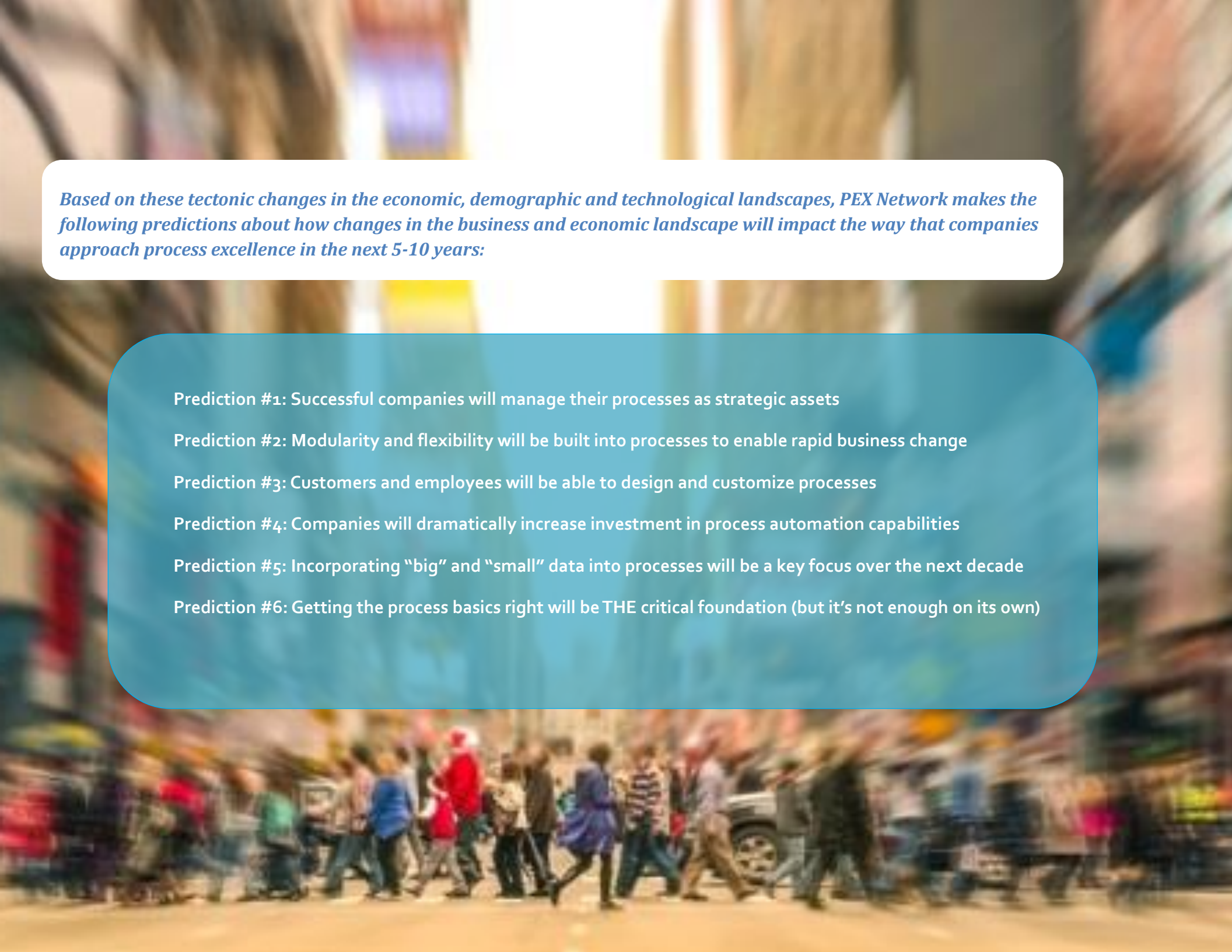


- Powerful business process management (BPM) engine
- Out-of-the-box best practice processes
- Dynamic case management (DCM) capabilities
- Single platform for marketing, sales and service automation

www.bpmonline.com
info@bpmonline.com

USA: +1 617 765 7997
UK: +44 20 3384 0040

Australia: +61 261 452 888
Singapore: +65 9060 0275



Based on these tectonic changes in the economic, demographic and technological landscapes, PEX Network makes the following predictions about how changes in the business and economic landscape will impact the way that companies approach process excellence in the next 5-10 years:

Prediction #1: Successful companies will manage their processes as strategic assets

Prediction #2: Modularity and flexibility will be built into processes to enable rapid business change

Prediction #3: Customers and employees will be able to design and customize processes

Prediction #4: Companies will dramatically increase investment in process automation capabilities

Prediction #5: Incorporating "big" and "small" data into processes will be a key focus over the next decade

Prediction #6: Getting the process basics right will be THE critical foundation (but it's not enough on its own)

Prediction# 1: Successful companies will manage their processes as strategic assets

This new world that businesses are entering will differentiate between the companies that see operational excellence merely as a way to reduce costs, drive efficiency and improve quality and those that understand that the true benefit of processes comes in how they enable businesses to transform strategic intent into reality.

"Operational excellence has been typically more of a middle management type of role," observes Roop Singh, Business Process Architect at Dell SecureWorks. "Increasingly, it needs to be strategic otherwise you won't be able to get the value that we're really looking for."

As new competitors enter the market and established industries fall prey to



Do your processes and systems make sense within the context of your business strategy?

disruptive business models, the ability to quickly and nimbly enable the organization to pursue new opportunities and put into practice new services, products or business models will mean the difference between success or failure in the future.

"At the end of the day, processes are the actualization of your strategy," says author David Hamme. "So we need to stop thinking about processes as efficiency tools and start thinking about them as strategic constructs. It helps to think of processes as Legos – operational building blocks that you assemble to construct an organization that delivers exactly what your customer wants from you."

Rick Hepp, Executive Director, Operational Excellence at Bristol-Myers Squibb agrees, suggesting that process excellence is the nexus that can drive business performance. "How do you differentiate for superior competitiveness?" he asks. "It's really about the strategy of agility, service and cost with a focus on the customer and the marketplace. That's where process excellence comes in."

Process excellence practitioners often focus on getting organizations to make small, incremental changes to processes. The theory is that those small improvements, added up over time, will equate to major improvements overall. While small changes, made daily, are important, they can also result in the sub-optimization of processes (for instance, when one department makes changes to a process that merely creates or pushes problems elsewhere in an organization). Equally, continuously improving a process

"At the end of the day, processes are the actualization of your strategy. So we need to stop thinking about processes as efficiency tools and start thinking about them as strategic constructs. It helps to think of processes as Lego – operational building blocks that you assemble to construct an organization that delivers exactly what your customer wants from you."

David Hamme, consultant and Shingo Award Winning Author

that has outlived its usefulness – or for a business model that is no longer competitive - can equate to rearranging the deck chairs on the Titanic.

"The fundamental question is: why are we doing this in the first place?" says Dan Morris, PEX Network columnist and Principal of Wendan Consulting. "Once you redesign a process you need continuous improvement – it's important – because things keep changing and you need to work with everything you have in place. But you still have to look at periodically whether processes and systems make sense within the context of your current business strategy."

This will require a new, more strategic type of process excellence leadership. In the future, any work that doesn't help a company achieve its goals will be ever more untenable for companies as competitive pressures really start to bite. Responding to impatient millennials will also mean less time to effect change. Put simply, process professionals that don't clearly and quickly deliver value to their companies and support the underlying business strategy will soon find themselves out of a job.



SPOTLIGHT INTERVIEW: Promapp on Ensuring Strategic Focus for Process Excellence

Process improvement is something that requires sustained momentum. Governance must be put in place that will ensure teams continue to collaborate and find ways to boost productivity and effectiveness, says Ivan Seselj, CEO, Promapp.

Why is it so important to ensure that process excellence efforts are aligned with business strategy?

Process excellence efforts require engagement, buy in and participation across the business in order to be successful. If they are not aligned with, or in fact, if they are not an integral part of your business strategy, process excellence efforts become viewed as something that is optional, unimportant or "a project that Bob the Process Improvement Manager is responsible for" i.e. not my job. Essentially, you will have failed before you've begun.

And while it's a great starting point, alignment with business strategy will not singularly guarantee process excellence success. There is an essential role to be played by the executive team, who must communicate the importance of process management activity. Visible leadership is critical – the leadership team must clearly and regularly express their belief in the impact process excellence efforts will have on the organization's long-term strategy and success – and in the role everyone in the organization plays in these efforts.

Where do companies often get this wrong?

Process improvement should ideally be a living breathing part of the culture. Some companies still view process improvement efforts as individual projects, or they view static process documentation as the end game.

The introduction of external experts parachuted in to work on "process improvement projects" can also hamper a process culture by disenfranchising the true process owners – the employees on the ground.

For years the focus of process improvement efforts has been on tools and methodologies, at the expense of harnessing the real engine of change – engaged teams that are driven and encouraged to improve and succeed. Engaged teams armed with the right attitude can turn their efforts into real improvement for the business.

What, in your opinion, is necessary to make process excellence more successful?

When managed effectively, process can become a critical enabler of competitive differentiation and a strategic asset.

Elements that are critical to the success of BPM efforts include process ownership, establishment of a governance structure, the role of "visible" leadership, the introduction of a central, accessible process repository, and the application of process methodologies that communicate knowledge in formats which are appropriate for the intended audience.

For a process-centric culture to permeate an organization, an effective process ownership framework needs to operate from top to bottom. First, senior management must have complete buy-in and communicate this clearly and regularly. Second, Process Champions should be appointed to ensure activity remains on track and teams stay focused. Third, there are the Process Owners who actually work with the processes every day. They are responsible for establishing and improving processes over time so they need to understand their responsibilities and how their activities fit into the big picture. For process excellence efforts to be successful, teams need to 'own' their

own processes.

Process-centric organizations must also have the ability to centrally store and manage their process knowledge.. This central store becomes the repository for corporate know-how about all processes and is an invaluable asset to drive ongoing innovation – but only if it is easily accessed and frequently used by teams across the business.

We're often told that process is boring and senior executives aren't interested in it. Do you think this will change in the future?

Exec teams no longer have the luxury of deciding whether to embrace process. The pace of digital disruption is increasing by the day. To survive in this 'new normal' world, organizations must constantly strive to innovate. Those that do stand to succeed, those that don't risk becoming irrelevant and closing their doors. The ability to innovate has suddenly been elevated from a 'nice-to-do' activity to being a survival factor.

Innovation has to cover every facet of an organization's activity. Old methods of working must be examined to determine whether they are adding maximum value. Product and service offerings must be constantly evaluated and improved to ensure they are meeting evolving market demands.

Senior leaders hold the key to the extent and success of innovation within their organization. Without their direction and clear support, any activities designed to stimulate innovation will not be sustained and the potential benefits not realized.

Indeed, unless everyone from the Chief Executive down makes innovation a top priority, it simply won't happen. This is because true innovation requires a level of risk-taking and failure that's just not possible without this top-down support.

Prediction #2: Modularity and flexibility will be built into processes to enable rapid business change

Business professionals have long lamented that the pace of change is growing ever faster and that processes and operations struggle to keep up. The fact is that increasingly global markets, slowing population with economic growth and changing customer habits translate into greater competitive pressure and the need for companies to change processes and business models more often and more quickly.

"We cannot afford to take years and years in designing large processes that later morph into monolithic monsters that are inflexible and hard to manage," says Atul Bhatt at Wells Fargo.

PEX Network research has found that process excellence projects have gradually been getting shorter. A 2013 PEX Network survey found that the number of process improvement projects taking less than three months has increased from under 10% in 2005 to over 20% in 2013.

But it's not just a question of delivering rapid project benefits. Several practitioners spoke of the need to make processes more "modular," like a series of building blocks that can be added, removed or changed as business circumstances require.

"You need to have foresight so that you can pull out pieces of the operation and put in other pieces. We need to be able to change any part – any function – or just take it out and throw it away and put in a new one," says Dan Morris of Wendan

Over 20% of process improvement projects currently take 3 months or less, up from less than 10% of projects in 2005

Source: PEX Network survey, 2013

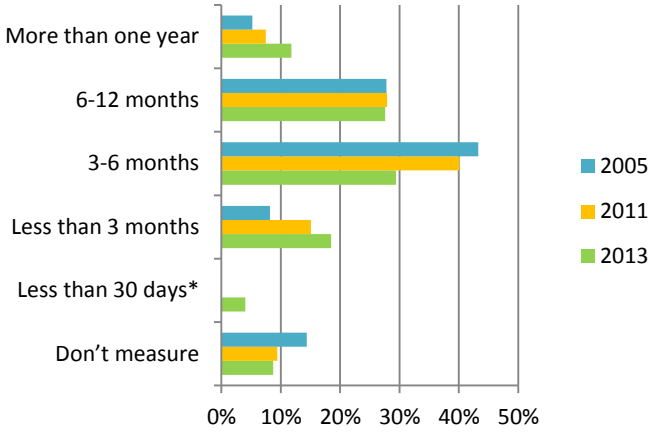
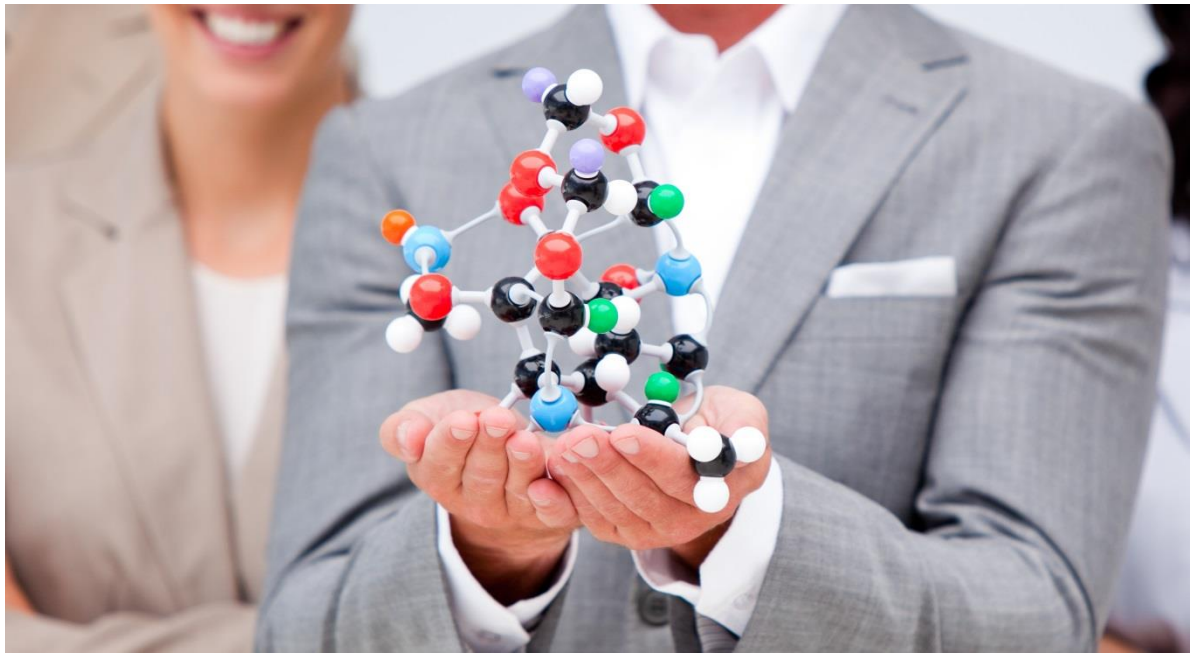


Figure 2: Average length of process improvement projects

Consulting. "If you can figure out a framework that allows you to change quickly and allows you to innovate – then you're going to beat everybody."

Atul Bhatt, from Wells Fargo, agrees. "We need to think 'modular' while designing processes. Build them by assembling modular '*building blocks*,' so when faced with changes – whether stemming from customer behavior or company demographics – you can quickly reconfigure the modules and stay nimble."

Ian Gotts, CEO and founder of Q9 Elements, says that understanding how the pieces of a process fit together is already possible by hierarchical mapping to documenting processes. "As long as the inputs and outputs aren't affected you can enable people to make changes to improve their scope of work at any level; executive, manager, worker. It means that they're still aligned with the company's



The ability to adapt business models and operations rapidly will involve designing processes in a more modular way

end to end processes and they're not impacting other parts of the end to end process."

The Agile development method has often been cited as a one way to adopt a more nimble approach. It is an IT technique that develops software in a series of "sprints" that aims to develop functionality quickly and get user feedback before moving onto the next stage. The theory is that this improves the success of software

development projects by catching any problems early and allowing the development teams to make adjustments as they go. In practice, though, many companies use Agile development as a way of avoiding all the specifications, requirements gathering and documentation that a more traditional "waterfall" approach demands.

The Lean Start Up methodology, popular among Silicon Valley entrepreneurs, is another approach that some see as playing a bigger role in process change and development. The approach espouses the creation of "minimum viable products" (i.e. products with the fewest frills that the market will bear) and testing it on the open market. It's based on the idea that first iterations of products or services rarely get everything right and early testing allows entrepreneurs to adapt and "pivot" to new strategies before dumping all their money into a losing bet. The principle could easily be adapted to process improvement where practitioners can test or model "minimum viable processes" to understand the impact of process changes.

PEX Network can foresee other new approaches emerging for Process Improvement that allow for greater modularization of processes and experimentation. There needs to be an overall plan and understanding of how processes fit together – end to end – to deliver value to customers. Processes also need to be linked to an understanding of how they enable the overall business strategy. But in an environment where time is scarce and rapid change often required, the ability to rapidly test and adapt processes is of critical importance.



SPOTLIGHT INTERVIEW: Stereologic on Today's Process Challenges and New Rapid Methods of Process Mapping and Measurement

Without precise and reliable information about their processes in place, companies will not be able to harness the power of improvement and digitalization. But current methods of obtaining this information are too slow, and new rapid methods of process mapping and measurement are required - says Sofia Passova, Ph.D., CEO of Stereologic.

Dr. Sofia Passova, President and CEO, Stereologic

PEX Network: What is the biggest challenge the operational and process practitioners have today?

Dr. Sofia Passova: The biggest challenge businesses encounter today is that companies do not have precise and reliable information about their business processes. The existing methods of obtaining this information (interviews), are very time consuming and costly.

In this situation, when the information about the existing business processes is missing or inadequate even the most advanced technologies, such as ERP, BPM and Robotics lose their power. Actually, all practitioners know how much time and resources are spent for understanding and analyzing existing business processes before implementation of any of these technologies.

On the other side, even greater effort is needed for business stabilization after the implementation of BPM, ERP and RPA, because the business process information was missed upfront.

PEX Network: How does this challenge impact process improvement?

Dr. Sofia Passova: As you know, most of process improvement methods, not just 6Sigma, are starting from these major steps: Define, Measure, and Analyze. It may be hard to believe, but most companies still perform these activities manually. Thus, the challenge of manual process mapping, via multiple interviews, is magnified by manual time measurement, when practitioners actually use a stop watch and manually analyze the inefficiencies and losses.

Possibly this is why in the PEX Report 2015, 50% of the companies have identified the process excellence as one of their top priorities, but at the same, time 32.2% of companies find it difficult to commit adequate resources and investment for process improvement.

PEX Network: What would you recommend to business leaders to address this business process challenge?

Dr. Sofia Passova: First, it is important to understand the importance of solving this problem. As we discussed, neither innovation nor improvement initiatives can be performed without up-to-date business processes. This knowledge is necessary for productive work of your employees and for your control over their work; for security and compliance; for governance and for outsourcing.

If your company/department already has business process documentation, make sure it is it up-to-date. Use your updated process maps as a reference point for your best practices, standard operations procedures and training documentation and establish consistency across all these materials.

If you have outdated process documentation or, worse, if you do not have it at all, you need to create it as soon as possible. Do not wait until the problems in customer services become unsolvable or employee productivity is out of your control.

I foresee your next question, because I have heard it many times: “My company has hundreds of non-documented processes and we do not have enough time and resources to document them, what would you advise?” My recommendation is to use the innovative technologies, that will help you to map your processes automatically, automated discovery tools as an example. StereoLOGIC also offers Advance Analytical Robots TM, that can help you to rapidly map, measure and analyze hundreds of business processes practically in no time.

PEX Network: What do you think business process will look like in 2025?

Dr. Sofia Passova: I believe that in 2025 the business processes will be embedded in digitalized business modules, oriented on performance of specific business tasks. The problem of business process analysis will be replaced by the problem of analysis and standardization of interaction protocols between these modules.

ADVANCED ANALYTICAL ROBOTS ™

stereologic

ADVANCED ANALYTICAL ROBOTS

help enterprise operational managers to solve most complex and most critical tasks in a fraction of the time and cost of the traditional methods

☎ 416 646-6601
www.stereologic.com

Mapping

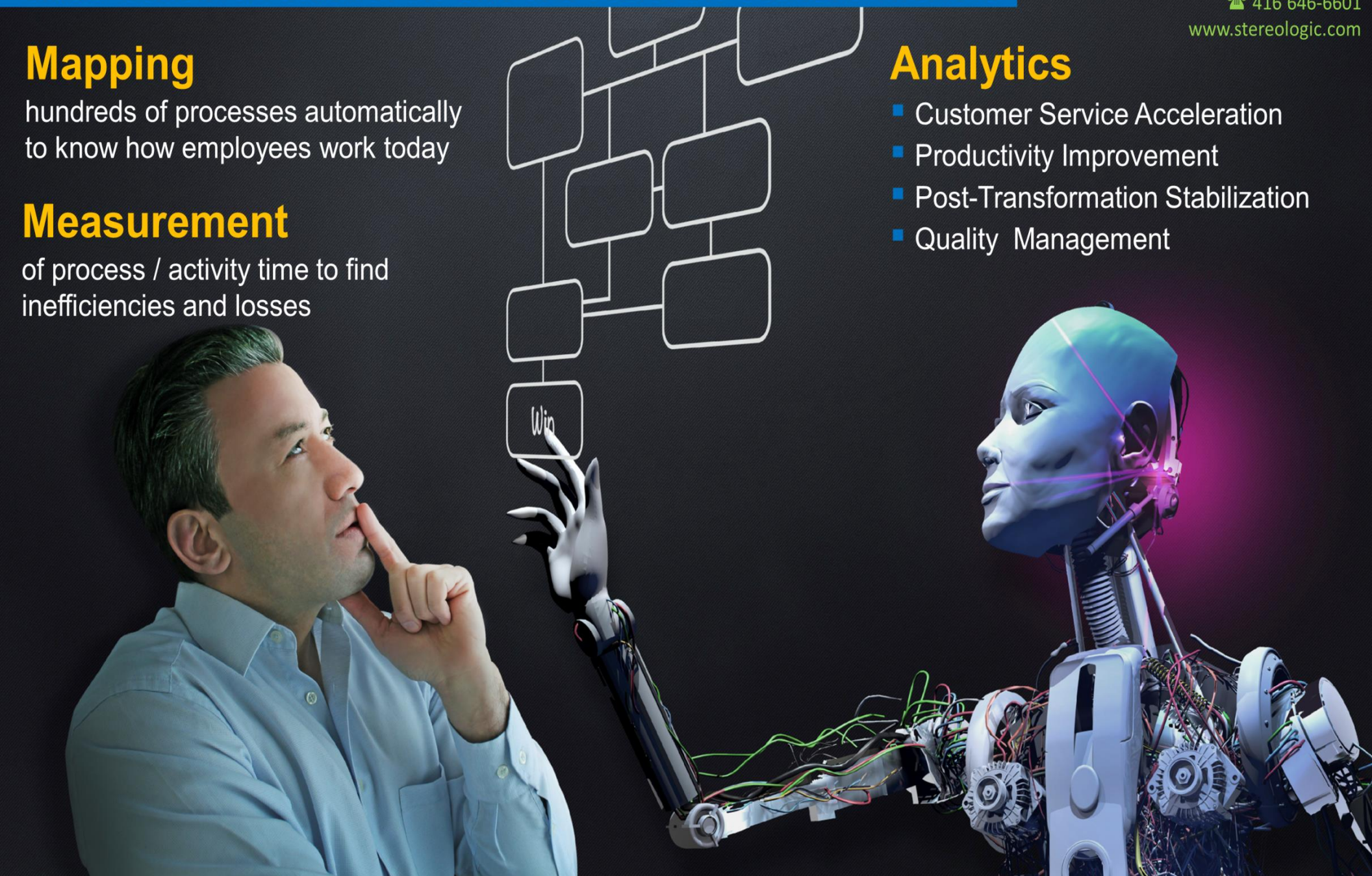
hundreds of processes automatically to know how employees work today

Measurement

of process / activity time to find inefficiencies and losses

Analytics

- Customer Service Acceleration
- Productivity Improvement
- Post-Transformation Stabilization
- Quality Management



Prediction #3: Customers and employees will be able to design and customize processes

Henry Ford used to say that customers could have any color of car, "as long as it's black." Clearly the world has moved on from such rigid boundaries over what companies can deliver to customers. But if you've ever tried phoning up a customer helpline of a large company and requested something that doesn't compute within the boundaries of their processes, you'll understand what it's like to be offered a black car despite the fact that you might have preferred blue.

Retailers are already grappling with this new world. Customers may want to purchase products online or in store. They may want their purchases sent to their home or to pick them up in a store. They may phone the company, or e-mail them, or want to receive alerts via text message. How can companies ensure a consistent experience across all of these different channels? Too much flexibility in a process dramatically increases complexity and potential for things to go wrong. But too rigid customers and employees will vote with their feet.

> ***"Customers want greater transparency into our processes and even want to design their own experiences. This means we're going to have to take a good hard look at our internal business rules no matter how old or how sacred they are."***
>
> *Erika Westbay, Director of BPM at the Nature Conservancy*

The push for greater flexibility in customer interactions extends well beyond the retail industry. Erika Westbay, Director of BPM at the Nature Conservancy, for instance, says that donors to the charity want increased control over where funds are allocated: "Customers want greater transparency

into our processes and even want to design their own experiences," she says. "This means we're going to have to take a good hard look at our internal business rules no matter how old or how sacred they are."

The new world will require closer collaboration with customers and employees to help design and innovate process experiences that work for them. Many companies, for instance, are already starting to adopt an "Outside In" perspective (i.e. looking at their business processes from a customer's point of view) to understand how the customer experiences their interaction with the company's operations.

Jarkko Vuorikoski, First Vice President at Danske Bank, a Danish bank, says that looking at process design from a customers' perspective is an important shift in the industry: "For years we've been developing end to end processes, but mostly from the bank's perspective. This is

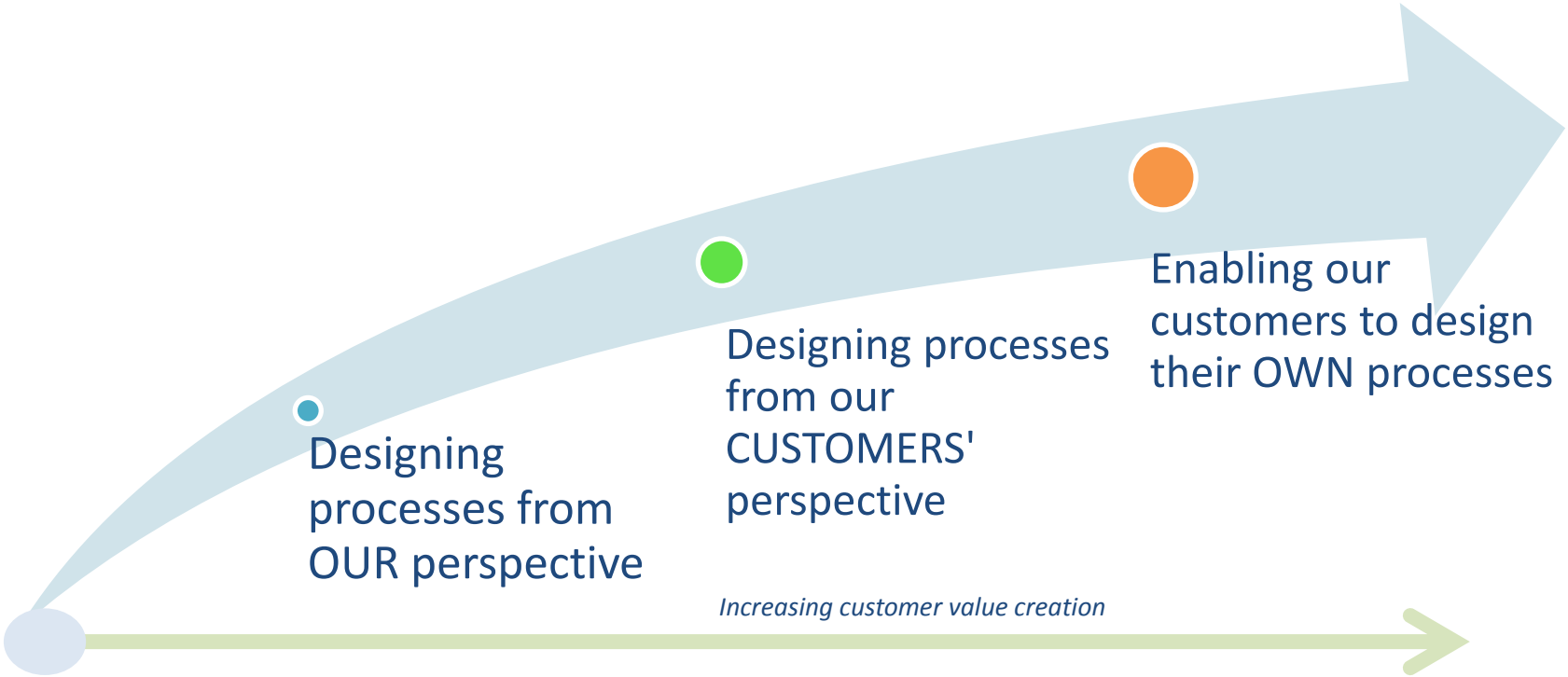


Figure 3: Companies will find ways to allow customers to customize and design their own processes

quite a traditional approach that many service providers take; they improve end to end processes but it's from their perspective, not the customer's perspective."

Instead, he explains, a more customer-centered approach involves looking at the journey from the customer's perspective in order to really understand what drives and motivates them. "To a bank, for something simple like a mortgage, the customer comes in and wants a mortgage," he says. "But actually, there's no customer who wants a mortgage. They want to buy a home. Only by understanding the difference between wanting a mortgage or wanting a home - and that's a big difference – do you have real insight into the needs of the customer."

In the future, we believe that companies will take this "Outside In" perspective one step further and give customers the ability to create their own processes to tailor products and services that fit for them.

Writing in the Harvard Business Review ("Technology Won't Automatically Improve Your Operations, June 2015), Stefan Thomke, a Professor at the business school, for instance, proposes that "new value can be created by finding ways that customers and users can play a more active role in innovation and operations. This is done by putting a company's know-how into tools and empowering customers to design and even 'manufacture' solutions for themselves, thus fundamentally changing value creation and capture."

He cites the example of European bank Credit Suisse, which created a platform where customers can design their own financial products: "By automating routine safety and robustness checks and shifting the design work to customers, the cost has dropped by approximately 95%, massively increasing profitability and freeing resources to focus on innovating instead of execution," he writes. "More importantly, hundreds of unique products are generated each day, and the volume of trading on the platform has soared."

Emerging technology platforms, such as low code or cloud computing, will be key enablers of this shift as the lower cost of ownership and time to implement solutions is greatly reduced allowing companies to both experiment with new designs and processes as well as put in place solutions in areas where it may previously have been too expensive.



SPOTLIGHT INTERVIEW: Appian's Michael Beckley on What the Low Code Revolution Means for Business

Low Code platforms are levelling the playing field and enabling businesses to innovate new products, launch new services and transform the customer experience like never before, says Appian's Chief Technology Officer Michael Beckley.

PEX Network: The concept of Low Code has been around for quite a while now. Why is it that now it seems to be garnering so much attention?

Michael Beckley: There is need and there is opportunity. The needs have never been greater thanks to the "flattening of the earth" in terms of global competition and the ease of new market entrants into every industry. Even traditional businesses once thought safe are now being challenged. That means there's a tremendous need for agility that wasn't previously present.

There's also a new opportunity. It used to be that when you were using a Low Code platform you had to maintain, manage and change it on your own. This meant that Low Code actually required a high-cost infrastructure and a high-cost of administration. However, thanks to the cloud and to frameworks like Appian, you can actually have the business make constant improvements to the way you serve your customers without having to recode or customize code.

PEX Network: What do you see as the practical implications of Low Code on business processes and operations?

Michael Beckley: The practical implication is that you need far fewer people with less specific knowledge about programming languages who can do more powerful things, more rapidly. That means, businesses can innovate, they can launch new products, they can transform the way they serve their customers, they can integrate systems to provide a better experience for their clients and they can provide that experience in an Omni channel experience all without the traditional massive, big-bang approach to replacing systems and spending tens of millions of dollars to build new ERP-like infrastructure.

PEX Network: Do you have any examples to help illustrate this?

Michael Beckley: Sure. One example is Ryder, a provider of commercial truck rentals. It's a very old, established brand here in the United States. Yet that business has been transformed by their use of a Low Code platform to allow them to provide and fulfill, a guarantee to their clients that they can come into Ryder and leave 20 minutes later with a high quality, clean truck that will work reliably for their most difficult needs.

To achieve that required a complete transformation of the way they did business. This meant changing everything from the way they bought trucks and the way they maintained, fixed and repaired them right through to how they greeted customers at the lot. Instead of making customers go into some building somewhere and making them wait, they're now able to greet them and use an Android tablet to personalize the experience, get the customer the equipment they need and get them in and out quickly and efficiently.

That takes automating and improving the experience of the employees and the customers and working with back-office systems at every step of the equation. This is true for any business. How do you improve the customer experience if you can't connect and improve the access to information which has previously been buried in back office systems or locked up in silos in the cloud in different vertical applications?



PEX Network: There are critics out there who say that Low Code is too good to be true and it's not really as easy to implement as some might have you believe. How would you respond to those critics?

Michael Beckley: I've seen some people who conflate the idea of Low Code with “no code.” But when we're talking about doing mission critical things for the largest, most highly regulated enterprises in the world - global banks, global insurance companies, global pharmaceutical firms - there is going to be code required at some level to connect legacy systems, which might be decades, old into a modern, efficient, and Omni channel experience.

What Low Code platforms, like Appian, have done is make it possible to do that in weeks rather than years. That is a dramatic change which is showing real results. So I don't think there's a whole lot of skepticism.

PEX Network: Turning to the future, then, how do you see Low Code capabilities evolving in the next five to ten years?

Michael Beckley: Low Code will evolve into less and less code to the point where when what you're trying to do has been done before, it will be truly no code. That's the whole point. It will no longer be just the purview of the largest, most successful companies and organizations to use and take advantage of Low Code. Instead, it will be a great equalizer where medium and small businesses - and even individuals - will be able to scale their ideas with the power of a platform that allows them to take for granted all of the complexity of writing software, securing it and scaling it for production.

If you think back to the 1970s when all of this was brand new, the idea of technology intersecting with our daily lives was a radical notion. There was the promise that we would all become creators, not consumers, of information, of services, of products, that we could have true sovereignty over our lives by creating something new and valuable to share with the rest of the world. Low Code platforms are the critical lynchpin to unlocking that potential. Now that we have the networks, now that we have the cloud, now that we have the infrastructure in place, how do you connect that vast global infrastructure with an individual with a brilliant idea? That's a Low Code platform.

Prediction #4: Companies will dramatically increase investment in process automation capabilities

In an article written for Harvard Business Review ("Beyond Automation", June 2015), Thomas Davenport and Julia Kirby propose that the world has experienced three waves of automation. The first happened in the 19th century with the industrial revolution when machines started to take over manufacturing processes. The second (still ongoing) saw the automation of dull and routine tasks – such as using kiosks at airports to check in passengers– to relieve workers of routine and transactional tasks. The final – and current - wave is focused on applying Artificial Intelligence to enable machines to take over even complex decision making – e.g. airline pricing – and deliver it in a way that is better and faster than humans.

But technology has a long history of overpromising and under delivering. ERP system implementations in the 1990s, for instance, were incredibly expensive and forced companies to adapt their processes to fit the system. Changes were slow and complex to make. As a result, companies restricted investment to the most business critical processes and systems. Most companies, even today, have an extensive backlog of improvements that they want to make to existing systems. Process improvement teams, as a result, end up looking for improvements to processes that don't involve lengthy and costly changes to existing IT systems.

The current generation of business technology tools, however, has been reducing the amount of time and complexity it takes to get tools up and running and adapted for business use. Many software vendors are now calling themselves "low code development platforms." Indeed analyst firms such as Forrester Research have started to track "low code" as market categories (Forrester calls them *Waves)*. Effectively, a low code platform offers developers (and some claim business users) a simple interface to create bespoke applications for business use. While there are those who are still skeptical of the claims made by software vendors, what is clear is that these platforms do require less training, speed up development time, and dramatically reduce the cost of creating business applications.

"Low code is going to change the game completely. I think the capabilities that we have and the tools we have will evolve and let us do more things with less work," says Dan Morris, Principal of Wendan Consulting.

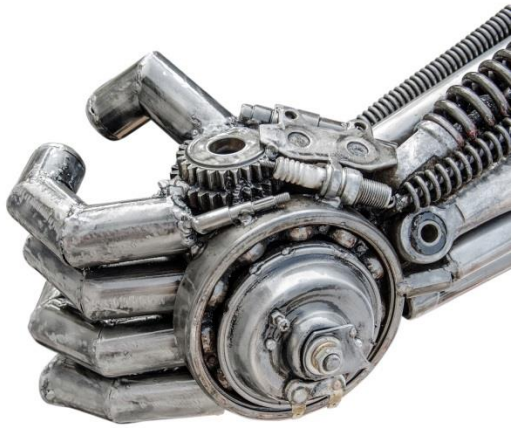
Sridhar Krishnan, Vice President of Operations at Catalent Pharma Solutions, a manufacturing firm, also believes that we're at a tipping point as companies have learned lessons with IT implementations of the past and have vastly improved processes in the meantime.

"Ten years ago, we were forcing digital solutions into our organizations that were not fully matured and BEFORE simplifying and streamlining the process," he says. "My prediction is that going forward we will unleash a massive amount of new capacity compared with what we were able to achieve before. The millennials - with their increased adaptability to technology and critical thinking skills - will be key to driving these step function improvements."

The adoption of automation, robots and artificial intelligence could boost productivity by 30% in many industries

Source: Bank of America





The convergence of easier and cheaper to implement technology coupled with a more digitally savvy workforce and customer base makes a powerful foundation for process excellence. This means that process professionals will be able to experiment with technology and automate processes in ways that previously weren't worth the cost and effort to code into software and the cultural hurdles to adoption will greatly decrease.

Robotic Process Automation (RPA), a form of process automation software, has also been following this push for ease of implementation.

Jon Theuerkauf, Managing Director of Performance Excellence at BNY Mellon, says that the current generation of RPA technology is being widely deployed within Financial Services because it is relatively simple to deploy.

"The robotics tools that are out there today – the scripting technology – aren't 'code heavy," he says. "So as organizations mature with their robotics ecosystem, we will be able to teach front-line people how to use the tools themselves."

Proponents of RPA say that the software frees up workers to focus on more value-added tasks, decreases variations and processing errors, and is relatively simple to implement. Indeed, Bank of America Corp. believes that the adoption of automation, robots and artificial intelligence could boost productivity by 30% in many industries and investment in AI and robotics solutions is set to grow to US$153bn by 2020.

Consultancy BCG estimates that output per worker in manufacturing industries will be 10-30% higher in 2025 than today as a direct result of installing advanced robots.

Brent Harder, of BNY Mellon, compares RPA to the move to offshore business processes and functions. "Twenty years ago businesses realized that there was a

> "Ten years ago, we were forcing digital solutions into our organizations that were not fully matured and BEFORE simplifying and streamlining the process. My prediction is that going forward we will unleash a massive amount of new capacity compared with what we were able to achieve before. The millennials with their increased adaptability to technology and critical thinking skills will be key to driving these step function improvements."
>
> Sridhar Krishnan, Vice President of Operations at Catalent Pharma Solutions

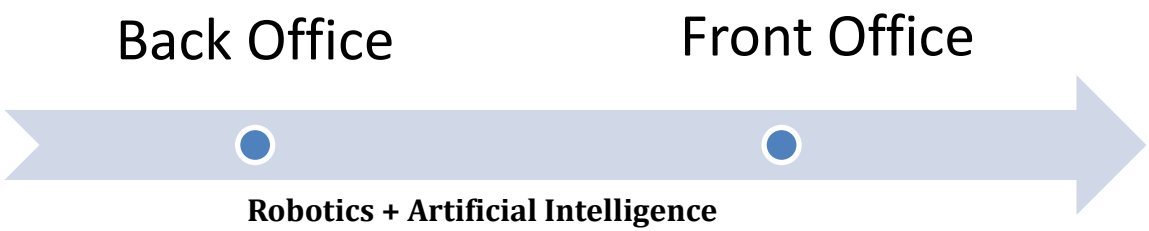
cost advantage to packaging work and sending it off shore. You're doing the same thing with RPA but instead of moving it offshore you're moving it to your robotics center. You get huge cost efficiencies in addition to increased compliance and risk visibility because robots don't make human mistakes."

But the future of automation is not simply about automating manual tasks or using more robots to do menial drudge work. Artificial intelligence is opening up the potential to automate new kinds of work that were previously beyond the reach of simple automation tools.

A much cited paper by researchers at Oxford University, for instance, estimates that up to 47% of jobs in the US could be automated within the next two decades as computers, using Artificial Intelligence algorithms, start to take over tasks that require some human judgement. They name dockworkers, accountants, and book keepers as among some of the jobs most at risk. While some dispute the 47% figure, the fact is that the capabilities of robotics technology – when coupled with Artificial Intelligence - isn't that far off from moving into more complex types of tasks.

This will allow robots to gradually move from back office functions "towards the front office" to "operate in collaboration with humans," says Marios Stavropoulos, CEO of RPA software provider Softomotive.

For instance, the Bank of Tokyo is experimenting with a smart robot named Nao to greet and entertain customers and provide basic customer service at its flagship branch in the Japanese capital. The robot speaks 19 languages and can remember details from more than 5.5 million customers and over 100 different products. The bank says it views Nao as a way of providing additional support to customers to free up the time of bank tellers to provide more value adding services.



Figured 4: Artificial Intelligence and Cognitive Computing will allow robots to move from the back to front office functions in service industries



SPOTLIGHT INTERVIEW: Softomotive on the Future of Robotic Process Automation

Software-based robots bring more than cost benefits, says Marios Stavropoulos, CEO of Softomotive. Get ready for a new era of greater productivity, quality and agility.

PEX Network: What are the common misconceptions that people often have about Robotic Process Automation?

Marios Stavropoulos: When people first hear about Robotic Process Automation (RPA), they tend to form an image in their mind of humanoid robots that walk, interact with people and perform physical tasks. But in RPA we are talking about software robots – or 'bots', as they are also known – which 'live' inside the computer and perform many different processes that a human would do, such as entering invoices into an ERP system, generating reports or doing claims processing. So robots in the RPA context are software applications rather than real world machines.

Another common misconception is that software robots have already evolved to possess cognitive skills. Although this is definitely the road we are heading down with Artificial Intelligence, it is not yet the case. At the moment, RPA technology can automate different types of complex tasks – so complex that we can even call them Intelligent Robots; but robots must still follow explicit rules and cannot 'think' for themselves – at least not yet.

PEX Network: It's widely documented that RPA can be useful in terms of cutting operational costs. What are the other advantages that are associated with RPA, that businesses can benefit from?

Marios Stavropoulos: Cost reduction is what usually makes people start thinking about RPA in the first place, especially now that outsourcing has started becoming less and less cost effective. On top of that, of course, cost is a business metric that everyone cares about and can easily be measured. However, when it comes to RPA benefits, this is not where the story ends.

There are so many benefits that organizations gain by adopting robotic automation, that the true ROI ends up exceeding the initial expectations. An important factor is that humans are prone to errors, especially when carrying out dull, repetitive tasks. A software robot, on the other hand, can do the same thing again and again, error-free and with 100% accuracy.

Then there is speed of delivery. A process that would take a person, for example, half an hour, could take, maybe, ten minutes or less if automated by a robot. Delivery speed, combined with error reduction, results in improved customer experience and increased quality of service.

RPA also provides greater transparency. Process managers can measure the performance and the cost of each task and each process with great accuracy. Software robots also provide detailed auditing, which helps organizations with regulatory compliance procedures.

In addition, software robots give organizations greater agility as they can easily be retrained in order to adapt to new demands or changes in the organization and its procedures.

Finally, bots provide the scalability that organizations need to deal with a continually changing workload. Robots can work 24/7, and given that the workload fluctuates throughout the year, robots allow organizations to scale up rapidly in order to meet new demands and handle production peaks efficiently.

PEX Network: Which industries or processes will be most affected by RPA?

Marios Stavropoulos: RPA works best for rule-based, repetitive processes and for processes that deal with structured data. Based on that, the industries that will mostly benefit from this technology are industries with large back office departments.

RPA is proven to achieve great levels of process standardization and control for regulated industries. As a result, industries operating with complex business processes related to regulatory compliance and governance gain great benefits from RPA adoption.

Within our own client list, we have found that the industries that get the biggest ROI in the shortest period of time are banking, insurance, healthcare, telecoms, energy and utilities. Our clients have reported cost savings of more than 60% in most cases where RPA is introduced.

PEX Network: How do you expect the RPA capabilities of the software itself to evolve over the next five to ten years?

Marios Stavropoulos: It's very difficult to predict how things will be in ten years from now, as technology is evolving so rapidly. But what we expect to see soon is for robots to acquire 'common sense', in order to be able to handle complex exception scenarios and make judgement calls, that can now be handled only by humans. Gradually, advanced Artificial Intelligence and cognitive skills will allow robots to communicate independently with customers, provide unattended customer support and eventually handle all the front office operations on their own.

Another important advancement that we see coming up, and that we as a company are heavily investing in, is the idea of providing a virtual, elastic, cloud-based robotic workforce to our customers. This innovative approach will allow organizations to meet short-term changes in production needs effortlessly, without extra recruiting or training – just by accessing an on-demand, elastic robotic workforce in the cloud, with minimal or no up-front investment.

An immediate consequence is that organizations will be freed from the limitations of availability of their qualified workforce, and thus will be allowed to focus primarily on building and optimizing processes, instead of struggling to find a way to fit processes to the existing resources.

PEX Network: What is the best piece of advice you can offer to businesses who are either thinking about or starting to implement RPA?

Marios Stavropoulos: My advice would be to make sure that RPA is adopted as a strategic decision within the organization. For this initiative to succeed, you need to make sure that you get consensus from all stakeholders, that you engage management, business and IT from the early stages, and that you have planned to communicate the RPA benefits widely internally.

That would of course be the ideal scenario, however we have also seen cases where RPA starts small, from a business unit. If this is the case, then what I would advise is to start with processes that will show the biggest ROI, and as a rule of thumb select the ones that are the real bottlenecks in the organization. Then you get a better chance for the new initiative to shine and be self-driven.

In both cases, it's very important to choose wisely when it comes to the vendor that provides the RPA solution. Businesses need to make sure that they are selecting the most suitable vendor and technology for their automation needs. For this, an initial proof of concept is highly recommended, especially for large deployments. And that would be the last and by far the most important piece of advice I would give: make sure that the automation solution you select is reliable and actually delivers what it promises.

Prediction #5: Incorporating “big” and “small” data into processes will be a key focus

Artificial Intelligence will only be possible once companies get a handle on the reams of data that are sloshing around their departments. Analyst firm Gartner estimates that up to 80% of data in organizations is “unstructured” – i.e. not within the confines of structured databases. IBM estimates that we create 2.5 quintillion bytes of data each day, which means that 90% of data in the world today has been created in the last two years.

“Never before have we had such access to real time data. This also means that never before in history have we had so much access to meaningless data,” says Ilir Morina, Lean Six-Sigma Master Black Belt/ Performance Consultant. “I think we, as Operational Excellence practitioners, will need to get good at sifting through the noise. What is the signal of this data? How can we help people find data better, quicker and faster so that it is telling them what they need to know?”

This deluge of data is set only to worsen as data from the Internet of Things (IoT) – i.e. data that streams through from connected devices such as mobile phones, equipment and other digitally enabled devices – contributes to the masses of 1's and 0's pinging through business systems. Ying Chen, Senior Director Product Marketing at Pegasystems, says that this data could be everything from temperature and pressure sensors in an oil pipeline, through to a group of tractors planting in a field.

“These *‘edge’* devices send a stream of data about what is happening in real time, and these data streams need to be secured, collected and stored, and then analyzed and perhaps compared with historical data to interpret their meaning,” she explains. “The real business value creation in IoT, then, comes from sifting through these streams of device data, identifying events and patterns (i.e. “insights”) that are actionable, and then orchestrating the actions across the enterprise that are required to achieve the desired business outcomes.”

Wearable technology combined with the internet of things and big data are opening up interesting new possibilities for tactical process improvements that

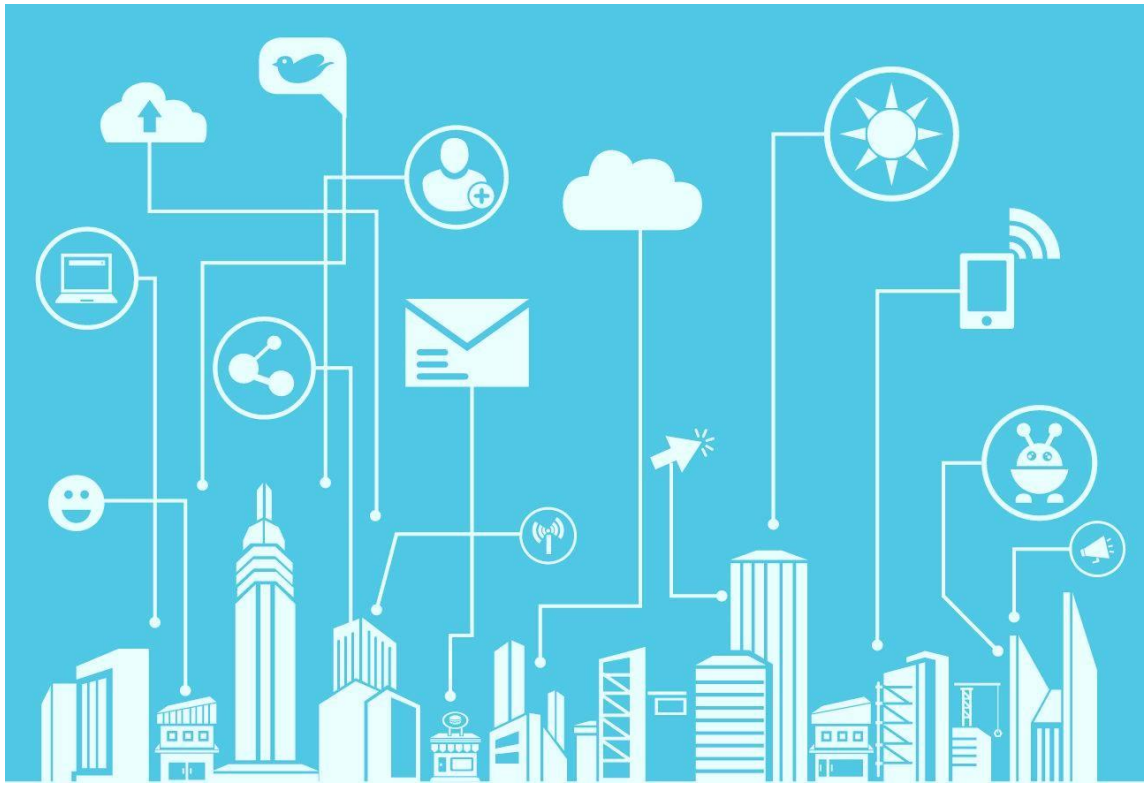
can increase efficiency and create valuable new ways of working.

For instance, Schneider Electric is testing wearable technology that can help its engineers find technical data as they're working and have that data appear before them on headsets (such as on a screen in eye glasses that they wear) and tablet computers. The system uses image recognition software or bar codes on the side of equipment and then wirelessly fetches data relevant to it such as optimum operating temperature, fluid levels and maintenance history. Such improvements give staff easier access to the data they need at the time they need it.

In some industries, this process will take longer as the investment cycles in machinery, for instance in manufacturing plants, will take a while to enable manufacturers capabilities to catch up to what is currently possible.

We create 2.5 quintillion bytes of data every day. 90% of the data in the world today has been created in the last two years alone.

Source: IBM



"The plant around me a 700 acre site and the needed interconnectedness of most manufacturing plants is not there today," explains Sanjay Gupta, Continuous Improvement Leader at Momentive Performance Material. "I think the transactional world will have a much better capability to use big data in the near future as manufacturing has not kept up with the interconnectedness of things."

Operational Excellence professionals and businesses have always made use of data to help guide business decisions, anticipate problems, and spot key opportunities. What's changing now is the fact that this data is captured in digital systems. With the right analysis and clever management, data can provide strategic insights, improve customer insight and service and enhance decision making capabilities of process performers (such as, for instance, providing real time access to data or being able to accurately provide leading indicators).

> "The real business value creation in IoT comes from sifting through these streams of device data, identifying events and patterns (i.e. "insights") that are actionable, and then orchestrating the actions across the enterprise that are required to achieve the desired business outcomes."
>
> Ying Chen, Senior Director Product Marketing, Pegasystems.

While the technology infrastructure underlying the ability to access and deliver the data may be complex, the ways that organizations make use of the data needn't – and indeed, shouldn't – be complicated.

"We've seen this massive move towards data which is important at an enterprise level but can become overwhelming at an execution level. Your process professional at the coal face doesn't need big data," argues Dennis Narlock from Catalent Pharma Solutions. "They need easier access to data and the ability to help the organization make more robust decisions off 'small data,' which tends to be those leading indicators."

Rick Hepp from Bristol-Myers Squibb explains that his organization is starting to make use of real-time data to drive decision making around processes and anticipate problems.

"We have meetings where you log right into the database and look at the patterns and trends right there. We look at actions to then resolve those [issues]." he explains. "Like the visual workplace, whether the data goes on your mobile phone or when you log in on your laptop, it starts to change the way your leadership teams interact and the way your processes can be looked at and improved. [...] It's focusing our leaders on the right things."

> "There's no other team better positioned than the process excellence group to figure out what are the leading indicators we need - not the trailing stuff we've always had on dashboards - to change and evolve to the next level of performance."
>
> Rick Hepp, Director of Operational Excellence at Bristol Myers Squibb

Asbjorn Love, VP of Operations at Statoil says that traditional reporting in organizations is laborious and unnecessary. Big data will open up the ability for management to get a much better handle on what is happening in a company in real-time.

"We have a reporting system which goes from level to level, all the way up into the organization [...] But when we use big data, this data is all available and you don't need that kind of reporting. Our top guy can log onto his computer and can see what's actually going on," he explains.

This means that deciding what the "right things" are and how to present that information so that it is useful, will become an ever more critical skill in the future.

Vince Pierce, Chief Strategy Officer at financial service firm Ryan, says that this means that data visualization skills will be critical in the future as charts that take a PHD in statistics to interpret won't help business users.

"If you're processing a couple of million data points a day, how do you visualize that in a consumable way? Minitab charts just don't cut it!" he observes.

Another area where data can be used to effectively and simply enhance processes is in providing greater information about customers. In many - if not most –

organizations customer data sits in various databases and interacts with a company across multiple touch points and departmental silos. As companies seek to improve the customer experience throughout the whole value chain, data can and must be a critical part of the process.

"Instead of managing multiple points of contact for a customer individually, there is a great benefit to consolidating the data and customer insights into one complete and accurate perspective," says consultant David Hamme. "This perspective allows a company to manage the full lifecycle of the customer experience and make sure it is deliberately delivered to create raving fans."

In theory, it isn't all that difficult to understand the value of incorporating data into processes. It's about getting the right information to the right people at the right time so that they can make necessary actions or decisions. In practice, you need a clear and simple idea of what you're trying to achieve. Where it gets complex is figuring out what data will truly help you achieve your goals and then actually manipulating the IT infrastructure in order to get to that data.

This will take a closer relationship between process, data professionals and IT professionals. "You need a partnership with your IT organization because they know how to pull it [the data]. But there's no other team better positioned than the process excellence group to figure out what are the leading indicators we need - not the trailing stuff we've always had on dashboards - to change and evolve to the next level of performance," says Rick Hepp of BMS.

It will take time, of course. But as companies start to realize the benefits of leveraging data to expose trends and real-time insight into operations and processes, there will be concerted efforts to better incorporate that data into every day ways of working.

"I expect that in 5 to 10 years, this capability will be mainstream and we won't even notice that IoT data streams are helping to keep us healthy and safe, make our devices and machines run longer and more efficiently, and improve our public services and criminal justice systems, because these data streams will be incorporated seamlessly into our business processes and these new IoT-enabled processes will continuously improve and evolve," predicts Ying Chen of Pegasystems.



SPOTLIGHT INTERVIEW: Pegasystems on How the Internet of Things Will Reshape Business Operations

The explosion of data from digitally connected "things" is set to transform business processes, says Ying Chen, Senior Director Product Marketing, Pegasystems.

PEX Network: Where do you see the biggest opportunities for businesses to embed the Internet of Things into their business operations?

Ying Chen: With revenue predictions for the IoT economy in the trillions of dollars, leading companies in every industry are looking for ways to exploit IoT business opportunities. These leaders are trying to harness the potential of IoT by first identifying the most valuable business outcomes that are made possible by IoT device data, and then building an integrated system that orchestrates, automates, and manages all the business processes and resources required to achieve these outcomes.

To understand where the biggest challenges are, we need to understand the IoT technology landscape. It begins with so-called '*edge*' devices, like temperature and pressure sensors in an oil pipeline, or much more sophisticated communications from, for example, a network of robots on the manufacturing floor, or a group of tractors planting a field, each with their own on-board computer and array of sensors. These edge devices send a stream of data about what is happening in real time, and these data streams need to be secured, collected and stored, and then analyzed and perhaps compared with historical data to interpret their meaning. The real business value creation in IoT, then, comes from sifting through these streams of device data, identifying events and patterns (i.e. "insights") that are actionable, and then orchestrating the actions across the enterprise that are required to achieve the desired business outcomes.

PEX Network: Can you give me an example?

Ying Chen: Let me give you a couple of examples from our Pega customers to illustrate how this applies in different industries and with different types of IoT devices.

i) The first example is the Traffic Management Center in the State of New South Wales Australia, where Pega is being used to manage data streams from smart sensors embedded in roads, bridges, tunnels, traffic signals, etc. to create a full picture in real time of what is happening in their transportation network. This will allow cities like Sydney to more efficiently manage the daily congestion on roads and highways, thus saving their citizens commuting time, keeping them safe and managing maintenance and even emergencies more effectively.

ii) another example in healthcare is Philips Healthcare. At PegaWorld last month, the CEO of Philips Healthcare presented a bold vision for how Philips' wearable medical devices monitor elderly and at-risk patients for specific conditions and also serve as an emergency call button. If an event occurs, Pega is used to orchestrate the response including the appropriate medical interventions – all in real time. By doing so they help to keep us and our loved ones healthy, and at the same time minimize cost and impact to the healthcare system.



PEX Network: What are some of the core challenges that companies will have to overcome in terms of implementing and realizing the benefits of IoT?

Ying Chen: One of the biggest challenges here is that, given the business and IT silos that exist in every large company, capturing the business value from such a complex array of both new and old technologies is anything but simple. To capture this value, innovative companies will need coherent purposeful orchestration of the entire IoT value chain. This includes: (1) connecting securely to IoT devices, (2) interpreting device data streams in real time, (3) accessing legacy data stores and extracting selected historical data (4) blending that historical data with data from IoT devices, (5) defining data patterns of interest and sifting through high-volume and/or high-velocity data streams for actionable patterns, (6) performing real-time and batch predictive and adaptive analytical processing, and most importantly, (7) defining and orchestrating automated and human responses to events all while (8) following and enforcing business rules, and maintaining compliance with regulations.

Many existing IoT solutions fall short because they focus only on one part of the problem, like data ingestion or analytics, and fail to address the part of the problem where the business value is realized – i.e. taking actions to achieve the desired business outcomes. This is a tall order for any IT organization to pull off.

PEX Network: How would you recommend that organizations overcome these challenges?

Ying Chen: What is needed is what is now being called an IoT Platform. This is a relatively new label for something that has been around for a long time – a modern unified application development platform. We have seen literally hundreds of vendors claiming to have an IoT Platform but few if any actually have all the required capabilities to manage the IoT value chain I described earlier.

Most only focus on connecting to smart devices and collecting, storing and analyzing IoT data. A few have analytics capabilities, and interesting insights may be gained by using these. But the key point here is that the real business value requires the ability both to turn these insights into automated and human-assisted decisions, and then to orchestrate the complex actions across the enterprise to carry out those decisions.

The IoT platform should include the capability to perform statistical analysis on merged data sets, including real-time device data streams. This means the platform must include sophisticated modelling (defining actionable data patterns), predictive and adaptive (self-learning) analytics, and real-time information processing capabilities to sift through the data streams and spot the “events” that require action. This will allow you to interpret and analyse IoT device data (in real time if necessary), blend it with historical data from siloed legacy systems,

recognize actionable events as they occur, and, using deterministic business rules and fuzzy artificial intelligence, automatically select the best course of action.

And once again, to deliver the real business value, you will need to take action. More specifically, you need the capability to orchestrate a combination of nuanced automated and human actions that span business and IT system siloes. To accomplish this, the IoT Platform must have the ability to develop (and easily extend) enterprise-level case management-based applications. With such a case management (and intelligent BPM) foundation, you can quickly build new apps or extend existing applications as you gain experience with the users and edge devices. The IoT platform should also support streamlined and contextual (human) user interactions through any type of computing device – desktop, laptop, tablet, or mobile phone.

If your IoT Platform has all these capabilities integrated into a single unified environment, then it will give you the agility to react quickly to change, and at the same time, deploy apps that are consistent with your best business practices and compliant with regulatory mandates in each region. As I said earlier – a tall order. One example of such an IoT Platform is the Pega 7 Platform.

PEX Network: In 5-10 years' time, what do you think IoT-enabled processes will look like?

Ying Chen: In 5 to 10 years it is pretty clear that IoT-enabled processes will be required to be competitive in nearly every industry. IoT data streams are really just new information with which we can make ever more intelligent and nuanced decisions, and thereby deliver more and more business value. As the leaders in industries embrace these new data sources and deliver better services, the laggards will find it difficult survive. So I expect that in 5 to 10 years, this capability will be mainstream and we won't even notice that IoT data streams are helping to keep us healthy and safe, make our devices and machines run longer and more efficiently, and improve our public services and criminal justice systems, because these data streams will be incorporated seamlessly into our business processes and these new IoT-enabled processes will continuously improve and evolve.

Prediction #6: Getting the process basics right will be THE critical foundation (but it's not enough on its own)

It's human nature to be excited by the shiny new things we can see. When you're renovating a house, it's the light fixtures and the flooring and the paint colors that are fun to pick out, for instance. The drainage, the heating system, the electrical wiring are all a bit boring. But when one of the fundamentals of your house goes wrong – the heat won't come on in the dead of winter – you suddenly realize how important those boring fundamentals are.

It is the same way with process. Processes are, for the most part, intangible and invisible. They consist of the knowledge and actions of staff and machines. It is this knowledge and action, done daily and effectively, that delivers value to customers. But in the hurly-burly of business, it can be easy to get distracted by the latest management fad or technology.

"If you don't have that foundation, you can't build your house," says Rick Hepp, Director of Operational Excellence at Bristol-Myers Squibb. "We want to make sure that the core skills of Lean and Six Sigma are there and people understand work as a process and then we link those processes with our strategy."

Having processes that work and deliver quality outcomes in efficient ways will be critical for companies to compete in tomorrow's hyper competitive and fast-paced markets and necessary to deliver the vision and promise of the emerging digital platforms.

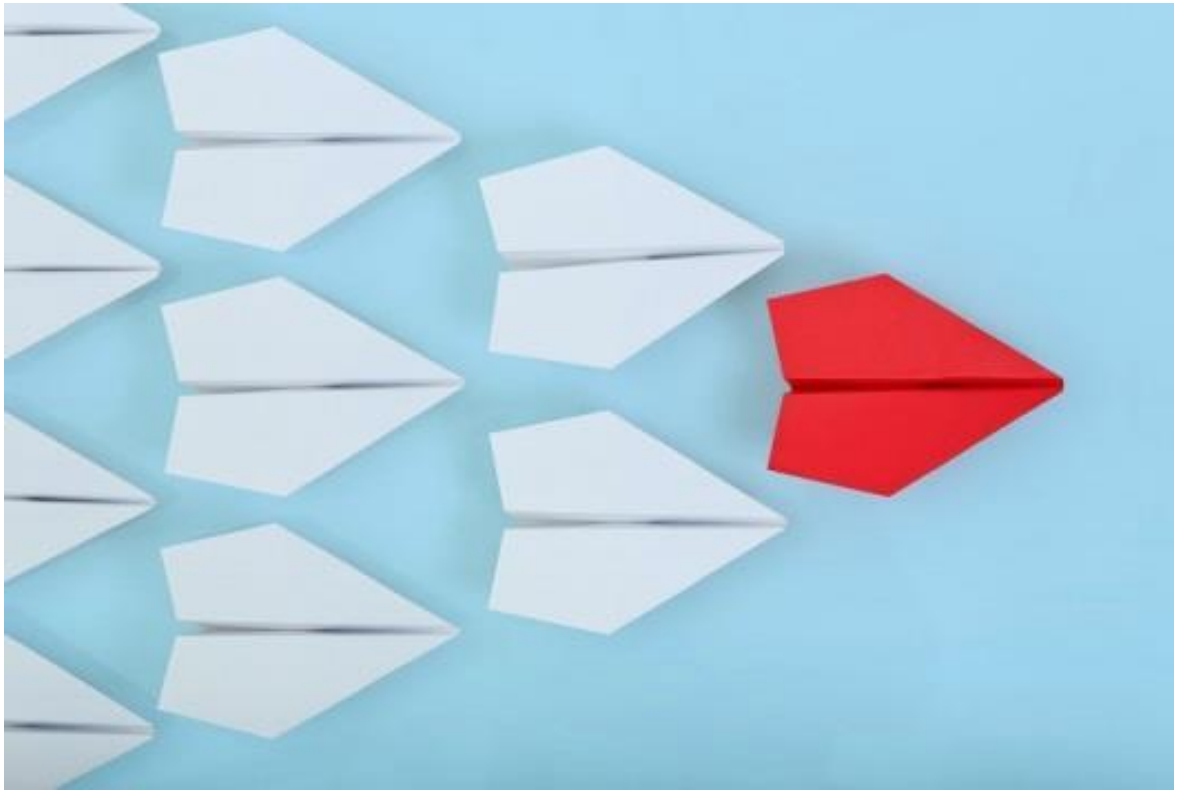
"It doesn't matter whether you're the new Uber or Air BnB," observes Leslie Behnke, Senior Business Transformation and Operational Excellence Leader, TD Canada Trust, TD Bank Group. "When you are running anything, you need to have processes. If you cannot provide consistent excellent service to your customers, you won't be around that long, whatever your business model or technology."

That's why many of the fundamentals of process excellence will remain critical in the future. "In my view, quality by design and right first time is going to be two critical aspects of how you accelerate technology use and time to market and

decrease defects, improve quality and reduce cost as well," says Sridhar Krishnan, Vice President of Operations at Catalent Pharma Solutions. "It may sound old school, but we need to make sure that we're getting the fundamentals in place so that you can get work done right the first time."

This doesn't mean approaching process improvement and excellence in the same old way as we always have, though. "Digital transformation and digital disruption are having a big impact all businesses," says John Biedry, Senior Director Global Lean Enterprise at Nike. "Therefore, we need to be thinking that if the business is changing then we have to ask ourselves, how does the way we approach continuous improvement need to change?"

Certainly, most tools and techniques remain as relevant and applicable as ever. But many practitioners realize that process



Process will be the critical underpinning for digital transformation but the most successful companies will focus on designing creating exceptional experiences for customers and employees

excellence needs to evolve to meet changing market demands.

“The nature of process is fundamentally changing and the process profession is lagging and is ill equipped to deal with this new reality,” says Vince Pierce, Chief Strategy Officer at Ryan. “I've been hiring for a new role and have been asking people what experience they have with design thinking and designing for the customer experience. They respond by talking about doing process mapping with sticky notes. There's a lack of willingness to embrace technology and I think that's flat out wrong. We need to get on board and embrace digital.”

In addition a hard look at the tools and ways of putting operational excellence into practice, many practitioners are realizing that it’s not just a matter of implementing a series of tools to tweak business processes. Instead, process excellence needs to be considered a mindset and culture of an organization where staff feel empowered to make changes and improvements to their work.

“Culture change remains the number one challenge for organizations whether they recognize it or not,” says Sanjay Gupta of Momentive Performance Materials. “Give the ability and capability to the people who work here to make their own changes.

Rick Hepp Rick Hepp of Bristol Myers Squibb agrees: "Are we creating the right environment for things like innovation, passion, speed, accountability to not just be a bunch of words but actually the way in which the organization behaves?”

“Change happens at a very elemental level. Our employees need to know what’s going on and see that what they do makes a difference in what happens every single day,” says Brent Harder, Director at BNY Mellon.

“The nature of process is fundamentally changing and the process profession is lagging and is ill equipped to deal with this new reality. […]There's a lack of willingness to embrace technology and I think that's flat out wrong. We need to get on board and embrace digital.”

Vince Pierce, Chief Strategy Officer, Ryan

That means translating the often opaque and esoteric world of process improvement – and its related tools and jargon – into simple things that people in the organization can relate to and easily incorporate into their work. “At the end of the day, I get paid to improve the output of what we do,” explains Harder. “But I’m not ultimately doing the work. So my job is to influence and motivate people to do something differently.”

Harder explains how his previous employer, the Commonwealth Bank of Australia, tried to make process excellence a habit rather than just a series of tools or projects through the simple Lean principle of visual management. Teams would huddle around visual management boards, use them to drive improvements (using the PDCA cycle) and then lock improvements in through standard operating procedures.

“We wanted to implement 4-5 habits that if the business could do habitually, time and time again, this would really make an impact,” he explains. “Now you can’t go to any portion of the bank without bumping into a visual management board. These simple Lean practices have fundamentally changed the bank and achieved greater results in 18 months than anything 40 black belts could have achieved.”

The Commonwealth Bank of Australia was awarded a Shingo Prize in a Shingo Silver Medallion earlier this year, the first financial services organization to ever receive the honor.

“All work should align to measurable value that can be conveyed in what Shingo called faster, better, cheaper and easier,” observes Sheila Montney, Assistant Vice President at State Farm Insurance. “Standardized processes are critical, but the bridge to true continuous improvement is developing the scientific thinking skills of the actual process performer.”

In the August 2015 issue of Harvard Business Review, for instance, Jon

> “Change happens at a very elemental level. Our employees need to know what’s going on and see that what they do makes a difference in what happens every single day.”
>
> Brent Harder, Director, BNY Mellon

Kolko,author and consultant in design principles, discusses how some companies are starting to apply Design Thinking to the design of work. The technique originally developed for product design and advocates "empathy with users, a discipline of prototyping, and tolerance for failure," according to Kolko. The reason it is becoming particularly relevant now, he writes, is that organizations are realizing that the same principles can help tackle the complexity of work design in modern businesses.

"I could list a dozen other types of complexity that businesses grapple with every day," he writes. "But here's what they all have in common: People need help making sense of them. Specifically, people need their interactions with technologies and other complex systems to be simple, intuitive, and pleasurable."

Verizon Communications has been using Design Thinking principles as part of their process excellence program for the last two years. The principles have some similarities with Design for Six Sigma (DFSS), explains Sisir Padhy, Vice President, Process Excellence & Innovation at the company. Because it's much more human and customer focused, it's much easier for employees to understand instead of the highly technical approach of DFSS.

He adds that one of the simple improvements Design Thinking has brought to Verizon, for instance, is the way that information is presented on a customer's bill. Including a summary with key information that customers may need has resulted in a reduced number of calls from customers and improved satisfaction scores.

"The question is do we REALLY know what the customer wants? Can we anticipate what they want? We use Design Thinking to get closer to the customer as we design and develop our processes and their overall experience," he explains.

Vince Pierce, Chief Strategy Officer at Ryan says that he also believes Design Thinking will play a greater role in the future because of its aim of creating intuitive systems and processes that ease the interaction of customers and employees with the machines and people with whom they interact.

"In terms of making all of this work, it's all about the people. I don't just mean in terms of making the workflow efficient. It's how we interact with the workflow – is that optimally designed? That's where we're falling down," he explains.

According to an HBR article last August, "Design Thinking Comes of Age", many of the big consulting firms are starting to gear up for an explosion of interest in this arena by taking over providers of design services such as Deloitte's acquisition of Doblin and McKinsey's acquisition of Lunar.



"You need to look at what's in front of you on the horizon but also keep the periphery in view. What kills you is not what you're focusing on; it's the car that hits you from the side. A good process excellence professional focuses on getting the job done. But you need to have a peripheral vision to keep an eye out for what else is important out there."

Brent Harder, Director, BNY Mellon

Process Capabilities of the Future

The vision of the future discussed so far in this report is not dramatically different from the current reality. There are already companies that view their processes as strategic assets. There are already those that are exploring how robotics can be used to automate and improve manual processes. There are already those who are innovating and improving processes from a customer's perspective. Which vision of the future matters most to different companies will be dependent on market and industry forces that affect that company.

So what are the skills and capabilities that operational excellence teams will need to have to help their organizations thrive and survive in the competitive markets that face them?

Ilir Morina, Lean Six-Sigma Master Black Belt/Performance Consultant, says that the basic fundamental skills will remain the same: "That's being able to implement change, being able to align expectations and goals with leadership to what the future state will be like, good project management, and being able to understand what is valuable to the customer. While the tools are getting more sophisticated, these things will always remain at the core of what any practitioner will be doing."

But a changing world also requires changing skills and approaches. Here are some of the new skills, that strategic operational excellence program of the future will need to hone:

Capability	Description	What the industry says…
Flexibility and creative thinking	The operational excellence professional of the future won't be defined by a single methodology or approach. Instead, they will be looking outwards at different methodologies, approaches and technologies to identify those that will make the biggest impact within their	*"If you look around you, the most impactful PEX professionals have those skills - changing culture, leading change, understanding technology - process orchestration and then aligning all of that with strategy."* - ***Roop Singh, Business***

	business context.	***Process Architect at Dell Secure Works*** *"There was and always will be a need for DMAIC – whether you called it Six Sigma or Lean or Business Process Management. But now to get things done there needs to be a much greater appreciation for the flexibility and adaptability to bring in other elements."* - ***Brent Harder, Director, BNY Mellon***
Solid Understanding of Technology	It is a rare process today that doesn't have a significant digital component to it. The process professionals of the future will need to understand how digital systems are architected and have a much closer relationship with IT.	*"Technological processes are becoming easier to set up now - and the process profession will have to not only have to understand what processes to design from the customer experience but also be able to enable them using the latest technologies."* - ***Roop Singh, Business Process Architect at Dell Secure Works*** *"We will see the need for closer alignment between Operations, ICT and System Developers. These will influence Lean Six Sigma approaches too. All of these approaches will need to come closer together and start to merge because I think that is where the opportunity really lies, in joining up systems, automating processes*

		and freeing up people's time to focus on value added stuff that they can do as people rather than duplicating what machines can do." - ***Marc Gray, Director of Operational Excellence, Imperial College London*** *"A role that I think is sorely missing in most companies is one that I call a 'process facilitator'. Inside a Technology group, an Enterprise Architect is the person who looks at how all the different systems work together, understands how changes ripple through the network, and architects updates to form a more comprehensive, powerful system. In the future, I think you're going to see that process professionals are going to play a similar role. Process professionals will lead the building, maintaining, and adjusting of the process framework and calibrate its outputs to what the customer wants and needs."* ***- David Hamme, consultant and Shingo award winning author***
Data Visualization	As the volume of data rapidly increases within	*"Process professionals are perfectly placed*

	organizations, operational excellence professionals will need to play a role both in identifying the required data but also understanding how to render that data in a format that is simple and easy to use for the business user to take action on it.	*for bridging the gap between data and the behavior."* - ***Ilir Morina, Lean Six-Sigma Master Black Belt / Performance Consultant*** *"Data is in great abundance in most organizations. Companies have reams and reams and reams of reports scattered all about their offices. But data needs to have utility. It needs to be ground into something useable and that's what's missing in many instances. Being able to mine that data into actionable insights that lead to strategic benefits is what differentiates the innovator from the laggard."* - ***David Hamme, consultant and Shingo Award Winning Author***
Designing Better Human Process Experiences	Operational Excellence programs will need to spend more time figuring out intuitive process designs to improve the experience customers and employees. Design Thinking was one approach suggested in this report to achieve this.	*"Humans interact with the business. They interact with both humans and machines. So how does all of that work together? Process professionals will need to understand what it means to design good experiences across both digital and human channels."*- ***Vince Pierce, Chief Strategy Officer, Ryan***
Emphasis on People and Culture	Operational Excellence becomes more about embedding the habits and capabilities that	*"We continue to be that enabling group to help. But we have to get out of this*

	enable an organization to improve than "doing quality" or "doing Lean". True differentiation will come when excellence is no longer a department, but a mindset.	*mindset that there is an OpEx department. Otherwise we'll never help change the organization."* - ***Rick Hepp, Director of Operational Excellence, Bristol Myers Squibb*** *"We, as process professionals, need to develop the capability in the people who work here to make their own changes."* - ***Sanjay Gupta, Continuous Improvement Leader at Momentive Performance Material.***

Conclusion

Clearly it's impossible to predict the future. But by applying what we know about how the process excellence profession has evolved and where it is today, we can extrapolate how it might change in the future. As discussed in the introduction to this report, ten years ago, Twitter, Facebook, and sub-prime mortgages all existed. They had simply not yet made a significant mark on the social, economic and business landscapes. In the same way, many of the technologies and approaches discussed in this report may currently seem marginal but will tomorrow be a core capability that companies need to embed merely to stay even with the competition.

As the forces of business change – demographics, economics and technology – exert pressure on businesses to transform the way they operate, process professionals will need to rise to the challenge and come up with new ways of delivering value and improvements through processes. This will mean doing things faster, better, simpler, and cheaper. But it will also have a new dimension in many industries. It will need to do all of the above, but in a more engaging and human-centered way.

New digital platforms and emerging technology such as artificial intelligence, big data, process automation and robotics will be a key enabler for new ways of working as it makes it possible to free up staff for more value adding activities and provide different value propositions to customers. But technology will also make processes even more important as the potential for complexity and things to go wrong increases exponentially. Technology will only be valuable in so far as organizations can make it work.

The only thing predictable about the future is that it will be different. And by paying attention to signs and markers today, we can start to plan for how our careers will be different, see how we can make more of an impact in our organizations and start to orient the ship towards the future.

Interested in Learning More?

Shape the future of the industry at OPEX Week: Business Transformation World Summit, www.opexweek.com, January 23-25, 2017 in Orlando, Florida.

The world of operations, process, performance and transformation is expanding at an incredibly rapid pace. Is it any wonder you need more ideas, strategies, innovation and tactics in your OPEX toolkit than ever before?

Join us at OPEX Week: Business Transformation World Summit to help you deliver the change your business demands. OPEX Week: Business Transformation World Summit, is the next stage of PEX Week, which has long been the largest OPEX event on the global arena.2017 will be the biggest, best, and most innovative year yet – a whole event dedicated to all the elements that you need in order to deliver business transformation, performance and operational excellence.

Find out more at www.opexweek.com or book at +44 (0) 20 7036 1300 or enquire@iqpc.co.uk

YOUR #1 OPEX GLOBAL EVENT JUST GOT A WHOLE LOT BIGGER

18	5500+	120000+	750+	100+	100000s
Years Old	Past Attendees	Community Members	Attendees On Site in 2016	Speakers in 2017	Transformative Business Conversations

Report Sponsors



Pegasystems develops strategic applications for sales, marketing, service and operations. Pega's applications streamline critical business operations, connect enterprises to their customers seamlessly in real-time across channels, and adapt to meet rapidly changing requirements. Pega's Global 2000 customers include many of world's most sophisticated and successful enterprises. Pega's applications, available on-premises or in the cloud, are built on its unified Pega 7 platform, which uses visual tools to easily extend and change applications to meet clients' strategic business needs. **Find out more at: www.pega.com**



Softomotive offers sharp business solutions, premium support and professional services that organizations need to get the most out of their enterprise automation. Trusted by more than 6,000 companies worldwide Softomotive is one of the leading Robotic Process Automation providers. The company has been operating for more than 10 years in the software automation market, and offers the most reliable and scalable automation solutions, bridging the gap between best-of-breed technology and continuous innovation to deliver true business transformation. **Find out more at: www.softomotive.com**



Appian delivers an enterprise platform for digital transformation that makes it easy for organizations to move fast and revolutionize the customer experience. Powered by industry leading Business Process Management (BPM) and Case Management capabilities, Appian's low-code approach radically accelerates the time it takes to build and deploy powerful, modern applications, on-premises or in the cloud. The world's most innovative organizations use Appian to revolutionize their customer experiences, transform their business operations, and master global risk and compliance. **For more information, visit www.appian.com**.

Promapp's cloud-based process management software makes it easy to create, navigate, share and manage business processes, enabling quality assurance, risk management and business continuity.

Providing an intuitive online process mapping tool, a cloud-based process repository and a comprehensive process improvement toolset, Promapp supports the development of smarter and safer ways to work, simplifying process mapping, so that business teams can own and improve their own processes. **Find out more at:** **http://www.promapp.com/**

StereoLOGIC's Advanced Analytics Robots (A.Robots) help enterprise operational managers to solve most critical and complex tasks, such as: Customer Service Acceleration, Productivity Improvement, Stabilization after Transformation, and Quality Management, in a fraction of time and cost of the traditional methods. Our A.ROBOTS will offer you rapid and elegant solutions for the following tasks: 1. Mapping of hundreds of business processes to understand how employees work today 2. Measurement of the process/activity time to understand the process inefficiencies and losses 3. Process improvement & development of Standard Operational Procedures (SOP) 4. Process Diagnostics & issue reproduction 5. Quality management & Accuracy / Time Scoring 6. Employee performance management & Comparison. Our Robots are so quick that you will see the first results in 1 week. StereoLOGIC is a COOL VENDOR of GARTNER. StereoLOGIC's Client Pitney Bowes has won the Process Excellence Award for "The Best Process Improvement Project under 90 days". **Find out more at:** **www.stereologic.com**

Bpm'online is a global provider of process-driven CRM for marketing, sales and service. The beauty and the core value of bpm'online products is the agility to change processes faster than ever and align marketing, sales and service on a single platform. Users love bpm'online's engaging interface with a social look and feel, free from redundant information to keep them focused on what's relevant. Today, the company employs 600+ experts and serves over 6,500 customers worldwide.
For more information, visit: **https://www.bpmonline.com/**

Other Upcoming PEX Network Events

September 2016:



BPM Open House is your essential guide to BPM solutions. BPM Open House gives you the chance to learn from the first hand experiences from companies who've maximized the value from their BPM solutions to deliver real business results. This unique online event will bring together hand-picked case studies that will show what the project objectives were, how they were achieved and the results produced. And best of all, it's all online, so you don't even need to leave your desk. **Sign up for FREE at** www.processexcellencenetwork.com/online-event/bpm-open-house-2016

BUSINESS PERFORMANCE EXCELLENCE USA

No matter the size, scale or maturity of your current OpEx or enterprise transformation programs, **Business Performance Excellence USA** provides the USA's ultimate guide to innovating across the enterprise and reinventing business models to achieve true performance excellence. Tear down the status quo, and learn from Silicon Valley and Fortune 500's process innovation and enterprise transformation leaders **September 26-28, 2016 in San Francisco**. **Find out more at:** http://www.businessperformanceexcellencesummit.com/

October 2016:



Align strategy with operational excellence at Europe's leading PEX forum, **PEX and Performance Management Europe**. Hear from 65+ speakers from a myriad of industries - including HSBC, eBay, IKEA, Vodafone and more – as they evaluate pertinent challenges in process and operational excellence in 2016. The PEX and Performance Management Europe renowned speakers are interactive, intelligent, dynamic and personable, and will help you go from passenger to driver in your operational excellence efforts. Join us **October 10-12, 2016 in Amsterdam. Find out more at:** http://www.performanceexcellenceeurope.com/

Acknowledgements

Reports like these wouldn't be possible without the active engagement and participation of PEX Network members, speakers and advisory board members who are so willing to share their time and expertise.

Thank you to Leslie Behnke, Dan Morris, Ian Gotts, John Biedry, Amir Ghannad, Sheila Montney, Ilir Morina, Atul Bhatt, Dennis Narlock, Sanjay Gupta, Brent Harder, Sridhar Krishnan, David Hamme, and Sisir Padhy for taking the time to be interviewed as part of the research for this report. Your input and thoughts on where the industry is and where it is going have been invaluable. Thank you also to Erika Westbay, Rick Hepp and Roop Singh for sharing your thoughts in a panel discussion webinar on the Future of Process Excellence. A special note that it is Roop Singh, Business Process Architect at Dell Secure Works, who inspired the theme and title – "Emergence" - of this research paper.

About PEX Network

The Process Excellence Network is a global community for process professionals, business leaders and executives who want to improve their businesses through process and operational excellence. With a global membership of 125,000+, and a burgeoning global portfolio of live events, webinars, and networking opportunities, our mission is to inspire and inform our members with access to practical advice on business improvement tools, methodologies and technologies in order to achieve their business goals.

PEXNetwork.com provides expert commentary and learning resources developed by experienced process professionals and industry insiders. The focus is on peer to peer sharing of what it really takes to harness the power of people, process and technology and improve business operations. Coverage includes Business Process Management (BPM), Lean, Change Management, Operational Excellence, Six Sigma & Quality, Performance Management, Information Technology Trends and Customer Experience.

About the Report Author



Diana Davis is the editor of PEXNetwork.com and is in the privileged position of getting to spend her days speaking to smart people about what it takes to make process improvement successful. Prior to joining the PEX team, Davis worked at Associated Press Television News where she worked on planning, intake and output functions coordinating international TV news coverage and producing TV video news packages. She can be contacted on LinkedIn: https://www.linkedin.com/in/diana-davis-675119

Sources

Allan, G. and Kawamoto, S, (July, 2015). *Mizuho Introduces SoftBank's Pepper Robot to Tokyo Bank Branch*. Bloomberg. Available at: http://www.bloomberg.com/news/articles/2015-07-17/mizuho-introduces-softbank-s-pepper-robot-to-tokyo-bank-branch

Bank of America, (December 2015). *Robot Revolution: Global Robot and Artificial Intelligence Primer*. Available at: http://www.bofaml.com/content/dam/boamlimages/documents/PDFs/robotics_and_ai_condensed_primer.pdf

Basset, R., (December 2014). *Superheros of Industry Eye Wearable Tech*. Automation World [online]. Available at: http://www.automationworld.com/superheroes-industry-eye-wearable-tech

Davenport, T. and Kirby, J., (June 2015). *Beyond Automation*. Harvard Business Review [online]. Available at: https://hbr.org/2015/06/beyond-automation

Deloitte, (2016). *Deloitte 2016 Millennial Study: Winning Over the Next Generation of Leaders*. Available at: https://www2.deloitte.com/content/dam/Deloitte/global/Documents/About-Deloitte/gx-millenial-survey-2016-exec-summary.pdf

Economist Intelligence Unit, (2015). *Long-term macroeconomic forecasts: Key trends to 2050*. Available at: http://pages.eiu.com/rs/783-XMC-194/images/Long-termMacroeconomicForecasts_KeyTrends.pdf

Frey, C. and Osbourne, M., (September 2013). *The Future of Employment: How susceptible are jobs to computerisation?* University of Oxford. Available at: http://www.oxfordmartin.ox.ac.uk/downloads/academic/The_Future_of_Employment.pdf

Gray, Marc, (June 2016). *Process Improvement for the Millennial Generation*. PEX Network. Available at: http://www.processexcellencenetwork.com/innovation/interviews/process-improvement-for-the-millennial-generation

Hepp, R., Westbay, E. and Singh, R. (June 2016). "*What does the Future Hold for Process Excellence?"* PEX Network. Available at: http://www.processexcellencenetwork.com/innovation/webinars/what-does-the-future-hold-for-process-excellence

Kolko, J., (September, 2015). *Design Thinking Comes of Age*. Harvard Business Review [online]. Available at: https://hbr.org/2015/09/design-thinking-comes-of-age

Love, Asbjorn. (March 2016). *Use Data to Drive Behavior for Operational Excellence, says VP of Operations at Statoil*. PEX Network. Available at: http://www.processexcellencenetwork.com/organizational-change/interviews/use-data-to-drive-behavior-for-operational

IBM. *What is Big Data*. Available at: https://www-01.ibm.com/software/data/bigdata/what-is-big-data.html

Innosight Consulting, (2012). *Creative Destruction Whips Through Corporate America*. Available at: http://www.innosight.com/innovation-resources/strategy-innovation/creative-destruction-whips-through-corporate-america.cfm

Marous, J., (July, 2015). *Robots and AI Invade Banking*. The Financial Brand. Available at: http://thefinancialbrand.com/52735/robots-artificial-intelligence-ai-banking/

PWC, (2011). *Millennials at work: Reshaping the workforce*. Available at: https://www.pwc.com/m1/en/services/consulting/documents/millennials-at-work.pdf

Shingo Institute, (2016). *Commonwealth Bank of Australia Receives International Recognition for Operational Excellence.* Available at: http://www.sapartners.com/wp-content/uploads/2016/02/ShingoSilverMedallionAward.pdf

Theuerkauf, Jon. (February 2016). *Why Robots are Coming Soon to a Process Near You*. PEX Network. Available at: http://www.processexcellencenetwork.com/pex-tools-technologies/interviews/why-robots-are-coming-soon-to-a-process-near-you

Thomnke, S., (June, 2015). *High-Tech Tools Won't Automatically Improve Your Operations*. Harvard Business Review [online]. Available at: https://hbr.org/2015/06/new-technology-wont-automatically-improve-your-operations

United Nations, (July 2015). *Millennium Development Goals Indicators: Mobile-cellular subscriptions per 100 inhabitants.* Available at: http://mdgs.un.org/unsd/mdg/SeriesDetail.aspx?srid=756&crid=

United Nations, (July 2015). *Millennium Development Goals Indicators: Internet users per 100 inhabitants*. Available at: http://mdgs.un.org/unsd/mdg/SeriesDetail.aspx?srid=756&crid=

Vuorikoski, Jarkko, (May 2016). *Danske Bank: Improving End to End Processes From A Customer Perspective.* PEX Network. Available at: http:/www.processexcellencenetwork.com/innovation/interviews/danske-bank-improving-end-to-end-processes-from-a

Wikipedia, (2016.) *Ray Kurzweil*. Available at: https://en.wikipedia.org/wiki/Predictions_made_by_Ray_Kurzweil