

# The Impact of Automation

on Modern Business

BUSINESS DISRUPTION  
AND THE FUTURE OF  
AUTOMATION



# INTRODUCTION

There's no turning back from the fact that disruptive business automation is here. As artificially intelligent functionality delivers more capabilities that we increasingly take for granted, it's difficult to grasp all the implications of this transformation. In this eBook, we aim to illustrate what it means for business, for the people who work in those businesses, and for people served by those businesses every day.

To better understand how automation is changing business, and with the generous support of CA Technologies, we reached out to 11 experts. After many fascinating discussions on this topic, we developed essays that address four key questions:

- **How has business automation changed your operations?**
- **What business processes would you like to automate?**
- **What best practices can you offer to someone who is implementing a large automation project?**
- **What does the future hold for businesses actively pursuing automation?**

In speaking with experts from different industries in both the public and private sectors, it became clear that cost reduction and gains in efficiency are not the only factors that drive automation. They may not even be the most important ones. Successful automation must also deliver greater value in the form of more accurate processes, better products and services, or entirely new value propositions not previously possible.

By providing practical insights into what is happening today and what may be just over the horizon, I believe this eBook will be a valuable resource for anyone planning an automation strategy.



All the best,  
**David Rogelberg**  
Publisher, Mighty Guides, Inc.



## **Mighty Guides make you stronger.**

These authoritative and diverse guides provide a full view of a topic. They help you explore, compare, and contrast a variety of viewpoints so that you can determine what will work best for you. Reading a Mighty Guide is kind of like having your own team of experts. Each heartfelt and sincere piece of advice in this guide sits right next to the contributor's name, biography, and links so that you can learn more about their work. This background information gives you the proper context for each expert's independent perspective.

Credible advice from top experts helps you make strong decisions. Strong decisions make you mighty.

At CA Technologies we are excited about business automation. We think it is the critical enabler to help drive business and empower digital transformation. We have worked with the Mighty Guides team to ask leading practitioners across different industries for their thoughts on the power of automation within their business. We hope you enjoy this compilation of stories.

We believe that, in today's ultra-complex, fast changing world, business automation is not just a differentiator, but an essential component of the modern enterprise. With the prevalence of digital disruptors, the ever-growing influence of big data and the increasing importance of the Internet of Things, automation is the only way businesses can achieve the agility and scalability required to compete. As a gateway to innovation, business automation increases productivity, drives revenue growth, reduces time to market and breaks down silos.

Here at CA Technologies, our automation solutions are designed to help you become more agile and to execute your key business imperatives faster. This will shorten your time to value and help you delight your customers with the best possible user experience. As your usage of automation expands, our solutions will help you orchestrate across different functions and different use cases to drive automation as a critical enabler of your digital transformation. Whether it's attaining continuous delivery for new applications, modernizing legacy systems, harnessing vast amounts of data, or delivering self-services to the business - our solutions provide high availability, unrivalled scalability and end-to-end visibility across all your processes, and from a modern unified interface.

Central to our portfolio is the industry-leading CA Automic One Automation Platform. This unified, open and scalable automation platform acts as a central point of control across your entire business. The overarching architecture ensures agility and stability, standardizing management and configuration of IT processes. It's our 'secret sauce', helping distinguish CA Technologies by driving scalability, openness and performance.

I hope you enjoy this book,



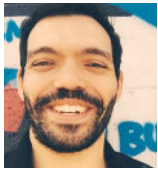
**Dr. Chris Boorman**  
VP, Automation Marketing



CA Technologies is the leader in automation software. We drive competitive advantage by automating IT and business systems, delivering business agility across all environments, from on-premise to the cloud, big data and the Internet of Things. With over 40 years' experience, our solutions facilitate business growth, deliver faster time to value and ensure effective resource utilization, all while staying compliant and mitigating risk.

# BUSINESS DISRUPTION AND THE FUTURE OF AUTOMATION

---



## Marcos Bueno

Automation Can Enhance Media Production and Consumption.....5



## Rodrigo Gonzalez Hermosillo

More Detailed Information Improves Automation Outcomes.....9



## Scott Andersen

Automation Is Improving Speed, Efficiency, and Security.....13



## Paul Hoffmann

Automation Is Like Industrialization Before and After Electricity.....17



## Ian Gordon

Using Artificial Intelligence to Transform an Entire Industry.....21



## Brian Timmeny

The Speed and Agility of DevOps Makes Process Automation Possible.....25



# AUTOMATION CAN ENHANCE MEDIA PRODUCTION AND CONSUMPTION



## MARCOS BUENO

Head of Media Technology,  
Vox Media, Inc.

Over the past six years, Marcos Bueno has been building Vox Media's strategic capabilities for media technology. Leading the technical and physical design of Vox's studio infrastructure, he understands that when building a modern media company, automation systems grant the ability to strike a careful balance between sustainability and scale.



Twitter | Website | LinkedIn



Download the full e-book: [The Impact of Automation on Modern Business](#)

Automation is having a big impact in media production, says Marcos Bueno, head of media technology for Vox Media, which does production work for a number of media brands. One example is automating the creation of closed captions for video. By using voice recognition technology, real-time transcriptions are made with over 90 percent accuracy and “baked” into published assets. This lowers the costs and makes it possible to add closed captions more easily to video. There are other benefits too, Bueno explains. “There’s value in terms of video performance by committing to being more inclusive of broader audiences, creating something that’s more user friendly for the social media type of content consumption, and making content more accessible to differently abled audiences. And with us shooting over 150 videos per month in NY alone, it’s the only way we can keep up with that scale.” >>>



*With metadata and digitized contracts, we'll be able to automate permissions questions, like are we cleared to show a video or play a music track in a particular country.*



Another way automation is improving media production is a system that translates high-resolution video to low-resolution, viewable proxy files that remote editors can use to make rough cuts. Those rough cuts then get automatically converted back to high-resolution edited video. “This allows us to facilitate work from home or locations outside the office,” Bueno says. “It opens up our talent pool where we are no longer tied to hiring people specifically out of certain regions, like New York or San Francisco. It can lower costs, but it’s also a way for us to be more inclusive in our process. Automation makes that possible.”

Bueno believes there is a big future for automation in media production that will affect how media is consumed and monetized, but there are also a lot of uncertainties. One area of great promise is the ability to automate the identification of concepts, objects, and brands in video images, to create a much richer body of metadata around video content. “Those things are incredibly valuable once you’re able to monetize them. That library is hard to come by, especially when we’re able to present it through our lens,” he says. >>>

*“While I don’t see any real automation for creativity I can see how AI could be used to create more space for folks to focus on higher-craft work.”*

Having this metadata also makes it possible to automate other processes, such as rights and permissions. “With metadata and digitized contracts, we’ll be able to automate permissions questions like are we cleared to show a video or play a music track in a particular country, can we use artwork that an artist made for us, or do we have the rights to play it in certain places,” Bueno comments. “You can automate that decision process because it’s all based on metadata and contract information.”

On the content-consumption side, new levels of automation can enhance the user experience. For instance, some smartphones have facial scanning capabilities that could potentially be used to analyze facial expressions in real time. “I would not be surprised if there was a future where you’re watching content and that scanner is looking and measuring your response to that content.” This would enable video publishers to adjust content in nearly real time.

On the creative side, more advanced automation tools could be used to automate some of the less skilled areas of video production, but Bueno believes there are limitations. “It is not easy to automate creativity,” says Bueno, although he does add, “I can see how AI could be used to create more space for folks to focus ■n higher-craft work.”

## KEY POINTS

- 1** Automating the identification of concepts, objects, and brands in video images would create a much richer body of metadata around video content.
- 2** New levels of automation can enhance the user experience by enabling video publishers to adjust content in nearly real time.



**IAN GOUDY**

Vice President of Global  
Continuous Improvement,  
Hertz



“

*Automation has really helped to streamline complex and difficult processes, and to build in checks and balances that prevent mistakes that create quality issues and ramifications for customers.*

”



Download the full e-book: [The Impact of Automation on Modern Business](#)



# MORE DETAILED INFORMATION IMPROVES AUTOMATION OUTCOMES



## RODRIGO GONZALEZ

Chief Information Officer,  
Softtek

Mexican-born Rodrigo Gonzalez Hermosillo has been leading multiple areas at Softtek since 2003, from enterprise architecture to global operations of Fortune 500 accounts, and has successfully helped Softtek customers improve their IT operations and services. For the past five years, Gonzalez has served as senior vice president for the company's US and Canada operations. In 2016, he was appointed CIO and began leading the company's internal digital transformation. Previously, Gonzalez, who has a passion for science and mathematics, worked for General Electric as enterprise architect.



Website | LinkedIn



Download the full e-book: [The Impact of Automation on Modern Business](#)

In some ways, the technical portion of automating business using artificial intelligence is the easy part, according to Softtek chief information officer (CIO) Rodrigo Gonzalez. “Automation can only serve the business if you know the problem you are solving,” he believes. When he works with other CIOs, he tells them: “Outside technologies cannot look at your business and tell right away how to automate, because in order to automate the business, the most important thing is to understand how the business works.”

Most CEOs expect business automation to improve business processes. One challenge is that not everyone always agrees on how a process should work, or a procedure is not followed the way it was intended. Gonzalez explains that often when people actually work through the process, he finds they create alternative solutions to problems. “You cannot automate a process that nobody is following,” he stresses.

Gonzalez sees automation continuing to occur, process by process, within the context of larger operations. Customer-facing chatbots are one example of automation within the larger context of customer service. >>>



*Automation can only serve the business if you know the problem you are solving.*



Addressing the issue of automation displacing employees, Gonzalez believes many workers will shift to roles supporting the automated processes, which will mitigate job loss. Citing the example of chatbots, Gonzalez says customer service employees “will need to be doing different activities. There is still going to be customer interaction, and a lot of customers still want to talk to somebody who can help them with problems.”

Gonzalez sees a big role for AI and machine learning in automation, but he points out that it comes back to understanding the business process at a granular level, and collecting a lot of data. “Most companies realize they are not collecting the right information to apply AI,” he says. “To improve your process, you need to start collecting the right information. That’s the moment when you can start thinking about machine learning or artificial intelligence.”

He notes that AI may not be right for every process. “If it is not predictable, a robot cannot do it, because the robot will not understand the data inputs. The robot requires information that is organized and predictive, so it knows that if it makes this change, it will generate these results. If the process is not predictive, nothing is going to happen.” >>>

*“To improve your process, you need to start collecting the right information. That’s the moment when you can start thinking about machine learning or artificial intelligence.”*

One area that may be ripe for AI-based automation is human resources. However, automating HR successfully will require pulling together information from many sources in ways not being done right now. For example, consider an employee who quits. While it's easy to automate processing the termination in payroll and benefits databases, the bigger challenge is to find out why the employee wants to quit, and is there information the business can leverage to improve employee retention. "You could add an AI component that figures out if you are underpaying compared with peers. It might see there are certain skills or technologies in the employee's resume that you are not using that are more valuable in the business, and then it could check into job boards for salary comparisons and even identify similar employees," he notes.

Gonzalez sees taking something like this a step further, to anticipate changes in personnel requirements based on business change, and actively develop your employees' skills. Companies will be able to find people with the right qualifications, interests, and desires, and then use the technology to help with career-path management. "If you build those initial data sets, the tools are going to be there," he says. ■

## KEY POINTS

- 1** One challenge for automation is that not everyone always agrees on how a process should work, or a procedure is not followed the way it was documented.
- 2** Through AI and automation, companies could find people with the right skills, interests, and desires, and then use the technology to help with career-path management.



**CHRISTOPHER  
COOL**

Former VP Enterprise  
Excellence & Strategy,  
Northrop Grumman



*I think it's a competitive advantage if a company can understand and manage its processes in concert with the people and the systems one uses for the current state and any future state. But ownership, clarity, some level of standardization, and automation done well (the study of human and business system execution of a series of processes) are difficult but critical to high efficiency operations in every part of a business.*



Download the full e-book: [The Impact of Automation on Modern Business](#)

# AUTOMATION IS IMPROVING SPEED, EFFICIENCY, AND SECURITY



## SCOTT ANDERSON

Chief Technology Officer,  
Creative Technology and  
Innovation

Scott Andersen has been working in the IT industry for more than 30 years. In that time he has worked with customers as they consider, evaluate, and ultimately migrate to new platforms and solutions.



Download the full e-book: [The Impact of Automation on Modern Business](#)

**A**s senior principal solutions architect focused on building and delivering cloud solutions for US government agencies, Scott Anderson has been involved in many automation projects, ranging from projects that have cut the average IRS electronic tax filing time from 12 minutes to 20 seconds, to back-end processes that automatically wipe data from cloud instances no longer in use. He has also helped develop processes that issue and monitor grants to make sure their purpose is being fulfilled. This has sped up the granting process and improved grant oversight. “People administering grants or reviewing tax returns used to go through these things line by line. Nobody is doing that anymore because it’s all automated,” Anderson says.

There are many other ways automation could further streamline government operations. One area Anderson believes stands to benefit is government procurement. “I would love to help the federal government use automation to consolidate procurement through one federal government account,” Anderson says. “The government has incredible buying power. A unified, automated procurement process would reduce the cost of acquisition for the federal government.” >>>



*People administering grants or reviewing tax returns used to go through these things line by line. Nobody is doing that anymore because it's all automated.*



Twitter | Website | Blog | LinkedIn



The key to implementing any automation solution successfully is first doing an in-depth assessment of current processes, creating a consumption plan, and evaluating applications for where they can improve performance. Anderson also stresses the importance of communication, especially at the executive level. “Talk to the people around you, and make sure they get it,” he suggests. “The reality of change is that there is always resistance.”

Looking over the horizon, Anderson believes that emerging technologies are on the cusp of creating dramatic improvements in the speed and efficiency of complex processes. AI and machine learning are already being applied to automation, but used in combination with other technologies such as blockchain, they could be the basis for much more complex ledger-based automation. “Blockchain is a really good tool when it is implemented with smart contracts and ledger products,” says Anderson. “It’s predominantly a secure financial transaction system for an organization. A lot of business processes are really transactions. But today, blockchain is extremely performance-limited.” >>>

*“We want machines to learn to be better at what they’re doing, and we want people to have the freedom to innovate and improve the machines.”*

Part of the solution may involve splitting a complex business process into many small ones and distributing them across a blockchain environment made up of hundreds of computing instances. “This would give me a more secure process intelligently distributed across many smart devices,” he explains. “Each device verifies it knows and has protected its piece of the process. If you think about some of the massive transactions that organizations run in their business processes, I could actually break it into a thousand little ones. I can now begin to look at dynamically extending my blockchain when necessary to create a true performance-based computer system.”

Anderson does not see these kinds of advances as replacing people, but he believes they will improve people’s lives. “We want machines to learn to be better at what they’re doing, and we want people to have the freedom to innovate and improve the machines,” he says. “This will give us the opportunity to have better jobs. There’s something nice about the idea of sitting on a beach drinking mai tais, watching the robots do the work.” ■

## KEY POINTS

- 1** To implement an automation solution successfully, first do an in-depth assessment of current processes, build a consumption plan, and evaluate applications for where they can improve performance.
- 2** Emerging technologies are on the cusp of creating dramatic improvements in the speed and efficiency of complex processes.



**JIM LAGRANT**

Vice President of Engineering  
Palmer Foundry



“

Start by systemizing and normalizing your existing processes. Once there is consistency in what you do manually, you can automate them. If there is no consistency in the manual processes (how the data is collected, stored, scrubbed, presented) it will be extremely difficult or impossible to automate.

”



Download the full e-book: [The Impact of Automation on Modern Business](#)

# AUTOMATION IS LIKE INDUSTRIALIZATION BEFORE AND AFTER ELECTRICITY



**PAUL HOFFMAN**

CTO,  
SpaceTime Insight

Paul Hoffman is the CTO at SpaceTime Insight. A former CTO at Saffron Technology (now Intel) and former VP, R&D, at SAP, he has more than 20 years of experience as an executive in the chemical (BASF) and IT industries. As a senior scientist and assistant professor at Northwestern University, MIT, and the Technical University of Munich and Darmstadt, he also has a strong academic background. Hoffman, an expert in AI and machine learning, has applied these principles to predict chemical reactions as early as 1986 as post-doctoral fellow at the Technical University of Munich.



Twitter | Website | Blog | LinkedIn



Download the full e-book: [The Impact of Automation on Modern Business](#)

One of the great transformations that has happened through automation, one that is actually changing the world at an accelerating rate, is the automation of software development. The shift from a traditional waterfall model, where millions of lines of code are developed before a product is released, to an agile model where code is released whenever it's ready, has changed everything.

In the past, all the code in a product had to be done all at once. "Now it's like getting on a train that leaves the station on a regular schedule," says Paul Hoffman, chief technical officer (CTO) of SpaceTime Insight. "Commit schedules and testing all happen automatically. If the code isn't ready when the train leaves the station, there's always the next train." This also applies to changes and fixes, which makes software development an incremental, continuous change-engineering process. "We can fix things, and we can fix them over the air," he says. "This way of doing software engineering is delta engineering. It is evolution." >>>



*This way of doing software engineering is delta engineering. It is evolution.*



Further automation of this delivery model makes machine-learning processes possible, because machines can adjust their rules of operation in real time. “Now you can use reinforcement learning and unsupervised learning and prescriptive analytics to automate much more complex processes,” says Hoffman. One example is using artificial intelligence to automate crew scheduling and routing for large wind-turbine farms. The goal is to optimize crew utilization. “When you have a large facility with 800 wind turbines, how you schedule repairs and route crews is difficult because the wind is unpredictable, and people call in sick.” There are many unforeseeable factors—Hoffman likens it to putting a robot in a maze with no knowledge of how to find its way out. “It’s not supervised learning, and it’s not totally unsupervised. The system gets a little bit of critique.”

There are hundreds of examples that illustrate how advanced automation improves businesses. “A process becomes cheaper, it will follow more rules, you can audit it, it automates your governance risk and compliance because it’s the machine doing that,” says Hoffman. “It will be more efficient, more precise, and more reliable.” >>>

*“Now you can use reinforcement learning and unsupervised learning and prescriptive analytics to automate much more complex processes.”*



Hoffman sees advanced automation as a major disruptive force that will present big opportunities as well as big challenges. “This is like industrialization before and after electricity,” he says. People and organizations need to be thinking about what this means. He cites the example of a radiologist who spends years studying in medical school for years only to find that machines are already close to being able to do what a radiologist does, only better. “The next big wave, probably in the next five years, is the automation of much of the work information workers do.” He sees opportunities in the way companies apply business intelligence. “If you are a company that can change whatever intelligence-based processes you have, then artificial intelligence-based automation can be applied to learn and help with that change.” ■

## KEY POINTS

**1** Automation of software development is creating a transformation that is changing the world at an accelerating rate.

**2** Advanced automation is a major disruptive force that will present big opportunities as well as big challenges.



**RAKESH  
AMERINENI**

Sr. Manager,  
QTC Finance Transformation  
& Architecture



*As part of a Next Generation Finance transformation strategy, every company needs to evaluate emerging technology trends like Robotic Process Automation (RPA), AI/Machine Learning, Predictive Analytics, Blockchain etc. in addition to system automation. At LinkedIn, we started leveraging RPA for reconciliations & consolidations and evaluating usage of AI/predictive analytics to determine a collection strategy based on the payment behavior of customers.*



Download the full e-book: [The Impact of Automation on Modern Business](#)

# USING ARTIFICIAL INTELLIGENCE TO TRANSFORM AN ENTIRE INDUSTRY



## IAN GORDON

Senior VP, Operations,  
Regence Insurance  
Holding Company

Ian Gordon is senior vice president of operations at Regence Insurance Holding Company. In his more than two decades in the healthcare field, he has gained extensive experience in the areas of health insurance, workers' compensation, and financial services. Described by colleagues as a "doer," he is an innovative, strategic thinker with strong leadership and motivational skills. He holds an MS in Management Information Systems from the University of Virginia, an MBA from Rider University, and a BS in Accounting from Montclair State University.



LinkedIn



Download the full e-book: [The Impact of Automation on Modern Business](#)

Applying artificial intelligence to business processes can totally transform industries, especially those that are data intensive and require many manual inputs. One such industry is health insurance, and for Ian Gordon, senior vice president of operations at Regence Insurance Holding Company, transformation began with a project to reduce the size of insurance application forms.

"Insurance forms are long and cumbersome," says Gordon. "They're similar to tax forms. In our market, people complain that the forms are too long." His goal was to simplify the forms, but that proved difficult because so many entities had a say in the content. So Gordon took a different approach. "We declared defeat, and then we made the forms irrelevant." He did this by turning the forms process into an online Q&A session. You answer simple questions and the system fills out all the proper forms based on your answers. "It's a dialogue," says Gordon. "You don't even know you're filling out a form. We cut cycle time for submitting and processing forms in half. We significantly increased accuracy in terms of missing information." >>>



*You don't even know you're filling out a form. We cut cycle time for submitting and processing forms in half.*



For Gordon, that was the first baby step in a much more ambitious plan for changing the relationship between insurance companies, consumers, and health-care providers. Still under development, the plan uses artificial intelligence and machine learning to automate key insurance processes, including:

- **The Claims Genie.** It's a well known fact that settling health-insurance claims, or claims adjudication, can be a painful process. "The basic claims adjudication function today is about how fast can you get the claims through the system, and paying them right," says Gordon. Simply speeding up the process through automation increases risk of inappropriate payouts. The Claims Genie applies analytics, artificial intelligence, and machine learning to take claims adjudication to a whole new level. "We'll look at a claim to quickly see if there's anything wrong with it, and then we'll see how it compares to related claims from this person and this doctor," Gordon explains. "Then we'll relate it to claims of others with a similar experience. We'll look for predictive patterns that say, wow, with this kind of claim, there's a high likelihood these other things will occur. We'll be able to reach out to a person, make him aware of his options, or potentially reach out and help provide a concierge level of service to the person's family." The goal is to do all these things in real time. >>>

*"We'll be able to reach out to a person, make him aware of his options, or potentially reach out and help provide a concierge level of service to the person's family."*

- **The Benefits Genie.** “When someone asks me if they are covered, they’re really asking four questions,” Gordon says. “Is that benefit covered? Can I see the doctor, and which ones can I see? Do I need a prior authorization? And how much is this going to cost me?” Answers to those questions depend on a lot of context and conditions. The Benefits Genie will enable consumers to ask those questions with natural language, using a mobile phone or web app. “We’ll use natural language processors and a translation suite, we’ll be using real-time claims adjudication capabilities, we’ll be codifying policies and then using all that to take a question, construct the query, create answers, and then respond to the questions you asked and others that were inferred. We’ll provide you additional information about other things you might need, like therapy, and those costs. This will all happen in real time.”

These tools stand to change how people use health insurance, improve the health-care services they receive, and lower costs. Recognizing that the health-insurance industry as a whole receives some of the lowest consumer ratings among consumer-facing businesses, Gordon believes these kinds of tools will totally transform the industry. “So many people think our goal in life is not to pay their claim,” he says. “Once you create this mechanism to allow consumers, and ultimately health-care providers, to communicate with us and trust that we’re truly trying to help them, and to see us as a valuable resource, I think we then open the door to new opportunities.” ■

## KEY POINTS

**1** Applying analytics, artificial intelligence, and machine learning to the claims adjudication process opens the door to a whole new level of service delivered in real time.

**2** These tools stand to change how people use health insurance, improve the health-care services they receive, and lower costs.





## JOE MORROW

Senior Director, Logistics  
and Operations,  
Samsung Electronics America



“

As manufacturers, distributors and retailers continue their push to get closer to the consumer, operations have to embrace automation. Organizations must quickly evaluate their end-to-end processes and determine where large investments in ‘holistic automation’ may be beneficial in driving down costs, cutting lead-times, and being able to adapt to market demands.

Holistic automation in this sense means tools beyond the warehouse floor. Planning, sensing, procurement, analytics, communications all need to be taken into scope. The ability to produce same-day consumption models, while staying profitable, will determine the long-term success of one's organization.

”



Download the full e-book: [The Impact of Automation on Modern Business](#)

# THE SPEED AND AGILITY OF DEVOPS MAKES PROCESS AUTOMATION POSSIBLE



## BRIAN TIMMENY

Global Head of Advanced Engineering, DevOps, Engineering Processes, BBVA

Brian Timmeny serves as the head of advanced engineering, DevOps and engineering processes, at BBVA, a global financial-services company. He currently drives the agile and DevOps transformation of the global engineering group toward next-generation DevOps and advanced engineering delivery, promoting continuous integration and deployment into the application suites within the global-engineering portfolio.



Twitter | LinkedIn



Download the full e-book: [The Impact of Automation on Modern Business](#)

There are many examples of process automation changing the way people work and the way businesses operate. Some are highly visible, and others work behind the scenes, enabling many of the processes we take for granted. One of the less visible areas of automation may be the most important of all, because without it, none of the rest would be possible. This is the process of software development.

A trend in modern software development involves breaking large, complex applications down into microcomponent architectures and microservices, each one of which is built utilizing automated testing and deployment environment standards often known as a continuous integration (testing), continuous delivery (deployment) pipeline (CICD). Developing, testing, and deploying code requires many steps, which used to be done manually. A person was responsible for each stage of the process, and there was plenty of opportunity for error. As Brian Timmeny, who oversees part of a large DevOps operation for a global banking organization, explains: “The old way gave you traceability in the end-to-end process, but what it did not give you was confidence in that same end-to-end process.” In other words, a well-executed process could still deliver error-prone software. >>>



*You now have end-to-end visibility from a centralized area. You can see each step happening, and the DevOps ecosystem itself is reporting on where you are within your process.*



In a modern DevOps process, a developer builds a piece of code (component) and then merges that component into the CICD pipeline where all the many kinds of tests that must be performed happen automatically. In the past, a developer might not know for weeks whether his or her code had a problem, or worse, caused a problem for a downstream partner. Now the feedback is almost instantaneous. If the tests detect a problem, they kick back the code with specific information about the problem. The developer can fix it right away. If the code passes all its tests, the system immediately deploys it, and the developer continues working on the next thing.

It is the speed and agility of DevOps that makes business process automation possible. Timmeny explains many advantages that come from an automated DevOps approach. “You now have end-to-end visibility from a centralized area. You can see each step happening, and the DevOps ecosystem itself is reporting on where you are within your process. This not only minimizes the chance of a human error, we actually restrict the security groups (access) so no human can touch the pipeline. That’s really important, especially in a highly regulated industry like banking,” he says. “Now you can prove to regulators and auditors that you have integrity within your process. It gives us a level of security and assurance that all of the regulatory compliance that we expect is not only detailed, but it’s enforced and automated, 100 percent of the time.” >>>

*“The importance is not just seeing the apps that have issues. It’s also looking at the ones that don’t have issues. Machine learning can help us detect patterns of production at an epic scale.”*

Another advantage of DevOps automation is that the process itself can evolve as tools become more sophisticated. “I think it will come much more from within the tool sets. Every month these tools create better integration points,” says Timmeny. And this is enabling a more rationalized, end-to-end development process, from concept to deployment. That makes the DevOps process and application development faster and more responsive to business needs. “I think that concept of high-level, end-to-end visibility of what needs to happen is going to become more and more rationalized over time as an end-to-end cycle,” he adds.

He also sees artificial intelligence and machine learning playing an important role in further automation as an improvement of the DevOps process. “AI and machine learning will see and detect patterns faster than a human can ever detect them,” Timmeny says. “There will be applications that deploy and never have a production problem. There will be other apps that deploy and have tons of production issues. The important factor is not just seeing the apps that have issues. It’s also looking at the ones that don’t have issues, and to understand the common patterns between the two, and learn from those processes. Machine learning can help us detect those patterns of production stability and instability at an epic scale.” ■

## KEY POINTS

- 1 It is the speed and agility of DevOps that makes business process automation possible.
- 2 Another advantage of DevOps automation is that the process itself can evolve as tools become more sophisticated.

# Gain Time for the Things that Matter in the Digital Age

Want to reclaim time and drive your company forward? The Ultimate Digital Transformation Bundle is filled with straightforward content explaining how to automate day-to-day processes, allowing you to focus on what really matters, including innovation and positioning your organization at the leading edge.



[Download the Bundle Now](#)