

PECB Insights

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CREATING A DIGITAL-READY CULTURE



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In This Issue



6 The Expert

Digital Transformation: What's in It for Your Business?

12 Leadership

How Human-Centric Leadership Unleashes Value from Innovation in Today's Volatile World

16 The Standard

Keeping Consumers And Citizens Safe And Secure

20 The Expert

Can Blockchain Be Considered as a Catalyst of Digital Transformation?

28 The Expert

Reaping the Benefits of Transformative Technologies through Risk Management

32 Technology

Thinking Digital: Transforming Business through Smart Solutions

40 The Expert

Cybersecurity: A Starting Point through Digital Journey

46 Success Story

No Security without Identity – No Identity without Security

54 Innovation

Revealing Digital Transformation Opportunities through Big Data

58 Business & Leisure

An Enticing Getaway for Training and Leisure in San Miguel de Allende, Mexico

66 Books

Understanding Digital Transformation

70 The Expert

How to Build a Trusted Digital Ecosystem through Business Continuity in 5 steps

80 Travel

How to Make the Most of Layover in Barcelona

“Think of digital transformation less as a technology project to be finished than as a state of perpetual agility, always ready to evolve for whatever customers want next, and you’ll be pointed down the right path.”

AMIT ZAVERY,
VP AND HEAD OF PLATFORM, GOOGLE CLOUD





Digital Transformation: What's in It for Your Business?

 BY DENNIS AKKERMAN

Digital transformation is a hot topic, presenting tremendous opportunities and major challenges. This article presents digital transformation, its common failures, and a management approach to succeed with digital transformation.



Digital transformation

Most organizations acknowledge that digital transformation is not just a competitive advantage; it is slowly becoming a necessity. Its importance has grown significantly since and during the COVID-19 pandemic.

But what exactly is digital transformation? One can come across several different interpretations of digital transformation and related implementation methods. Some of my clients see digital transformation as follows:

- › “We are enabling all our employees to work from home.”
- › “We will set up an online shop to sell our products online.”
- › “Let’s do artificial intelligence since everybody is talking about it!”

Are these good examples of digital transformation? Yes and no. They are point solutions based on certain technologies. They transform a specific operational aspect for businesses. While technological solutions are necessary for a successful digital transformation, they are only individual pieces of the entire puzzle. This is one of the reasons why most digital transformations fail.

Why more than 70% of digital transformations fail

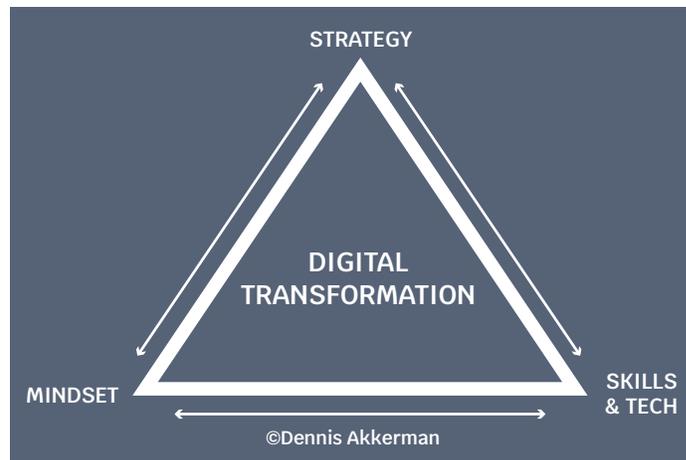
What is a failure in the context of digital transformation? Generally, a failed digital transformation did not (sufficiently) deliver its intended (long-term) business outcomes in financial and/or non-financial terms (e.g., customer satisfaction, company reputation).

Common causes that I have identified from conversations with my clients are:

- › No clear vision/direction
- › No integrated digital strategy
- › Failure to sustain initiatives beyond the inception stage
- › Isolated initiatives rather than embedding the DT strategy in the organization
- › Lack of prioritization
- › A blind following of hypes and trends
- › Focus on technology while ignoring the human factor
- › Silo approach to data
- › Risk-averse culture
- › Throwing money at the problem without a clear business case
- › Lack of innovation capabilities
- › Legacy
- › Technology limitations

How can you succeed with digital transformation?

I have, over time, realized that there are three critical success factors for every digital transformation. Based on these three factors, I have developed the Golden Triangle of Digital Transformation® as a universal model to craft winning transformation strategies for organizations.



Strategy

[A study conducted by MIT Sloan](#) shows that only 15% of respondents coming from companies that have initiated digital transformation (DT) say that their company has a clear digital transformation strategy. For digitally mature companies, not surprisingly, that number is more than 80%, according to the same study.

Digital transformation covers the entire business value chain. In many organizations, the responsibilities sit with one of the functional departments (mostly Marketing or IT) and are not strategically integrated.

Digital transformation requires a holistic approach linked to the business strategy and it should be executed in an integrated end-to-end manner. It is not an endpoint or a one-off program; it is a permanent catalyst for change.

I see four strong reasons that justify board-level responsibility for DT:

- › Integrating DT with strategic business outcomes
- › Developing a continual innovation mindset
- › Enabling a customer end-to-end focus
- › Promoting a data-driven culture in the entire organization

These four factors cannot be done in isolation; they are fundamental changes spanning across the entire company. To drive these changes, the appointment of a Chief Digital Officer (CDO) should be considered (or at least have an existing board member overseeing DT).



According to [Gartner](#), the CDO role is evolving from being “only” the chief of data to becoming a top-level responsibility for DT. CDOs reporting higher maturity levels of DT programs generally show a (far) better overall business performance.

The more strategic the CDO role becomes, the more corporate strategy and digital strategy tend to overlap each other. The same effect has taken place in the marketing function. It does not make sense to approach digital marketing separately from corporate marketing.

I predict the same evolution of the CDO role, which will be more and more merged with the CEO role over the next 10 years, aided by the continuous fusion of the online and offline worlds. The distinction “digital” will probably vanish, as it becomes the new normal and an integral part of the company's strategy. A new generation of CEOs will emerge, whose careers will have included digital exposure from the very beginning.

Mindset

DT is a way of working; a (new) mindset embedded in the organizational culture. It is as much about employees as it is about the new technology. It is about challenging your

business to reinvent itself, discover new opportunities, test and optimize them rapidly, and adapt to the ever-changing demands of the market.

A digital mindset consists of three elements:

1. Continuous innovation mindset
2. Customer focus mindset
3. Data-driven mindset

How can leaders enable a continuous innovation mindset? First, they have to develop a compelling vision of what the future should look like: reimagining, challenging, and redefining the business into bold new ways. Innovation should be an essential part of the company's strategy, backed by strategic objectives and adequate funding.

Another thing to do is to facilitate innovation by creating an environment where innovation is encouraged and rewarded. Foster a learning culture where mistakes and risk-taking are tolerated! Employees should be encouraged to voice their opinions and ideas freely. This can only be achieved if the company culture is based on shared values, trust, and collaboration.



Every function in every company should have a customer focus in everything they do, even more so in digital organizations. Customers nowadays expect a 1:1 personalized, real-time digital experience. This can only be achieved if a company tears down their silos and creates a collaborative working culture. To increase customer focus, consider the following:

- › Determine the forms that customers use to interact with you
- › Measure customer satisfaction and loyalty
- › Make customer focus part of management objectives and employee performance management
- › Involve customer groups in product development and product updates
- › Use data and analytics to analyze customer behavior (online), trends, and patterns

Similar to customer focus, data is at the heart of any digital organization. Data only becomes valuable when it delivers business results. It requires awareness and insight in all types of data across all functions in the organization. A data-driven mindset can be developed by:

- › Sharing an overview of data assets with all relevant stakeholders
- › Continuously searching for new cases and pilots and trying new ways to capitalize on the data assets
- › Employing “data ambassadors” in the organization
- › Creating dashboards and other visual representations of actionable data
- › Training employees in basic data analytics skills

Skills and tech

Different levels in the organization require different levels of digital skills. Senior management, for instance, requires conceptual and strategic thinking skills, as well as an ability to connect the DT strategy with the business objectives, whereas the rest of the employees should possess an ability to comprehend the conceptual changes by DT, in addition to the skills related to customer journeys and data. Digital specialists, on the other hand, must have detailed, hands-on specialist skills and experience to support the DT strategy.

Competence management is an example of a method to manage the overall digital skills in an organization.



As defined by [HRSG](#), “competencies are observable abilities, skills, knowledge, motivations, or traits defined in terms of the behaviors needed for a successful work performance.”

When discussing human resources, it is necessary to emphasize the fact that in order to improve the skills and competencies of your staff, training is the first step. Even then, you need to seek field-specific training courses. If you take a look at [PECB's list of training courses](#), for instance, you will notice that the knowledge and skills candidates get from them is highly specialized, with space for both beginners and experienced professionals.

Almost 90% of businesses are held back in terms of growth and company performance due to legacy technology. Their legacy systems are outdated in terms of serviceability, security, knowledge, and technology. Maintaining them can be a costly burden, with an average of 60-80% of IT budgets allocated for maintenance.

50% of IT directors claim that legacy systems are the main roadblock for digital transformation, blocking their organizations' progress and creating competitive disadvantages. Getting rid of legacy technology should be part of the digital transformation agenda.

Balancing the Golden Triangle

Successful organizations excel in each of the three angles of the Golden Triangle of Digital Transformation®.

Here's why all three focus points should be balanced in every digital transformation:

Strategy	Mindset	Skill set	Challenges	Solutions
Weak	Strong	Strong	<ul style="list-style-type: none"> › Bottom up initiatives driven by individual departments › Disconnect with business objectives › Incoherent vision 	Develop a clear digital strategy and ensure C-level commitment
Strong	Strong	Weak	<ul style="list-style-type: none"> › Frequent top-down initiatives › Great vision and willingness to transform › Difficulty to attract/retain the right talent › Failure in execution 	Improve employer branding to attract digital talents, training & development, vendors/consultants
Strong	Weak	Strong	<ul style="list-style-type: none"> › Solely product or solution-driven › Lacking organizational transformation › Often struggle at pilot stage/unable to scale › Silo approach 	Develop multi-disciplinary end-to-end agile approach and innovation capability

Conclusion

Digital transformation can be considered as both an art and a science. A dramatic change in company culture, mindset, and skill set is often necessary to succeed with digital transformation. Above all, it starts with strategy. Knowing why you are doing it and how to get there from an overall business strategy perspective is essential.

By applying the Golden Triangle of Digital Transformation® in a balanced way, you will discover the vast potential of DT. Are you ready for the journey?



Dennis Akkerman
Digital Leader, Trainer,
Senior Consultant

Dennis Akkerman, MBA, is an independent digital transformation management consultant and trainer.

Leveraging his senior management background, he helps clients transform their organizations to drive more business value with DT.

Dennis's vision is that change is a constant factor and the ability to adapt is crucial for survival in today's competitive business world.

His track record includes start-ups, medium-sized companies, and multinationals, such as Shell, Kimberly Clark, Roche, Kuwait Petroleum, DB Schenker, and FrieslandCampina. He has conducted numerous workshops worldwide.

How Human-Centric Leadership Unleashes Value from Innovation in Today's Volatile World

 BY JOHN METSELAAR

LEADERSHIP



Leaders, take note: innovation has more to do with humans than with technology. G. K. Noon was one of Britain's most successful Asia-born entrepreneurs. Arriving in the United Kingdom in 1964 with comparatively little possessions, he pioneered authentic chilled microwavable Indian food distributed through major British supermarket chains such as Sainsbury and Waitrose. In doing so, he changed British eating habits. By using Italian food preparation technology used for charcuterie, he was able to mass-produce the Indian delicacy chicken tikka, making it more popular in Britain than fish and chips. When he died of cancer in 2015, his personal fortune was worth £65 million.

When interviewed in 1997, Noon explained that his drive to innovate came from an intellectual curiosity inspired by his love of learning. Reading biographies of such international statesmen as Winston Churchill, he came to understand the importance of tenacity and of learning from failure. From Hollywood blockbusters such as *Titanic*, he learned about the art of the possible.

“I felt that if directors like James Cameron could produce such extraordinary special effects on the cinema screen, what possibilities might be open to someone like me using food preparation technology in the same way?”

Noon made it a point of principle to inspire his colleagues and employees with the same sense of wonder and curiosity.

Noon's story vividly illustrates that innovation is not just about new technologies. Innovation does not happen without the humans who animate and own it. Hence, it involves psychology and sociology. Individuals need to be motivated intrinsically — which is, in other words, the psychological dimension of innovation. They also need to come together into empowered teams with strong relationships and real conversations — which is the sociological dimension of motivation (the definition of which we're stretching somewhat here, but you get the point).

This last point is worth stressing. Innovation is a collective effort. Drawing on Noon's source of inspiration, successful blockbusters such as *Titanic* and *Alien* do not just need innovative directors. They need creative and inspired actors, set designers, script writers, photographers, costume designers, and casters, all of whom share in and respond to the same innovative spirit and vision.

The originator of any innovative idea, the “spark,” needs people to build on the idea and make it real. They include: the “shapers” who inform, advise, and support the creative process; the “sounding boards” who psychologically or financially support the idea in the organization; and the “sponsors” who contribute to realizing the project's unique



aims. For the creative spirit to succeed, then, it must engulf the entire organization. What the inventor Thomas Edison said about genius goes for innovation as well: it is “1 percent inspiration, 99 percent perspiration.”

Unleashing this human potential requires a new kind of leadership, needed more than ever in today’s turbulent times: authentic, generative, and, like that pioneered by Noon, grounded in a love of learning. Employees at all levels need to feel psychologically safe to take risks and experiment with a license to risk failure—as long as they learn from it.

Fundamentally, innovation converts knowledge and inspiration into a new value. This value benefits consumers and customers, without whom you don’t have a business; stakeholders, without whom your business is insupportable; and society, without which your business is not sustainable. And, of course, innovation should create value for the company itself. Otherwise, why are you doing business at all?

Innovative minds explore the need to create and capture new value across these dimensions and share inspiration and actionable insights for business leaders to tap into along the journey — a journey that will help them create and leverage their own cultures of innovation.

The need for such innovation is urgent in this time of uncertainty. Companies need to tap into the new knowledge that is emerging from the present turbulence or be left in the lurch. Remember your physics class: “Relative to an object that moves forward, if you stand still, you fall behind.” It’s a lesson that affects us all. Let’s explore this new kind of leadership needed to survive, or even thrive in some more detail.

Introducing generative leadership

“By definition, you cannot know everything in uncertain environments – the days of Renaissance man or woman are long gone. Management teams need to find individuals with different thinking paradigms who will challenge their assumptions and habitual thought patterns. The stuff of leadership is to recognize, ascribe, value, and integrate these new ideas in such a way that people in the workplace act on them. In a sense, it is a process of developing a narrative about the future, having a viable story that employees can believe and want a part of.”

This senior executive officer of a US government agency, interviewed in 2009 at the height of the last financial crisis by one of the authors of [this publication](#) by The Economist,



gave notice that a new style of leadership is needed in a bewildering economic climate.

In military circles, this climate became known as **VUCA**, a diagnosis developed by the US Army to define the situation and challenges it faced in the Afghanistan and Iraq conflicts. The acronym stands for:

- › **Volatility:** the nature and dynamics of change and its speed and catalysts.
- › **Uncertainty:** the lack of predictability, the prospects of surprise and the sense and understanding of issues and events.
- › **Complexity:** the multiplex of forces, the confounding of issues, no cause-and-effect chain and the confusion that surrounds us.
- › **Ambiguity:** the haziness of reality, the potential for misreads, the mixed meaning of conditions and cause-and-effect confusion.

The VUCA formula made the jump into the business world and gained traction in describing the combination of rapid technological progress and unlimited connectivity, which has resulted in an explosion of data. If managed well, by you or your competitors, these can be translated into information, then knowledge and from there, to new opportunities.

The onset of the pandemic has magnified the VUCA environment tenfold – what we call “VUCA on Steroids”. It sets a stage for a new philosophy of leadership that



empowers the individual to create and foster the continuous innovation that is the only possible response to the volatility, uncertainty, complexity and ambiguity that surrounds us.

In this new approach, the leader is no longer the one who has the answers. “Everybody has a plan until they get punched in mouth”, Mike Tyson said famously. Instead, solutions to the problems and challenges we all face need to be found by being purposefully agile or, to put it another way, “doing things to learn what to do”, as Peter Simms states in his insightful work *Small Bets*.

To set one up for this new world of experimentation, learning, and, when successful, scaling requires what we call “generative leadership.”

The generative nature of leadership creates a virtuous circle in which leaders generate value through innovation supported by knowledge through learning and inspiration through creativity.

All of this hinges on “generating” their employees’ and their stakeholders’ excitement to live the purpose and contribute to the narrative they lead. The way forward is through a culture of learning in which one’s heart and gut counts as much as one’s intellectual prowess. In this sense, a little humility and vulnerability become as important as heroism and vigor.

Are you a generative leader ready to succeed into the future?



John Metselaar

Professor leading innovation, at the Solvay Brussels School. Director of innovation and digital transformation at The Conference Board.

John Metselaar is a professor at the Solvay Brussels School and director of innovation and digital transformation at The Conference Board. His extensive leadership experience as former VP at Procter & Gamble includes on-the-ground work experience in the U.S.A., Asia, and Europe.

John serves as an executive advisor and key-note speaker on innovation, leadership, strategy, and culture – working with companies such as AB-InBev, Bayer, Ecolab, Deloitte, Pfizer, Mediamarkt, PMI, and more. He recently joined the Global Minds Network, and founded Includers boutique advisors on inclusive leadership, and E14I (Ecosystem Intelligence for Innovation) to guide leaders into their open innovation and ecosystem efforts.

Keeping Consumers And Citizens Safe And Secure

STANDARDS WORKING TO KEEP US SAFER IN BOTH
VIRTUAL AND PHYSICAL SPACES.



Safety first, wherever we interact

2020 confirmed something that we've known for a while: we're spending more time than ever before working and meeting online. We're also living in closer proximity to each other as cities continue to grow. It seems that we're seeking the benefits of increased social and economic opportunities that come with greater concentrations of people, at the same time as the flexibility to work, shop and meet online wherever we find ourselves. But becoming more physically and digitally connected presents many new challenges.

Personal safety, both physical and digital, is a top priority for ISO's consumer policy group, [COPOLCO](#). This committee, dedicated to harnessing standards for consumer protection, exists to ensure that consumers have a voice in international standardization. It runs consumer-focused training events and raises awareness of standards that will make a real difference to the way we live and the products we consume. It also proposes new projects and policy from the consumer perspective.

Two recently published standards, and a third just approved for development, are examples of how ISO's work reflects consumers' interests and priorities. The first two will help make cities safer through full consideration of the environmental and design aspects as they relate to modern, smart cities, as well as protect our online privacy as we roam between networks and devices. The third will help consumers make informed choices about purchasing goods and services on the Internet.

Building safer communities

Crime prevention through environmental design (CPTED) is an urban planning approach to designing living spaces in a way that deters violations and reduces fear amongst inhabitants. It aims to reduce crime and improve quality of living in communities. Such concepts have been around since the 1970s and used in numerous crime prevention strategies across the world, with much success.

ISO has just published an internationally agreed set of guidelines that brings together best practices.

[ISO 22341](#), Security and resilience – Protective security – Guidelines for crime prevention through environmental design, addresses the principles, elements, strategies

and process for reducing crime – including certain types of terrorist attacks – and fear of crime in new or existing urban built environments.

Protecting our privacy in smart cities

Cloud computing, the Internet of Things, mobile networks and artificial intelligence are just some of the tools cities use to increase efficiency and improve the quality of life of their citizens, yet they also expose us to risks and vulnerabilities related to personal privacy and security. Solutions and standards abound, but they are not always easy to navigate when the systems and interconnections are as complex as the stakeholders are many.

A new technical specification has just been published which aims to help. [ISO/IEC TS 27570](#), Privacy protection – Privacy guidelines for smart cities, provides recommendations and guidance on the management of privacy and on the use of supporting standards. These recommendations apply to organizations and stakeholders concerned with the delivery, use or availability of a service in a smart city ecosystem, where many technologies, systems and stakeholders interact in many and complex ways.

Informing our purchasing decisions

ISO members have just approved the development of guidelines for organizations to increase consumer understanding of online terms and conditions. This project aims to address the information gap that consumers often experience when purchasing goods and services online. Intimidated by long pages of fine print and obscure language, consumers will often click straight through to purchasing their chosen item. However, if the terms and conditions are not properly understood, the purchase may fail to meet the expectations for price, delivery time, complaints handling or even safety.

The newly established project committee ([ISO/PC 335](#)) will develop guidance for providers of goods, services and digital content on the clear design and presentation of online terms and conditions. It's a major step towards maximizing consumer understanding and improving experiences. This in turn will lead to fewer complaints, particularly critical in an online environment where the buyer has the disadvantage of distance from the seller, access to the product and conflicting legal jurisdictions for cross-border purchases.



**INSIGHTS FROM THE
PREVIOUS PECB ANTI-BRIBERY
VIRTUAL CONFERENCE**

The PECB Anti-Bribery Conference is a virtual conference that attracted anti-corruption experts and enthusiasts from all over the world.

Considering the importance of tackling the global crisis of corruption, this year's conference addressed some key issues and challenges related to the combating of bribery around the world and the important role of ISO 37001 and other related regulatory frameworks and standards in this regard.

For the first time ever, with a total of 12 panels and over 3,000 registrants, the PECB Anti-Bribery Conference featured sessions in three languages: French, English, and Spanish. You can view all of the session recordings for free on our official [YouTube channel](#) or on our [conference website](#).

“Another highly informative PECB Conference comes to an end. With an amazingly stellar selection of panelists and moderators, this Anti-Bribery Conference provided some key insights into the latest trends and developments in the world of Anti-Bribery and ISO 37001. What can organizations do to end the impact corruption has in everyone's lives? What can the society do in this regard? What measures need to be taken to prevent and combat bribery? For these and many other questions you might have, or seek to get thorough answers to, our experts provided detailed information in the virtual roundtable discussions of the conference.”

– Eric Lachapelle, CEO of PECB

A hand is shown pointing at a smartphone screen. The background is a blurred office setting with a blue digital network overlay consisting of glowing nodes and connecting lines. The overall color palette is dominated by blues and teals.

Can Blockchain Be Considered as a Catalyst of Digital Transformation?

 BY JOSINA RODRIGUES

Framework

From the second half of 2021 onwards, the world is experiencing the effects caused by the lockdown in all countries. The restriction of mobility has irreversibly transformed work, data sharing, businesses, and relationships between agents. Blockchain, better known as the bitcoin cryptocurrency platform, was cited as a lever to resize business models.

This article will present an elaboration that supports blockchain as a re-dimensioning of organizations and business structures and relations.

Digital transformation

In post-pandemic times, the changes observed in the international market and in organizations have been definitive for devising new strategies. According to H. C. White, from Princeton University Press, “the concept of digital transformation is formed by the merger of personal and corporate IT environments and encapsulates the transformational effect of new digital technologies such as social, mobile, analytical, cloud technologies and the Internet of Things (SMACIT).”

Digital transformation, until now a goal to be achieved, became part of our reality. The “natural” incorporation of the new “modus operandi” reflected the absence of mobility, which made room for the implementation of new work and solution modules.

Blockchain

Blockchain is a flexible platform that is collaborative, transparent, and unchangeable. Additionally, blockchain allows the proof of the authenticity of each transaction through a verification system.

It is a platform for registration, stocking, and information transfer. In many cases, it can also be defined as a data validating mechanism.

Blockchain is an immutable, anonymous, hard to hack, and decentralized ledger. It is decentralized to allow transactions to be recorded across millions of computers and hard drives. Each block of data is linked to a previous block of data, and these are chained together. This exchange is synchronized, and all the nodes mirror updated information as it happens. When an exchange is validated, the asset (or transaction) becomes immutable as it would be impossible to alter the records on the chain simultaneously.

As such, a blockchain is a timestamped, append-only log. We can further define a ledger as a system that records economic activity, and social or financial relations. The basis for recording transactions is the basis of the system of the economy. Since the beginning of time, the main concern was to successfully register, write, and record data ranging from entries and exits and cash flow.

The relationship between agents in different blockchain integrated systems are coded through smart contracts.

Blockchain offers several potential benefits, and these include:

- › Increasing the speed of exchange, which minimizes transacting backlog and overall costs,
- › Improving the availability and reliability of data
- › Improving auditability as records are verified in near real-time
- › The ability to convey titles of physical commodities seamlessly between market participants

The benefits of blockchain are already spreading across various sectors of the economy. As such, the value derived through blockchain applications is compelling. However, initially, it is unlikely that an entire market, commodity, or real life cycle will become blockchain-enabled all at once. We will likely see pilot programs with a select group of market participants centered on specific functional applications such as payments or smart contracts.

Overall, blockchain provides security; it is decentralized and collaborative. Additionally, it also allows for immutability, efficiency, transparency, traceability, and auditability. Therefore, blockchain, due to its characteristics, can be a catalyst for change in the business and financial world.

Benefits when implementing blockchain technology in digital transformation

Given its characteristics (especially being a ledger that allows the recording of all transactions with immutability and traceability), blockchain successfully enables organizations to:

- › Optimize different applications and their processes,
- › Manage documents digitally,
- › Increase event and document reliability,
- › Create a competitive edge,
- › Track orders on the supply chain,
- › Improve applications and processes,

- › Increase productivity per file,
- › Access new data sources,
- › Improve system integrations (like IoT, EDI, AI),
- › Expand digital collaboration,
- › Enhance transaction integrity and visibility.

The transparency and ability to streamline processes and documents allow for an exponential increase in productivity, being a natural driver in digital transformation through the integration of systems.

Furthermore, it is important to mention that, on a large scale, this tool is relevant to the point that several governments have decided to adopt and base their presidency and reorganization on a system that is supported by blockchain.

Challenges when implementing blockchain technology in digital transformation

The biggest challenge for digital transformation is the transformation of the business itself, which reflects changes in processes, improvements, management, and reengineering, as well as re-organizational changes. Nevertheless, a holistic approach of the ecosystem is essential to identify the biggest challenges to be overcome within that framework. The obstacles observed before 2020 were attenuated by the lockdown as it required organizations, in record time, to readjust their businesses.

The biggest challenges of blockchain and of digital transformation are the constant changes to profiles, skills, mindsets and, the ways in which organizations deal with the lack of knowledge and specialized human resources.

As a consequence of blockchain's integration into corporate structures, data sharing has raised questions regarding cybersecurity. Additionally, an unavoidable challenge for structures to adopt the blockchain is still relating to the high energy consumption.

Faced with the creation of new ecosystems, the legal framework has reflected the new relationships created and the scope of the impact on business structures and also for governments themselves.

Applications and use cases

Recently, blockchain has presented cases of implementation with results in which it is possible to empirically prove that it has been and will be a catalytic mechanism for digital transformation. Its implementation in business structures has been a precursor for sectorial and governmental solutions. It was observed at this moment that the transformation of business models is based on the pillar of trust and that it reflects the security that the mechanism presents for the control of flows, processes, and exchanges.

Thus, blockchain can not only be a catalyst in the sense of scaling the results of digital transformation, but it can also be the very genesis of the concept of digital transformation in organizations as it requires a change in processes and profiles that represent greater flexibility and transparency.

Through the different applications in multiple sectors of activity, blockchain can be seen as a versatile instrument.

Insurance: Some applications for blockchain are in the budget plan, automatic transactions, and receipts and payments. Additionally, blockchain can cover all the complex international insurance problems.

Energy: It is possible to use blockchain for crude oil trading. More so, several companies have been exploring the tech before for oil industries. With the help of the platform, it is easy to track products along with promoting transparency and preventing fraud.

Supply Chain: With blockchain, companies can make sure they are getting an authentic product to maintain their quality. For example, as soon a product is on the way, they will get on the ledger, and the companies can track where it is going from there.

Banking and finance: Companies are able to utilize blockchain by using the distributed ledger to get rid of the two major issues of global trade and sharing assets. Anyhow, IoT integrating into the blockchain system helps companies track all the processes of global trading in real-time.

Real estate: Blockchain allows real estate to use the platform to list sellers and agents, along with offering transactions as well. More so, with this platform, they can secure all their transactions and contracts without any issues.

Pharmaceutical: Experts claim that in the pharmaceutical industry, blockchain helps by providing the proof of concept



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for tracking records and managing the digital inventory of pharmaceutical products.

Healthcare: In healthcare, blockchain can help with the diagnosis, exams, prescriptions, and monitoring of patients. Records of the types of data amassed (vaccination history, pathology reports, etc.) can be stored on the patient's electronic health chain and used later for diagnostic and health care purposes.

Notary: For notaries, blockchain can improve registers and affiliation.

Smart cities: Blockchain can be used in smart cities and can be applied in various sectors: economy and employment, health, identity and culture, education, land use, housing and inclusiveness, transportation, intelligent government services, energy and waste management, public safety, and citizen participation.

Employment: Blockchain will help employment by enabling the mapping skills, recommendations, and experiences.

With blockchain, the recruitment and training system will consist of the sharing of information: the candidate's profile, identity, educational abilities, competencies, experiences, references, hobbies, strong suits, and differentials.

Land registration: Through blockchain-enabled record keeping, it is possible to obtain transparency and be immutable in the records, which allows for greater security to be achieved. As Kaczorowska mentions, "blockchain-based land registration is of interest to both developing and advanced economies."

Food industry: Blockchain is able to offer consumers information about the origin of their food. Blockchain also facilitates the interconnection of producers, farmers, distributors, and stakeholders in the same chain with traceability and transparency. It is possible to know the origin of the carrots in a baby's soup and identify all the process until the carrots arrive in consumer's homes. This allows consumers to have all the information about their chosen products at their fingertips. Without a doubt, blockchain is a tool that is here to revolutionize the food industry.



Final considerations

It is important to mention that before considering implementing blockchain as a starting point, company-based changes need to take place. Therefore, prior to using blockchain as a strategic tool, it is necessary that companies evaluate their business models to identify costs and benefits.

With the COVID-19 pandemic, we saw that some companies would not make the leap to embrace digital transformation. Additionally, over the past few years, digital transformation has been a challenge for companies, as was evidenced by the public cases of failure in implementation. However, now more than ever, market changes regarding the way of living, interacting, conducting business, and deciding to purchase goods and services have changed. There is no way of going back. Therefore, even in the face of challenges within companies, a new ecosystem is created with the implementation of blockchain.



in

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Josina is the first holder of a Ph.D. specialized in blockchain in Portugal.

In her thesis, she focused on blockchain as a new social and financial model and analyzed the impacts this technology would have on business models and the ecosystem. Before starting as an investigator, she worked for over 20 years in the corporate world as a marketing and finance director and as a consultant and advisor.

Josina is currently a blockchain trainer, a digital business transformation and blockchain specialist for companies and startups, as well as a lecturer and advisor at various institutions and venture capitalists.

Furthermore, Josina is an international speaker and member of the Academic Advisory Body at INATBA (International Association of Trusted Blockchain Applications).

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Reaping the Benefits of Transformative Technologies through Risk Management

 BY MARC BOUVIER

For every decision, we need to try our best to make the right choice. Technology and risk can be described in a positive or negative light. Technologies bring potential perspectives, which are more or less controlled. Risks are often abstract notions used to define what we don't want. However, a deeper analysis of risks and their association shows that everything can be possible, even in a positive way. Why is such a change in perception needed?

In an era when the technological evolution evolves at the pace of market ideas and opportunities, it is difficult to commit oneself serenely to a direction without fearing strategic error, technical deadlock, or supplier dependency. Each company must decide on which solution it will invest, for its users, customers, production, image, and for its turnover. Furthermore, companies must be prepared to measure their choices. With each investment, the balance must be on the positive side!

We are in a period when the exceptional becomes the ordinary, and the acceleration of changes pushes on constant evolutions. This time is also characterized with each evolution succeeding the previous one before it has even ended. The potential offered by modern technology is born every day on a variety of subjects, for regular or innovative markets.

It is essential to stay the course in this permanent movement, where it is necessary to stand out and also evolve, not to disappear. To do this, an organization needs to make the right choices, and take the right decisions as always. Additional "requirements" as regards digitalization are structuring the organization to analyze the market and its capacities for evolution.

The evolution of each organization is conditioned by the efficiency of its production tools; in other words, their

performance conditions profitability. To provide this indispensable profitability, several levels must be analyzed on the technologies and source of value. What value can they intrinsically bring to the organization? For that, it is necessary to carry out a collegial analysis to make an assessment of evolution. Additionally, the life cycle of technologies (existing or emerging) conditions the lives of organizations.

The introduction of new technology needs to be examined to reach the associated business commitments. These evaluation axes are carried out in a collegial manner, using a rating matrix that allows the results to be measured and quantified. Obviously, depending on the size of the organization, these reflections are carried out by teams of varying sizes.

- › The innovation team presents us with a new tool. Do we really need this type of technology? How useful is the tool or its purpose? And if it is useful, what is the added value compared to the existing one?
- › The finance department will calculate the cost of the replacement or the innovation project. Between the time of the exchange, the learning process, the new installation, etc., is the balance of the change positive?
- › Marketing presents the projected benefits for the employees or customers. Are the salespeople in the right frame of mind and therefore compatible with the brand image?
- › Will purchasing change its contact person in the list of suppliers? Are the new contractual conditions better?

Does the contract allow control of the supplier's actions? What is the new level of technical and financial dependency?

- › Does the IT department master the new solution? How much effort is required to do this? Is integration feasible in the short term? Or is it an outsourced solution?
- › Are the production (or business) teams ready to use the new technology? Do they want to work with these new tools (knowing that change is often a source of conflict or opposition)? Are they supported in this change? Does the organization need to be reviewed in light of the expected improvements?
- › Has the cybersecurity team analyzed the solution (its configuration, vulnerabilities, etc.)? What is the value of this control?
- › Does management need this innovation to implement its development strategy? What position does it take?

A multitude of questions can be raised at each business line. Is it necessary? Every opinion is necessary because a technological change leads to a whole series of functional and organizational dependencies in the company and technology must be at the service of the company and its employees.

Today, the human being is at the center of concerns in this era of transformation. Not taking this adaptability factor into account is one of the major risks of technological failure. Even if the new uses of digital technology are in dimensions that can widen these cultural and cognitive gaps, they remain landmarks towards evolution. And it is





up to the company to position itself in relation to these markers of the new times. Where does it want to be in relation to its market, its competitors, and its economic trajectory?

The digital age means technological dependency. Hardware and service providers occupy particular places in the ecosystem of each organization. Absolute independence no longer exists in IT and this brings some very appreciable advantages. The responsibility with suppliers is divided, depending on the services provided. Cloud, hosting, and managed services providers have access to part of the organization's information. And they must demonstrate their know-how in terms of service quality and security. These are gains that a structure with modest means will not be able to deploy or invest. It is also the choice of large organizations that prefer to outsource part of their activity for financial reasons. Whatever the reason, it is a question of sharing responsibility. The counterpart is the weakening of the organization's own control over the confidentiality of the information. If it is always guaranteed by the clauses of the contract, its preservation remains relative, especially if state obligations are imposed on suppliers. The study of the legal framework is mandatory in such a situation.

The service offers proposed nowadays are very innovative, offering new perspectives for the development of companies, both in terms of how they work and how they address new markets.

Here again, the changes are significant and require an analysis to assess both the feasibility and the interest of engaging in them. These technologies are factors of change, and the world's news attests to this every day. Each evolution has its benefits and its counterparts.

Thanks to the maturity of the technologies of our era, we have been able to transform the way we work in a few weeks, on a global scale. The COVID-19 experience shows that it is possible. Of course, not everything was perfect. The pandemic set a precedent, because there was no example to look to for "getting things right." New perspectives emerged, new ways of managing the day-to-day and the working relationship, of organizing and using new technologies. And the stakes were global, with all the major digital players present.

Technology aims to improve our daily lives, just as home automation is progressively settling in our intimacy, it is also subject to threats more prevalent than the viral contamination of the workstation at the beginning of the Internet. Human identity can be usurped, or even stolen. If for the individual the disasters can be vital, a good number

of regulations on the protection of the human beings are established to impose the necessary protections on the uses of data and the purposes of processing that concern the individual or the general public.

Beyond these aspects, the consequences can be even more important at the social or national level, where entire activities can be paralyzed by undermining the supervision or maintenance systems.

In order not to paint a dark picture of all the dangers, we are making progress with the technologies we develop and deploy. We are more realistic about the dangers that are no longer potential but real. Duty of care and operational efficiency are paramount. And organizations have evolved in this direction, both by awareness and by more responsible practices.

The positive approach to risk has become more important in recent years, even if it is not recognized as such, it is present in the background, because nothing has collapsed. Transparency is gradually being imposed on every difficult situation, as all stakeholders need to know in order to maintain this trust. Mistakes are allowed if they are corrected, if they serve to improve the existing system or processes. Negligence tarnishes the image of the organization, which is not acceptable for the leaders. This is why participative involvement is implemented to create synergy in any effective risk management within an organization. In short, the contributions of risk management, when applied, create and preserve value for the organization. This is the essence of the ISO 31000 standard.



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Marc Bouvier developed his skills in the field of security and risk management starting from his first experience in telecommunications. With more than 20 years of experience as a project manager, he pilots organization transformation programs. As a CISO, he manages and contributes to the improvement of best practices.

Marc has been working with PECB since 2013 in France and in the Benelux. He has created his own consulting, auditing, and training company, accessible via www.campaneo.net

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Thinking Digital: Transforming Business through Smart Solutions



BY DONALD VAN DER MERWE



Warning! Thinking digital can lead to weird dreams where you are frantically writing code for your own brain, so it has the necessary functions and sub-routines to wake you up. For the curious developers, the dream I had included the need to compile, test, and run a program before I could wake up. Of course, I did wake up feeling very relieved I was only dreaming about writing solid code.

While this strange experience actually happened to me over 25 years ago, it was not surprising given the fact that this happened during one of my very first software programming jobs. My co-workers and I were building a new workflow solution to automate an entire set of business processes. We were doing digital transformation. It was innovative and super cool!

What is digital transformation?

Of course, digital transformation was not what we called it back then. We called it “automation.” We were using cutting edge technologies and new handheld hardware devices that connected to a server with a database, which



technology into the every-day operations of organizations, which results in radical changes in how organizations function, including their internal functions, production of goods, or provision of services, and so on. This includes the digitization and automation of manual processes.

But why does digital transformation have different meanings depending on the context? Two words: customer-centricity. Historically, the focus on technology in business has been exactly that, about technology “in” business, in other words, building and implementing software systems to help optimize and/or automate the internal business processes. Nothing changed for the customer.

Later, everything changed for the customer. They had powerful digital devices called mobile phones and tablets. They had 24/7 access to the internet, social media, and online shopping.

Customers, thus, wanted convenience, easy-to-use services, and better customer service. Therefore, self-service and improved customer experience were among customers’ desires.

Digital transformation has, therefore, become focused around using software apps to directly serve, support, and interact with customers. Digital transformation is also aimed at improving customers’ lives by serving them and being able to do so in ways that are seamless and frictionless.

Why should one undergo digital transformation?

Customers usually share their experiences with the world. After forming digital connections with their friends, followers, and the world, customers began to realize that they now had increased influence not only on their friends and family, but on a wider network as well.

For the first time in human history, it became extremely easy for people to share their customer experiences with a network. This included the good and the bad.

As the digital world listened and read about people’s experiences, it also created a permanent record. Once a comment is online, it is there forever.

“Digital transformation is about delivering convenience, value, and great experiences to your customers.”

was used to integrate and coordinate all the tasks and steps in a given process. Sound familiar?

Today, we talk about “digital transformation,” which, paradoxically, is the same thing and not quite so. Let me explain. The term “digital transformation” is a broad and widely used term that means different things to different people in different industries. In the historical sense, it refers to the automation of business processes; using software to perform tasks that were otherwise manual tasks. This is digital after all and driven by software.

The technical definition would go something along the lines of: digital transformation is the adding of present-day

In the past, getting bad service at a restaurant meant complaining to a few close friends and family, and maybe one or two co-workers. Today, it is vastly different, and customers share their experiences with millions of others within minutes. Ever wonder how many comments, reviews, and product feedback are available to potential customers?

This is one of the most compelling reasons to embrace and undergo digital transformation. If you are not serving your customers in ways that meet their “modern” expectations and/or exceed their “traditional” expectations, others will.

So, what was so innovative and super cool about the workflow solution we were building 25 years ago? That workflow automation was the digital version of Henry Ford’s production line.

The modern-day progress is the grasp of opportunities by leveraging the integration of services and/or product providers, and the customer. The benefit of such integration is an all-inclusive reach into new informal markets, as well as established markets. What is it that makes digital transformation an essential requirement in today’s world? It is the same factor as before: solving problems for customers by providing solutions and/or services that add value to their lives or organizations.

What is the secret to innovation?

Being innovative is a very cool term and sounds good. But what is innovation really? Nothing more than being smart about solving a problem. The stapler is innovative since it solves a problem. The paper clip is also innovative because it solves a different problem. However, understanding the problem is the first step.

Imagine a pile of garbage right next to your front door. This is a problem. Every day, you notice the pile of garbage is getting bigger and bigger. This is an even more pressing problem. You realize you need a solution. You get your team together and brainstorm. Innovative ideas flourish and you decide to build an artificial intelligence-based robot to move the rubbish and clean up the mess and keep it clean.

Wow! This is really innovative. But did you really solve the problem? Let me put it this way. Did you address the root cause? Who was dumping the garbage there? Chances are, it was probably one of your lazy kids that was supposed to put the trash in the dumpster.

“Get a clear perspective on the problem or the root cause.”



When thinking digital, think thoroughly about the problem(s), especially focusing on their root cause(s). How you define the problem leads you towards your strategy and solution. And sometimes, it is a quick and easy fix. We need to be careful not to overcomplicate things.

Get a clear perspective on the problem, or the root cause and define your scope clearly. Is the problem garbage appearing near the front door? Is it the lazy teenager? Or is there a problem with an opportunity like building a robot to clean the house? Who wouldn’t want to never have to clean their house again?

A challenging problem is a great opportunity.

The onboarding process poses problems for many organizations. In the financial sector, “onboarding” is the term used to describe the process of signing up new customers. My team and I had a big problem signing up customers and it was impacting our regulatory obligations. Our team was tasked to solve this problem.



But another problem in the data was that the way the data was structured was not customer-centric. It was product-centric and there was no way to link the data either. Finally, we had uncovered the root problem. When thinking digital, think about your data. How you gather, structure, store, and use data. This is the foundation to your entire digital transformation.

Is legacy also your problem?

The second step is to recognize that the biggest challenge to digital transformation is usually legacy. If you have legacy to deal with, you are at risk of not being able to step back and get a clear perspective on the problem as it stands today and how to solve the problem using more recent technologies and capabilities of today.

Breaking free from legacy and traditional thinking around business models and processes that have always been around due to the lack of technology or its limitations is essential.

The onboarding problem was about the collection of information and documentation. This is the data.

The data problem we had was quite simple to understand: We did not know what data was required and when. And we did not know how to store that data in the right way so that we could easily retrieve and re-use that data when we needed it.

This led to another problem. Every time an existing customer came to open another account, guess what happened! They had to fill in the same application forms all over again. More garbage was added to the pile.

The legacy issue, usually faced by large organizations and especially those that have had a history of mergers and acquisitions, is the various systems or their data not being integrated or properly merged.

Another legacy issue is how an organization is structured in terms of its divisions or business units, or product teams and its IT department(s). The technology landscape usually ends up reflecting the organization's structure as well. This usually results in the technology landscape consisting of duplicate systems as well as duplicated data records.

“Get free from legacy and the limitations of existing business models.”

We could see the “garbage pile” and we could see it was getting bigger each day. In fact, we had many garbage piles all over the place. However, instead of just jumping right in to find a quick fix or solve the problem before us, we focused first on understanding the problem. We were digging deep into the customer journeys and their experiences, and we looked at the operational business processes. Both the unsatisfactory customer experience and the poor operation of business processes were part of the problem. Our colleagues were overwhelmed and frustrated.

Additionally, we looked at the technologies. There were too many technologies trying to fit together, as well as duplicate technologies all over the place. This was a major contributor to the operational and customer service teams who had to work across too many systems, often duplicating tasks in multiple systems.

And then, we looked at the data. As you can imagine, with lots of systems the data systems were also a big problem.

When thinking digital, get free from legacy and the limitations of existing business models, business processes, and technologies within the organization. It will all need to change anyway, because chances are the customer was not part of the original design.

Are you thinking “customer”?

Focusing on the customer journey for onboarding could have meant being friendly and giving them a cup of coffee while they fill out all your lengthy forms. You could even make the experience more special for your VIP customers and fill out their forms for them while they sit in your office, drinking coffee, of course.

However, this does not solve the problem. In fact, this is a legacy issue that creates friction, and customers do not like friction. Going to an organization’s branch just to open an account is a waste of everyone’s time. I walked out of a bank once because of the friction involved in opening an account.

Additionally, and this is absolutely crucial, filling out documents or application forms must be avoided. Scanning these documents into any document management system is not – I repeat, not – digital. All data collected must be stored as structured data in your database.

Prioritize customer experience by focusing on the customer. Think customer-centricity! Every business in the world must have customers and be customer-centric since they do not revolve around you; you revolve around them.

The onboarding solution took a remarkably simple approach. Remove the need for customers to fill in any information altogether. Of course, there are regulatory obligations to collect and store customer information, but do it another way, for the customer.

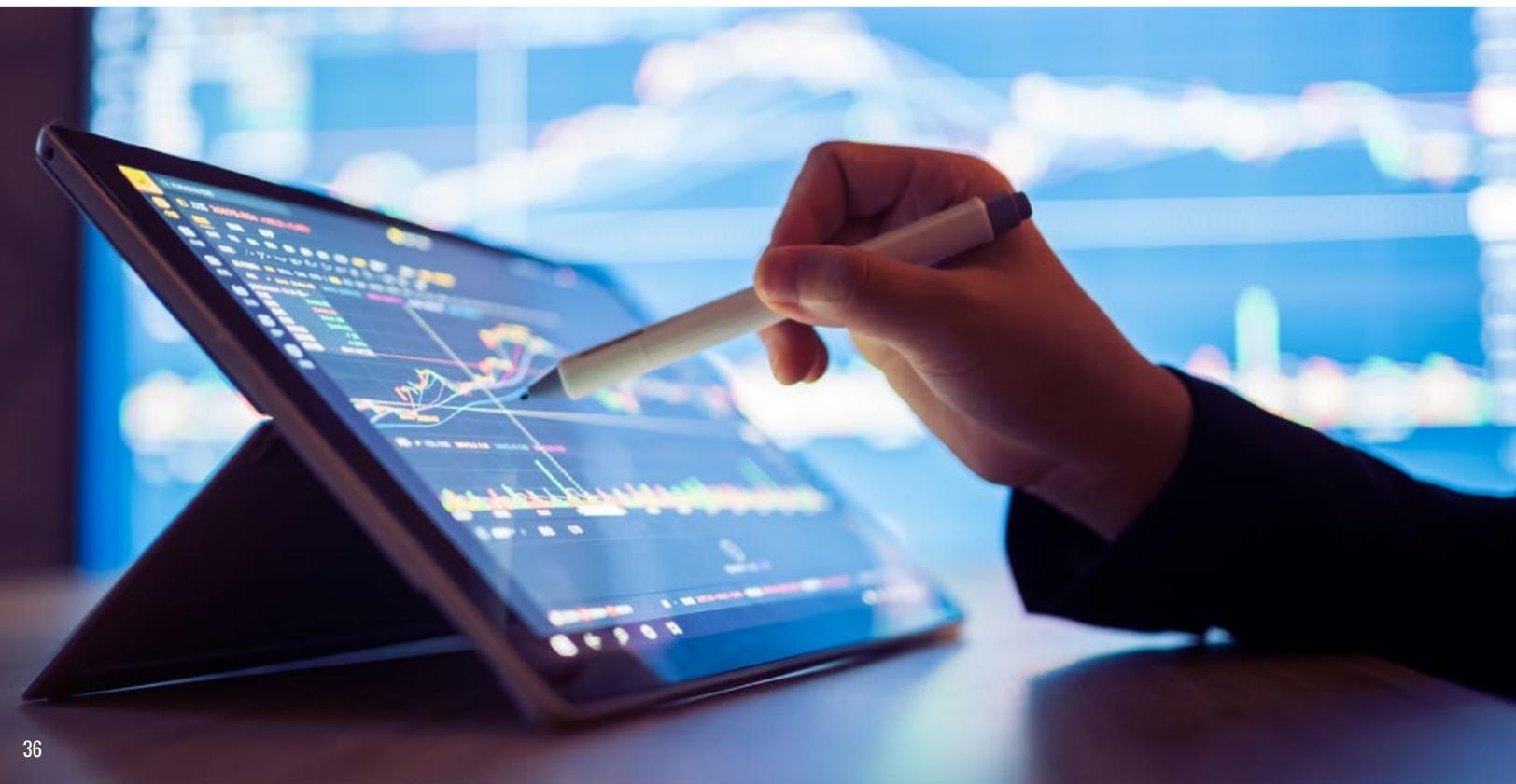
The first option is to leverage any customer information you already have; never ask customers to give you the same information they have already provided you with in the past. Second, get the information from a data broker or aggregator. And if you must ask for data, only ask for the minimum you need at that point in time.

“Prioritize customer experience by focusing on the customer. Think customer-centricity.”

When thinking digital, remember that customers want convenience and are drawn to great experiences that simplify their lives all the while adding value to their lives. The easier you make it for customers to do business with you, the more they will do business with you.

Scalability and repeatability

Fundamental to every business and how they serve their customers with great products and services is the fact that it needs to be repeatable and scalable. The greater the repeatability and scalability, the greater the growth potential.



Doing things the way they were always done typically means maintaining manual tasks. Manual tasks that take one or two hours, for example, to sign up a new customer, are an expensive and inefficient way to do it. It also severely limits your organization's growth potential.

A one-hour task for customer sign-up means that, at most, one employee can sign up 160 new customers a month. You would need a team of over 625 people to sign up 100,000 customers per month. Salaries, office rent, equipment, etc., for that size team would be ridiculously expensive.

When thinking digital, you must also think about repeatability. This means you design for "straight through processing" where all tasks and capabilities in your apps are fully automated.

“The greater the repeatability and scalability, the greater the growth potential.”

User experience or user interface design of your apps becomes an important part of the design process to ensure that the app is easy to use, intuitive, and supports self-service (a natural convenience for your customers). With regards to the usability of the app, if you have to explain it, you have failed it.

Building a fully digital and automated customer sign up process means that you can sign up 100,000 customers a day. Your growth potential is unlimited. And do not worry about computer servers. Build cloud-native apps in the cloud and your infrastructure is ready to scale in accordance with the business growth.

When thinking digital, you must think scalability. The architecture and design of your technology needs to leverage the capabilities and value of cloud computing.

Disrupt yourself or be disrupted!

The ideal onboarding experience for a new customer should be less than one minute. Five years ago, we were aiming for less than 2 minutes. I was laughed at and told it was impossible and it would always take several hours to several days. Those organizations were disrupted!

A few years after that, a digital bank was launched and you could go to their kiosk in a supermarket and in less than 5 minutes you had a bank account and got issued a bank card from the kiosk immediately. This digital bank reached 2 million customers in 18 months. They were

signing up 110,000–120,000 customers per month. They were disrupting!

Today, you can go to the app store download an online banking app and create an account in one minute. Yes, in under 60 seconds, you can, as a new customer, open a bank account and transact immediately. The only information you provide is your identity number. They collect the rest from a national government database.

Consider the implications. If I am not happy with one bank, I can switch banks and create another account in less time than it takes for them to answer my call and address my complaint. Oh, and then share my experience with the world.

Think digital team!

Finally, when thinking digital, you need to think about the team you put together to drive your digital transformation program. Everything depends on your digital team. Digital transformation programs usually touch every part of your organization and include a diverse range of skill sets that need to be empowered to ensure success.

The official role for leading your digital transformation should be your CDO: Chief Digital Officer. However, their unofficial title is CDO: Chief Disruption Officer. They are someone who is a radical thinker and sees things differently. Someone who can guide the organization and lead the effort to disrupt.

They are someone who can *think digital*.



Donald van der Merwe
Chief Technology and Digital
Transformation Officer

Donald is a seasoned technology and commercial leader with over 25 years of experience, including 15 years at executive level. Donald has gained extensive experience in conceptualizing and driving complex business design and digital projects across major corporations and financial institutions, including Barclays Africa Group. His unique and diverse experience includes transforming organizations and their operating models to be client-centric, development, and planning of digital and technology transformation strategy, enterprise architecture, portfolio prioritization, business case development, designing and building innovative digital solutions and technology systems and platforms, as well as migrating technologies into the cloud. He has successfully led and/or delivered over 200+ business, technology, and digital transformation projects and programs.



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Cybersecurity: A Starting Point through Digital Journey

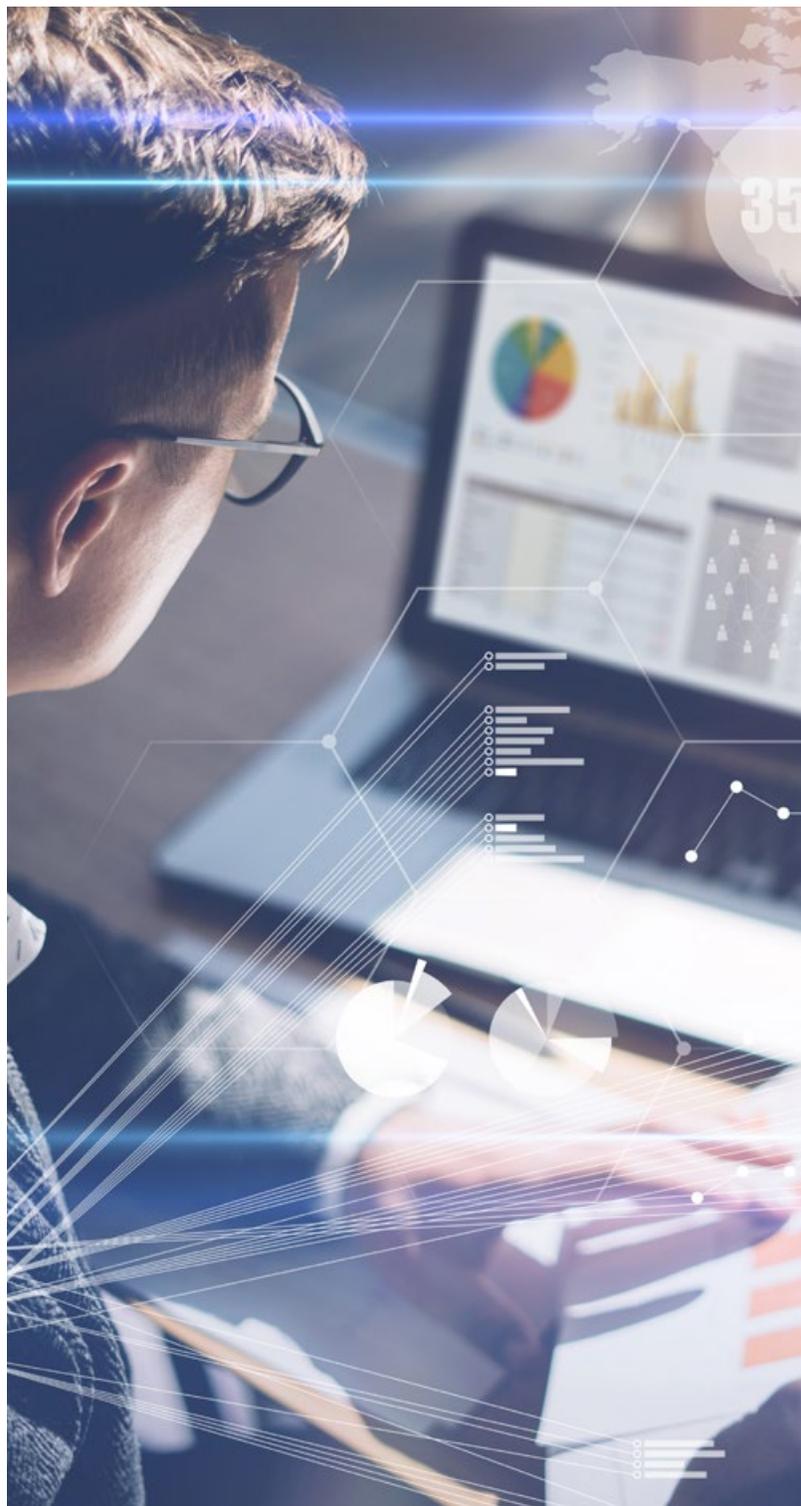


BY CHRISTOPHER R MAGNAN

Introduction

Digital transformation has proliferated across many business sectors. Corporations are harnessing the underlying technologies to automate processes, mine data, pivot to new markets, reduce costs, or tailor services to client preferences. For example, the hotel industry is digitally transforming the business model to improve energy efficiency, characterize customer trends, and improve their guests' experience. Economies of scale and technological advances in artificial intelligence, Internet-of-Things (IoT), cloud computing, 5G infrastructure, and processing power have catalyzed strategy adoption. These technological advances have decentralized computation, increased data traffic density, and reduced non-recurring costs. Analysts project digital transformation spending to exceed \$1.2 trillion by 2022. According to a [report](#), Ericsson, the Swedish telecommunications manufacturer, projects 3.5 billion wireless sensors transmitting data. Additionally, [KPMG](#) reports that digital transformation will drive the greatest paradigm shift in the first half of the decade.

Digital transformation also increases cyber-risk. Digitally transforming businesses do not understand the full scope needed to protect their enterprise network and the assets on these networks. Hackers, ranging from lone wolves to criminal organizations, penetrate the network for financial gain, geo-political ends, or credibility. Potential consequences include financial loss, compromised credibility, and injury or death. Recent examples include the Colonial Pipeline, ethical hackers who compromised a Jeep Cherokee, and the cyberattack on JBS, a large meat supplier in the United States. Recent news headlines highlight increased hacking activity across many sectors. In addition, surveys and independent security audits have uncovered underlying trends across many sectors that increase IoT cyber risk. Design strategies, management policies, and awareness compromise the security posture for digitally evolving businesses. This article will discuss these trends





and introduce strategies to improve the security posture from the sensor endpoints to the central data center. When implemented, these strategies require expanded headcount, training, iterative evaluation, additional system complexity, and increased project costs.

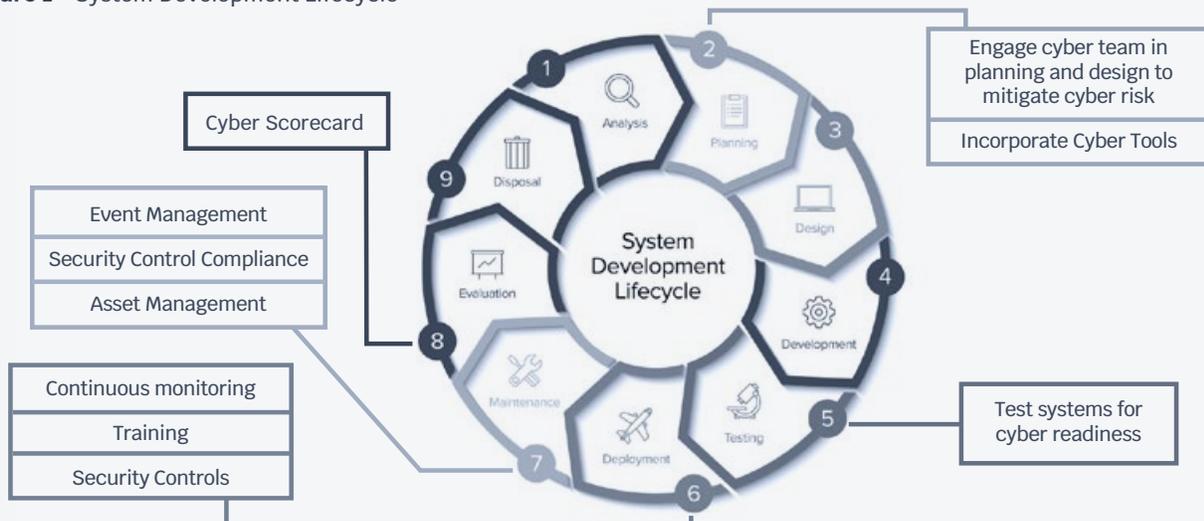
System lifecycle management

Vulnerabilities form throughout the system lifecycle and can materialize as early as the system design. Digitally transforming businesses typically lack the system design expertise and outsource the project to engineering firms. One common mistake is omitting a cyber professional's design assessment of its cyber readiness. They can also advise on asset management, event management, and cyber awareness training. Unfortunately, cyber specialists are in high demand and adding them to the design team increases project cost significantly. Finally, policies to assess cyber readiness continuously through audits are not implemented to improve the security posture.

Implementing cybersecurity best practices into a system lifecycle is shown in Figure 1. A system lifecycle is a standard framework that describes the event sequence from the initial strategy through system obsolescence. Key cybersecurity contributions are highlighted through the system lifecycle. During the design phase, security best practices and tools, which are discussed later in this article, are integrated into the system design. The tools consist of both hardware and software platforms that harden the systems security posture. After the prototype has been implemented and is ready for a pilot phase, cyber tools scan the infrastructure for both vulnerabilities and best security practice compliance. The security gaps must be remedied before going live.

During system deployment, monitoring tools must also be implemented before the services go live. Tools are used for event detection and data analysis. Integrated messaging platforms quickly alert users of a suspicious activity or component failure. Many enterprise platforms

Figure 1 - System Development Lifecycle



integrate these capabilities as basic features. In addition, dashboards ingesting real-time data and translating it to user-friendly graphs and indicators can be rapidly designed and integrated into the system. These dashboards help administrators quickly assess event criticality and determine the course of action.

Security controls are implemented to protect critical assets. Controls can include policies or physical objects such as key cards to limit access. Common controls, discussed later in this article, include Zero-Trust and Public Key Infrastructure (PKI). Implementing security controls adds another management layer to daily operations and maintenance. Passwords are also a security control and policies can be implemented to mandate complexity and periodic changes.

When digitally transforming, businesses must train staff tasked to manage the new capabilities. Key focus areas are event management, operations and maintenance (O&M), security best practices, and cyber awareness. Event management utilizes a framework to assess incidents and implement corrective actions. Key roles and responsibilities during incidents are identified, and reporting strategies based on incident severity are planned. Event management also designates a crisis response team and a crisis response plan for service disruption. Playbooks and periodic event walkthroughs reinforce the plan and address any critical gaps when risk is low. O&M activity includes software patch management, system repair, diagnostic assessment, and account maintenance. Organizations plan periodic maintenance around software release and patch schedules, which can be manually applied or automatically updated.

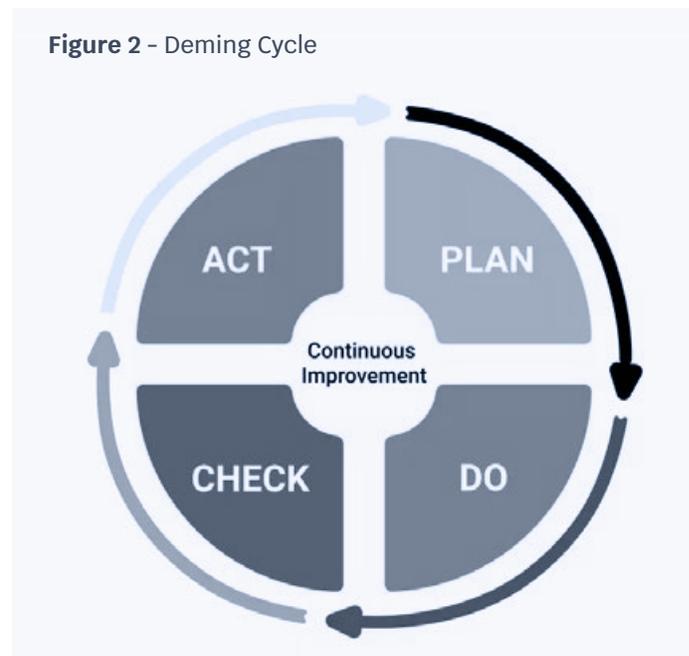
Security best practices define the industry standards and processes that organizations follow. Practices include optimized configuration, manufacturer recommendations, and design techniques.

Finally, all employees must improve cyber awareness, which has been identified as a critical vulnerability. Cyber awareness involves everyone who touches a computing asset, including the receptionist at the front desk. Recommended cyber awareness strategies include period refresher training and information sharing between intercorporate organizations. Businesses can also incentivize cyber awareness through rewards and recognition.

Throughout live operation, periodic reevaluation and audits should be implemented to identify developing vulnerabilities. Remediation plans are then evaluated and implemented to mitigate risk. The Deming Cycle (Plan-Do-Check-Act), shown in Figure 2, is a management framework

used to assess cyber readiness continuously and implement corrective action. During the Plan stage, multiple strategies are evaluated for cost, complexity, and potential efficacy. The success criteria is also planned during this phase as is the fallback plan in the event the strategy is not successfully implemented. The best strategy is selected and the implementation team plans the roll-out. The implementation team then integrates the strategy during the Do phase. During the Check phase, the implementation is evaluated against its key success factors and lessons learned are also discussed. Finally, in the Act phase, the next improvement is selected based on the success and lessons learned. The Deming Cycle is repeated as the iteration is planned, implemented, and evaluated.

Figure 2 - Deming Cycle



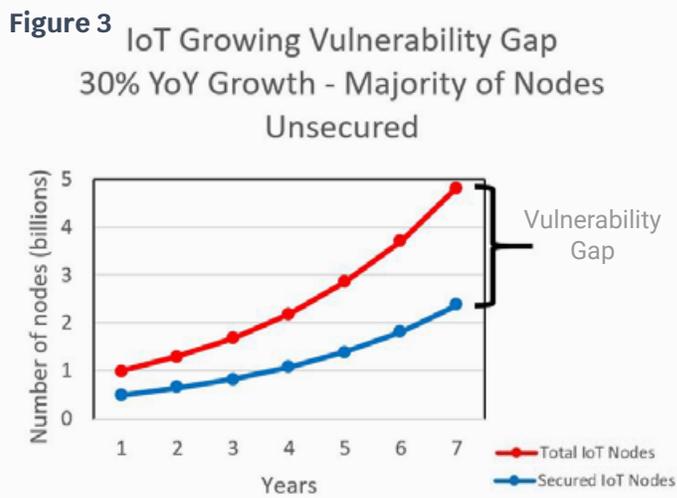
A scorecard can continuously assess the training, response, and posture. A scorecard should be simple and easy to read, however, it needs to state key deficiencies and critical trends explicitly. Figure 4 shows an example of a simple scorecard. The individual scores for the key success factors are tabulated on the right hand side of the scorecard. This score decomposition identifies key areas to improve to harden the security posture. The top center shows the overall score and the score weighting to stress which factors have greater significance in the evaluation. The graph in the bottom center shows the tabulated score over a pre-determined time interval. The left hand side is an evaluation of how the company's cyber posture compares to its competitors'. This scorecard is just an example, but the key data points are the overall score, the score breakdown to the individual metrics such as patch management, the score weighting, and the trending score over the past year. Other data points not presented in this score card are key security events such as a data breach or bullets describing deficiencies.

Internet of things (IoT) networks

IoT networks form the core infrastructure for many digital transformations. Innovation has decreased sensor costs, improved decentralized computation, and enhanced scalability. However, IoT networks pose significant security risks. [A recent survey](#) of executives reports that organizations do not account for all devices on the enterprise network. This same survey states roughly 33% of these devices are properly managed. Figure 3 shows an estimated vulnerability gap based on analysts' IoT projections and device management estimates. As more firms pivot to IoT to digitally transform their business models, the cyber exposure increases exponentially. The vulnerability gap can be reduced by implementing the management lifecycle previously discussed and the cyber tools that will be discussed in the next section. A notional vulnerability gap based on these projects is shown in Figure 3.

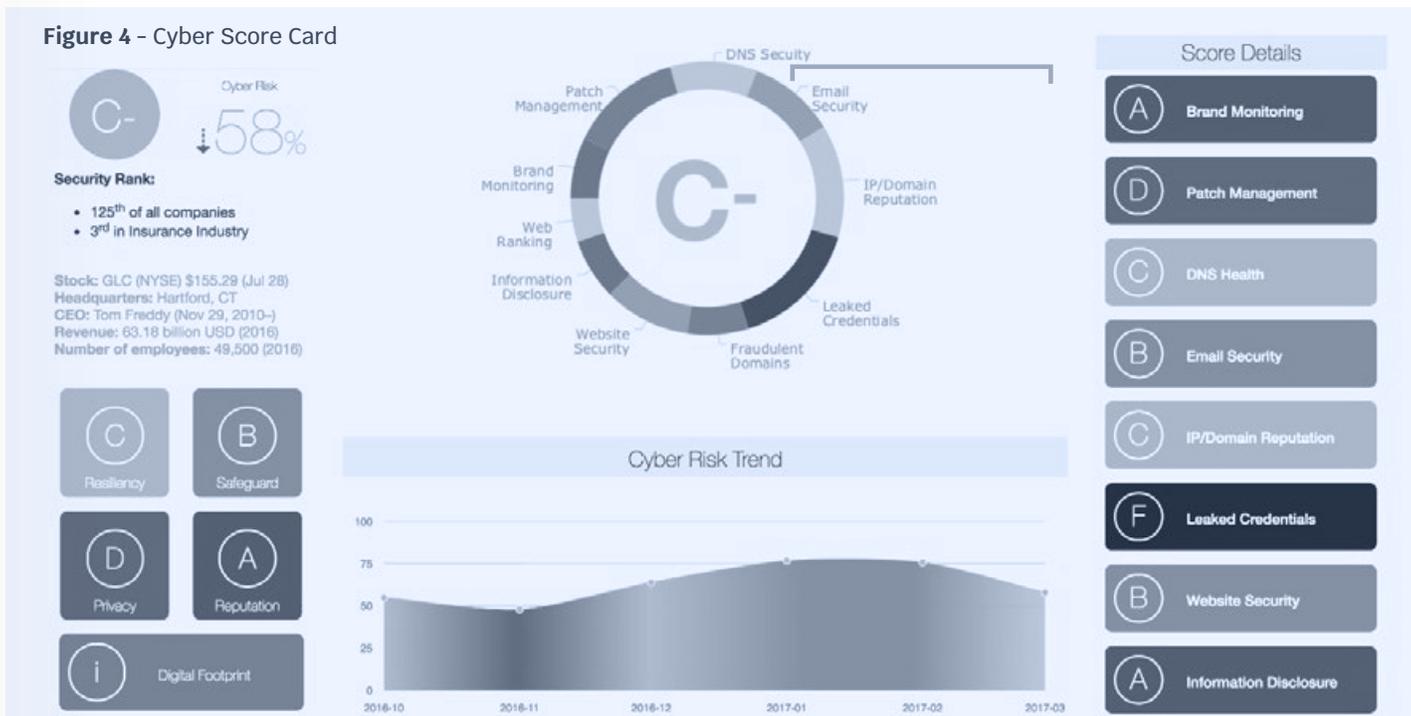
Hackers view IoT sensors as a bridge into the enterprise network. Many sensors are placed outside the security perimeter and communicate wirelessly to the enterprise. Sensors also forward data with other wireless sensors that do not have enough transmit power to reach the network's wireless access points. Sensors are continuously reconfiguring as wireless channels change with the weather, obstructions, or defective sensors. Sensor manufacturers are not obligated to design security features or to update firmware to correct bugs. Passive sensors that only transmit data are especially vulnerable.

IoT vulnerabilities differ based on manufacturer design specifications, sensor placement outside the secure network perimeter, and software patches and updates



to mitigate bugs. Sensors are typically commodities and manufacturers are not motivated to design security features into the sensors. IoT network designers must implement strategies and cyber tools to mitigate the security gap. Since most sensors are wirelessly connected and lack enterprise security tools, they are susceptible to wireless intrusion by hackers. Firmware updates in many cases are not continuously updated and critical vulnerabilities are not remedied by the manufacturer. Transmitting firmware updates to geographically diverse and sensor types is difficult because the software updates potentially saturate the wireless channels and require multiple hops from sensor to sensor. In addition, sensors do not operate using the same firmware, which adds asset management complexity. Finally, referring to the vulnerability gap above, the unaccounted sensors potentially never have their password changed, never receive software updates, and are never properly removed from the network when they become obsolete.

Figure 4 - Cyber Score Card



Cybersecurity tools and strategies

An Intrusion Detection System (IDS) actively monitors the wireless network access and reports anomalous behavior. IDS can also be configured to alert administrators when black-listed devices try to communicate with the network. IDS can also be configured to alert users of anomalous traffic, such as a device repeatedly trying to access one device or cycling through a string of network addresses. IDS is a monitoring tool and is not used to actively manage the network.

The partitioning of vulnerable sensors into Virtual Local Area Networks (VLANs) is important to mention at this point. VLANs partition the network and will restrict traffic from the vulnerable sensors into the enterprise. VLANs can also quarantine compromised devices from the network itself. Firewalls and firewall rules can be implemented between VLAN's to enhance security between different network subnets.

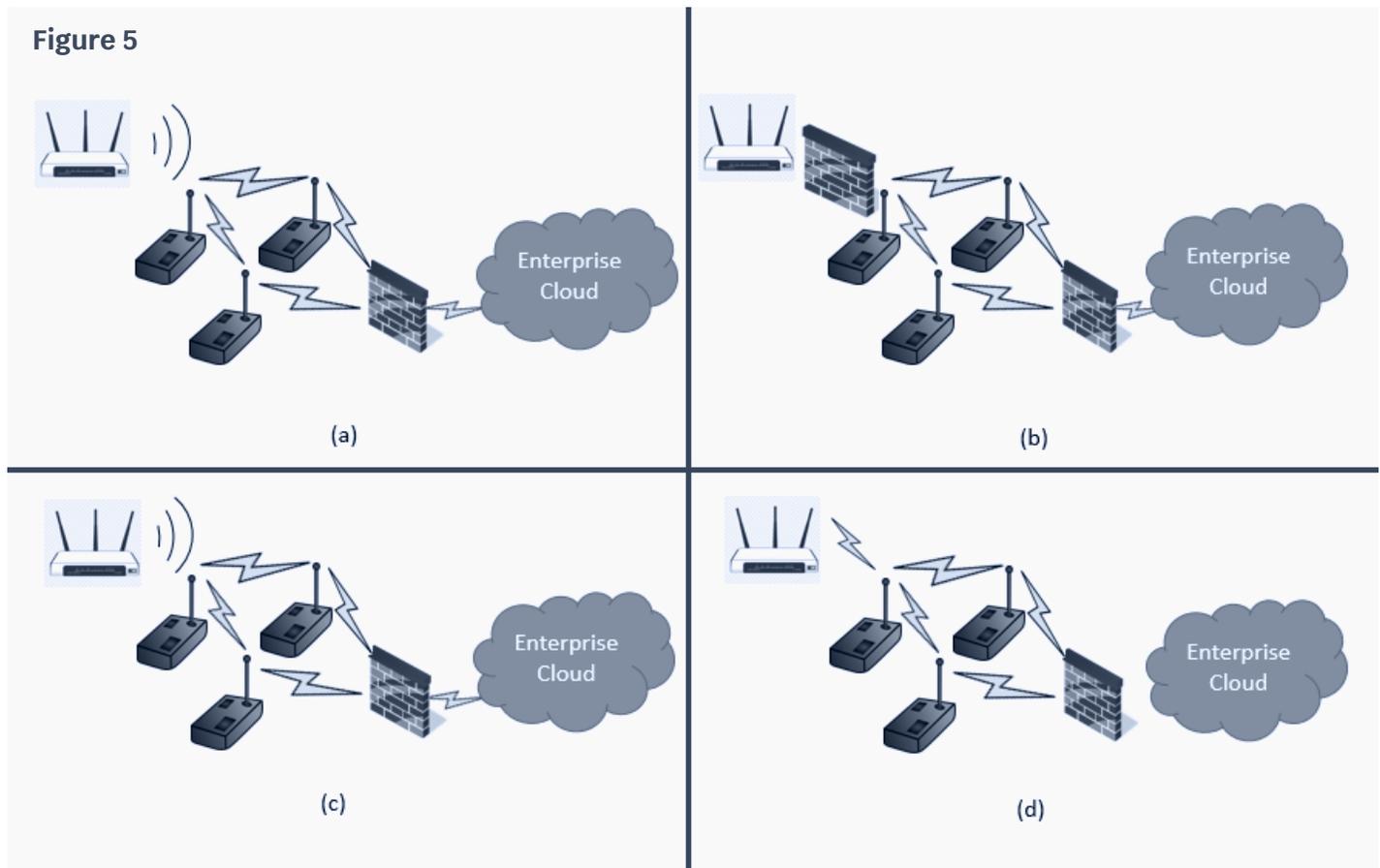
Network access control (NAC) incorporates Access Control Lists (ACLs) to grant entry into the network. Devices not existing in the ACL will either be quarantined or redirected to a VLAN. NAC can also be configured to restrict compromised devices from accessing the network. NAC also replaces port security, where a specific network port is to a specific network device. This capability eliminates device replication.

Compliance scanners audit the network and notify administrators of devices that do not operate on recommended software versions or have not been properly patched. Scanning can occur daily, weekly, or monthly. Once non-compliant systems are detected, the administrators must update the software and patches to maintain compliance. Comply-to-Connect remedies non-compliant hardware that do not have recommended software updates or critical patches.

IoT networks are dynamically scalable and use Certificate Authority to manage the public key infrastructure (PKI) for the network. The CA releases certificates to trusted devices. When a device comes online and starts communicating, it shares its credentials with the enterprise. If the enterprise recognizes its credentials, the device is integrated into the network. If the credentials are not recognized, it is not allowed to join the network. Figure 5 shows this interaction. Figure 5 (a) and (b) demonstrate a wireless device whose credentials are not recognized and are firewalled from the network. In Figure 5 (c) and (d), the enterprise network recognizes the certificate and allows the device to join the network. PKI can also be used to encrypt the data through key use, further hardening the sensor network.

Zero Trust policies has gained prominence as insider threats evolved. Zero trust follows the principle of least privilege, where network access is granted on role, user group, and

Figure 5





specific access requirements. For example, basic users do not need administrative access to the enterprise network, however, network engineers will need this access to maintain the network. This policy is also known as role-based access control (RBAC). Zero-trust also incorporates and manages alerts that record and notify stakeholders of anomalous behavior such as off-hour database access.

Conclusion

This article presented opportunities to incorporate cybersecurity best practices into any organization undergoing digital transformation. Businesses must focus on technology tools, management policies, and training to improve their security posture. Common cyber risk trends were also discussed to stress potential vulnerabilities exploited by hackers. Best practices were discussed throughout the system lifecycle. Strategies were presented to help develop policies, self-audits, and corrective actions into observed vulnerabilities. IoT, which has gained significant traction during the last decade, is also vulnerable and susceptible to exploitation.



Christopher Magnan
Cybersecurity, Internet of Things (IoT), Smart Cities, Cloud Computing, 5G, and Digital Transformation Expert

Christopher Magnan manages a Project Management Office for General Dynamics Information Technology (GDIT). During his tenure at GDIT, he has led a team that has implemented cyber-security technology and best practices, integrated telecommunications, and implemented Bring Your Own Device (BYOD) to a diverse global enterprise. Prior to GDIT, he managed the design and deployment of Smart City technology across Naval District Washington. He received his MBA and Master's in Electrical Engineering from the University of Maryland – College Park.

No Security without Identity – No Identity without Security



BY PETER GEELEN
DIRECTOR & MANAGING CONSULTANT AT CYBERMINUTE



June 2021: we're looking back at a pretty bizarre year like we have never experienced before. At least we think so.

This pandemic has all the properties of a [black swan event](#), just like the 9/11 attacks. A black swan event comes as a surprise but has major consequences. The COVID-19 pandemic has not only changed our personal life as we knew it, but our social life as well, including the way we travel, the way we interact with people in person, and so on.

It also has thoroughly shaken the foundations of cybersecurity, data protection and – in a broader sense – information security too! We have (finally) started to think differently about the ways governments, big tech companies, commercial companies, internet companies are handling our personal data.

It looks like the high impact of the pandemic on our personal life has forced us to think differently about the use of our personal data, and certainly how our data is (or was) floating around freely in the digital world.

After the generation of the internet (the “cloud” generation) we now see a new generation rising: the privacy-focused generation.

But there is no privacy nor data protection without cybersecurity. That has not changed, since the early '90s, when I discovered internet over a beeping 14.4k modem (remember the sound of dial-up internet?).

Looking back, looking forward

Having finished college in 1992, I continued higher education to become an industrial engineer (now master) in bio-engineering, driven by my family background and my interests at that time. But in the middle of the study program, the reorganization of the high school/university education system was rolled out. It changed to a bachelor/master level system and caused a redefinition of my study plan, leaning more towards chemistry, which was not my cup of tea.

So between the second and the third year of my studies, I shifted gears, did some extra study in electro-technical engineering during summer vacation and I started the third year into industrial engineering and electronics/computer science, which was rather an extension of my growing interests or hobbies. Frankly, it still is, after all these years.

When I finished school, many of my fellow students, if not all, had a work contract before the end of school, right in the middle of the big internet hype. That internet bubble burst in the early 2000s.

I had my first work experience in application development. Searching for new challenges, I moved into system engineering and systems management, more specifically the Microsoft infrastructure.

Due to the strong customer demand for certified engineers, I got the hang of security, where I specialized in security hardening and identity and access management. This was a niche market at that time (and still is) with a lot of new challenges and market developments crossing my professional path.

In 2005, I started using that security background to dive deep into the Microsoft Identity space.

The passion for community

The interesting part of identity and access management (IAM) platforms is that IAM cannot stand alone and integrates all core services of every company. So you're not only required to master the identity principles and data flows, but you also need to dive into various systems containing the company business data, from Active Directory databases to HR and CRM systems, various mail systems, and operating systems.

Working with new, quickly-evolving, and challenging products always has been fun and I got in touch with a vibrant Microsoft technology community, online and offline, which ignited my passion for building community by sharing knowledge.

Working with these experts and minds thinking alike, enabled me to build a broad network of professional experts and specialists. Even now, it's a blessing to turn to someone who knows better and that can guide me in solving my challenges.

In 2007, way too late, I started posting [blogs](#) with lessons learned that could help others to avoid the mistakes I had made. Now I use my blog as a personal external memory, to quickly retrieve interesting items I once looked up or found out.

It's not so awesome (duh!) that search engines throw up your own articles when you're troubleshooting a setup at a customer exposing your own mistakes you once made.

In 2008, for the first time, I got awarded the [Microsoft MVP \(Most Valuable Professional\)](#) title, which is a warm appreciation for “technology experts who passionately share their knowledge with the community.” They are always on the “bleeding edge” and have an unstoppable urge to get their hands on new, exciting technologies. Microsoft MVPs have a “very deep knowledge of Microsoft products and services, while also being able to bring together diverse platforms, products and solutions, to solve real-world problems.”

Working with or working for Microsoft has been on my bucket list for a long time. And that opportunity came my way in 2012, when I joined the Premier Field Engineers, a team of technical experts in various enterprise products at Microsoft, supporting customers solving issues that no one else could solve.

Being at the core of the products and working with the international product teams closely was extremely awarding, even though the job could get hectic and very demanding.

I had a great time with the Microsoft team, but after 4 years I had to reconsider my choices for various (personal) reasons. I needed to re-check my career roadmap and take the next step. Because I had received a lot of demand from Microsoft partner companies to offer my expertise locally and during my time at Microsoft, I had been delivering a lot of workshops, I wanted to explore the teaching and training opportunities.

No identity without security – no security without identity

So I started freelancing in 2016. I focused on areas such as Microsoft Identity, identity and access management, security, cybersecurity, information security and data protection, privacy, GDPR, and the like. And now, looking back, I realize that the basic principles and foundations of security have not changed. In my early days, and still now, I have been working on enterprise infrastructures, data centers, and large server networks.

Sadly enough, we know now that in the fast adoption of the internet and certainly the massive growth of cloud services, security has not always been the primary focus of building new systems. And now we all pay back that faulty baseline.

Look at the ever-growing business of cybercrime!

Almost a decade or two later, the tide starts to turn. Security by design or security by default are (almost) accepted as

standard. But due to the legacy we need to replace, there is still a long way to go.

Information security, cybersecurity, and data protection are good sectors to work in – for me, it’s more of a hobby than it is a job. Working as a freelancer, I was able to balance the consulting work with teaching courses in those fields.

By the way, if you think that teaching is a one-way communication job, you got it wrong. Having a very diverse audience is not always easy, but it is very rewarding. You can learn a lot from your students and participants and using the practical experience to spice up the theory with real-life examples brings these courses to another level.

The PECB partnership

That is about the time, in 2017, when I got in touch with PECB, first teaching their training courses, and later providing feedback to improve those courses. Over time I got involved in more activities, like reviewing courses, moderating events like the PECB conference in Brussels, presenting a series of PECB webinars on ISO/IEC 27001 (on information security management systems), ISO 27701 (on privacy information management systems), as well as NIST, CMMC, and so on. Check out the [PECB webinar archive](#) for more.

Data protection and/or cybersecurity and/or information security?

Early 2018, an MVP colleague informed me about an interesting opportunity as a policy advisor at the national Center for Cybersecurity Belgium (CCB), which is the central authority for cybersecurity in Belgium.

It was a great place to learn about the latest trends in cybercrime; to help and guide the government, as well as small and large companies to protect themselves against all these threats.

Over the years, it has become clear that businesses struggle to secure themselves. And if you can’t secure yourself, you can’t secure someone else. Some of the most





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common responses when you question the lack of basic security in an organization is “I’m not a security specialist, I need to run a business” or “My business is too small to get hit by cybercriminals.”

Reality has proven them wrong, too often to count!

That’s where I hope to provide added value with my experience and it motivates me to keep growing and to keep learning.

The desire to bring added value is a great motivator to keep sharing experiences in order to avoid the mistakes I and other people made. At first, sight it seems difficult and painful to get beyond the shame of admitting mistakes, but it must be clear that we all have a shared responsibility to protect each other. And that’s exactly the point where cybercrime and the pandemic meet, as mentioned in the introduction to this article.

The methods and principles to fight crime and COVID are exactly the same: start to protect yourself, keep yourself safe and secure, and help protect others.

Taking back privacy

Actually, before the 2020 black swan event, another black swan event has been impacting my professional life significantly, namely the various publications of an NSA system engineer, exposing espionage practices. You certainly must remember the quote from Edward Snowden about the 'nothing to hide' argument:

“Arguing that you don't care about the right to privacy because you have 'nothing to hide' is no different than saying you don't care about free speech because you have nothing to say.”

(You can read more about this interesting discussion over [here](#).)

The right to privacy is now more significant than ever!

Similarly, the battle for your personal data has become more aggressive than ever before. Look at the current “fight” and evolution in camera tracking, phone geo-tracking, browser tracking, and the usage cookies to find out what you’re doing.

It’s not done and over yet.

While for years the discussions has been dominated by a bunch of privacy nerds, ordinary people have finally started to realize how far data collection has gone, and due to the pandemic, how far it impacts their life.

You never walk alone

I’m very grateful where I stand now in terms of my career, even though I don’t know where the future will take me.

I could have never landed in the position and situation I’m in right now, in the middle of my professional and personal journey, without the help and the support of so many people. Of course, this is the result of hard work over the years, but I have come to realize more and more that the help and support of my peers greatly amplifies what I can do. Sometimes with hard criticism, sometimes with hands-on help, sometimes silently in the background.

First of all, a big thank you and a big hug for my wife, who has supported me throughout all these years, in good times, in bad times. A big thanks to my kids, keep up the good work, girls! Do better than me!

Thank you to my colleagues at Cyberminute, and my other professional colleagues! There are so many more people to thank, but I would rather tell you in person next time we meet! You’re doing a great job.

And last but not least, thank you to PECB and the entire PECB team for supporting me. You have been a great enabler.

Pay it forward

Allow me to close this article with a request to you.

You never can pay back the help, the trust, and the effort of your mentors, coaches, and guides in life. But you can pay it forward; use your knowledge and experience to become a mentor for the next generation.

Share your knowledge! You double the value of information by giving it away.

Get in touch!

And if you need some help with that, don’t hesitate to get in touch, because $1+1=3$.

You can easily find me on [LinkedIn](#).

Be safe, be secure!

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Digitalization and electronic archiving, as information security disciplines, help organizations improve the effective and safe management of personal information and records in digital repositories. These processes serve as key factors of transformation as they allow organizations to utilize better decision making, which is crucial for any company regardless of its size, type, and complexity.

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Revealing Digital Transformation Opportunities through Big Data

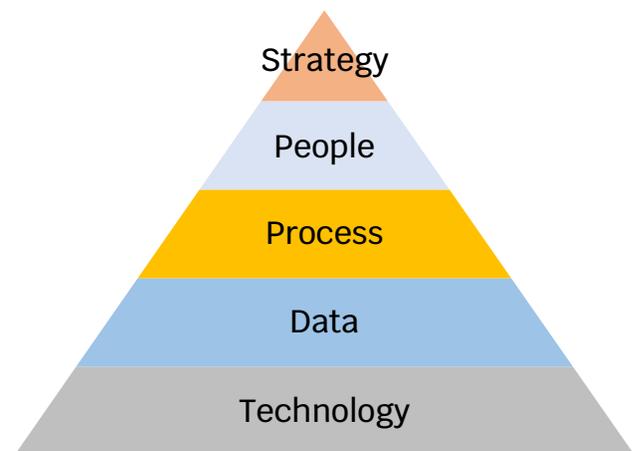


BY JOSE MILTON BUITRON



Today, companies are in a race against the clock to catch up with the latest trends by upgrading their digital strategy and transforming their customer experience. The challenge of meeting and exceeding the expectations of an increasingly demanding customer, relative to the other companies with which they interact, demands that digital transformation be a priority in most board of directors, regardless of the industry.

The general approach is to divide this change into five levels: strategy, people, processes, data, and technology. The alignment of the strategy and the business model should be the starting point; after that, the focus can shift onto the culture that the company needs and the skills of the people necessary for this process.





Generally, once organizations have these elements defined, they turn to developing their technological capabilities. And in most cases, this goal becomes the focus of all transformation efforts.

However, one of the most important elements of the entire process is often overlooked or underestimated; that element is the importance of data and its analysis. Furthermore, data, analyses, and related findings are the bridge that unites all the elements for digital transformation.

Digitally transforming customer experiences requires a deeper insight into them to analyze and improve touch points. The technological capabilities, the data, and the findings that can be obtained allow companies to carry out detailed analyses on their customers, the different segments, their behaviors, and characteristics.

Companies should use current technological capabilities and available data to investigate the needs of their customers, understand their level of satisfaction, and identify behaviors that help them predict the next best action that maximizes the value of their customers over time. Companies can find this information in two ways: internally, by analyzing factors such as purchase data, sociodemographic data, information from their chats or call centers; or externally, by studying information from social networks, browsing on other portals, or behavior in other allied businesses.

Although practically any company in any industry can take advantage of the capabilities that Big Data technologies offer, there are certain cases that have been used more frequently and that serve as a reference to understand the potential value that these technologies offer.

One of the industries with the greatest access to granular customer information is retail. Merchants in their points of sale (POS) and loyalty systems have managed to accumulate millions of very valuable records with enormous potential to generate knowledge of customer behavior. The cases of data mining are famous where retail companies have managed to connect the consumption relationships between categories of products that are not obvious in principle (i.e. diapers and beers), to develop joint offers that seek to increase the consumption of both categories. With the development of e-commerce, access to a greater level of detail in purchasing behaviors has allowed these companies to develop more targeted and personalized marketing and, therefore, drive sales and profits.

Another interesting use of data in retail is inventory management and in-demand product prediction. By using internal data such as stock levels, shipping, and storage costs, storage location, and external variables such as



weather forecast, vehicle traffic per point of sale, and population growth projection, models can be developed that predict fluctuations in demand.

Aldo, a Canadian shoe and accessories company, takes advantage of big data to meet the high demands of dates such as Black Friday and Cyber Monday, which can represent up to 30% of annual sales.

The company operates on a Big Data architecture integrating multiple data sources involved in payments, billing, and fraud detection. This platform allows Aldo to offer a smooth experience even on the dates of greatest demand.

The American retail company Target uses the registrations made by its customers for their baby showers and its guest identification program to market to pregnant women at different stages of their pregnancy. Using data collected from existing customers, Target is able to identify the most frequently purchased products during each quarter and thus recommend those products to its customers who, based on their collected data, could be inferred that they are pregnant.

This new approach allowed Target to grow sales of pregnancy-related products by more than 50%.

Western Union, a global US financial services and communications company offers an omnichannel approach that tailors and personalizes customer experiences by processing more than 29 transactions per second and integrating all that data into a single platform for statistical modeling and analysis.

This Data Hub serves as a single repository to help Western Union get to know its customers, providing relevant information from the initial point of contact and qualification and compliance checks, throughout its lifecycle. It allows them to offer relevant push offers. It is a customer-centric approach that helps Western Union deliver specific customer experiences.

Although the potential benefit of data exploitation is clear to most company managers, it is very common that these initiatives do not progress or take a long time to develop. What is the main reason for this? In most cases, it is the inability to demonstrate the value of these types of initiatives.

Businesses generally take one of two paths. Implementing the analytics platform or data lake with the hope that upon completion of its implementation, this data lake will magically solve the company's problems. This vision is generally that of a technology area focused on tools and not necessarily on business challenges.

The drawback with this approach is that implementation can take years and significant investments, and at the end of the project, tangible value has not necessarily been generated for the business. On many occasions, this is the reason for the failure of the project.

The other path that companies generally take is to develop various analytical models seeking to obtain early victories. Although this approach demonstrates value in the short term, it can generate some disappointment within the business later, when seeing that these proofs of concept do not scale or cannot be implemented in the operation because they do not have the capabilities that the organization needs to achieve.

In my experience over many years working to develop data-driven capabilities for various organizations, I have been able to validate that there are five fronts that must be implemented to ensure the construction of the capabilities that companies need to be truly data-driven.

First is the ability to track the value generated by data and analytics efforts. To ensure that capabilities are properly aligned with strategic objectives, processes must be in place to identify business challenges and to translate these challenges into analytical use cases that support compliance.



Once these analytical use cases have been identified, you must have the ability to prioritize and develop them to generate the insights that allow the business to make data-driven decisions.

One of the challenges that the company will encounter when developing these use cases is that the data is probably not available or does not have the expected quality. That is why the third front to develop is data governance and data quality. It ensures that the raw material for developing relevant findings (i.e. the data required by these use cases) will be ready for this process.

Of course, for the data and insight generation to occur, an analytical platform is required to support these processes. It is this front that is responsible for ensuring that this platform or data lake is implemented, but with the characteristics according to the priority use cases and their data.

The last front, often underestimated, is that of change management. I have been able to witness many projects where a lot of effort has been invested, but after years of work the results are not as expected. And when analyzing the causes, some of the main reasons for failure were not paying attention to the culture of the organization, not identifying a key sponsor of the project, not communicating with and training the relevant stakeholders.

Regardless of the industry, companies today have a great opportunity to accelerate their digital transformation process, leveraging data and insights. However, the challenge of enabling these capabilities is not easy to overcome, and there must be a strong commitment from the C-Suite, with a very high-level sponsor and a very clear strategy that covers the five fronts that were discussed in this article. This way, the company will be able to increase the probability of generating true value from Big Data.



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Jose Milton Buitron is an expert in data and analytics with more than 18 years of experience in various industries. He currently leads the Applied Intelligence unit at Accenture Colombia. He has also been director of the Advanced Analytics unit at UNISYS and Chief Data Officer at financial and media companies. He has an MBA from the Instituto de Empresa (Spain) and has completed the MicroMaster of Statistics and Data Science at MIT.





AN ENTICING GETAWAY FOR TRAINING AND LEISURE IN SAN MIGUEL DE ALLENDE, MEXICO



BY GUSTAVO ADOLFO SOLÍS MONTES

Covid-19 is an excellent example of what we call a "black swan" in the world of risk management. It is a metaphor that describes a surprising, high-impact event that is usually rationalized with hindsight, trying to make it seem predictable or explainable and suggesting the idea that it was expected to happen.

Well, the global crisis caused by the pandemic has had a multitude of consequences, starting with the human lives lost, but also the economic crisis, political costs (highlighting the weakness of several countries' health care systems and poor preparedness to manage crises), lags in education, and a radical change in the ways people live, adopting remote work or socializing for their daily activities.



At Cynthus, we have experienced the consequences of social distancing and remote working, not only on our own company, but also on the clients we serve. We have seen examples of companies that have not only survived but have become stronger during the pandemic due to the great agility with which they have reacted, and this agility has been made possible by the skills and experience of decision-makers.

We are convinced that, apart from technological developments, a fundamental factor in the success of organizations is human talent and will remain so until the day of the "singularity" (and we don't know if this will actually happen).

That is why our portfolio of solutions includes professional training and certification services. We are a proud PECB Gold Partner, delivering courses on information security, business continuity, risk management, anti-bribery management, and quality management in Mexico and South America.

An ideal destination for such purposes is the city of San Miguel de Allende in Guanajuato, Mexico. San Miguel is located a couple of hours from Mexico City and is part of the region called El Bajío, which is in the geographical center of Mexico.

One thing that we have learned over the years is that people's performance depends not only on their technical skills, but also on a level of serenity and emotional balance that can only be achieved with a good dose of holidays and a detox from the daily routine.

EXPLORING AMAZING SAN MIGUEL DE ALLENDE

The moment you set foot in San Miguel de Allende, you get the feeling that you have traveled back in time (along with Tony and Douglas - a joke that very few will understand) and have arrived in colonial times in Mexico. A picturesque town whose main protagonist is the Parroquia del Arcángel San Miguel, whose neo-gothic bell towers carved in pink quarry stone rise above the city.

Fantastic year-round weather, blue skies and colonial-style architecture make for an unforgettable time in this beautiful city.

Cobblestone streets lead to quaint colonial houses that have been converted into art galleries or museums. Make sure to visit La Esquina and its vast collection of popular toys. It is also advisable to book a guided visit to the Museo de La Máscara, a museum created to showcase ceremonial masks in all their splendor.

San Miguel de Allende is a cradle of incredible artistic talent not only of popular crafts but of works of art in sculpture and painting. Although a simple walk through the streets near the Zócalo offers a rich sample of San Miguel de Allende's works of art, a unique destination for art enthusiasts is Fábrica La Aurora, a former textile factory that houses dozens of art galleries for all tastes.

The city offers a world-renowned variety of hotels, ranging from simple but cozy bed-and-breakfasts to larger budget hotels with a contemporary style that are like modern sanctuaries. A special mention should be made of some small boutique hotels, which have fewer than ten rooms and a warm and personal attention to visitors.

WHERE TO STAY

These are some excellent options for comfortable and eye-catching hotels.

RoseWood Hotel

The Rosewood story began in 2011. It is a delightful and relaxing hotel with an outstanding property, which was transformed into a hotel from a 16th-century Spanish Colonial building. It has the look and feel of old San Miguel de Allende, capturing the historical essence and ambiance of one of Mexico's most beloved cities.



Casa Misha Hotel

Known for its hospitality and service, Casa Misha is truly a wonderful place. It is located just two blocks from the historic Jardin Principal on Callejon de Chiquitos. Since its opening in 2008, this hotel has been consistently rated as one of San Miguel's best boutique hotels. Being close to San Miguel's many shops, restaurants, and tourist hotspots, the hotel is well known and appreciated for its convenient location.

Casa 1810 Hotel Boutique

Located inside the central historical zone, this hotel is known for its great service and food. The large windows offer an impressive panorama of the architectural details that are complemented by a wonderful relaxation pool. The rooftop bar is a great place not to be missed, with superb views. What you should not miss is the restaurant Trazo, which is a culinary delight.

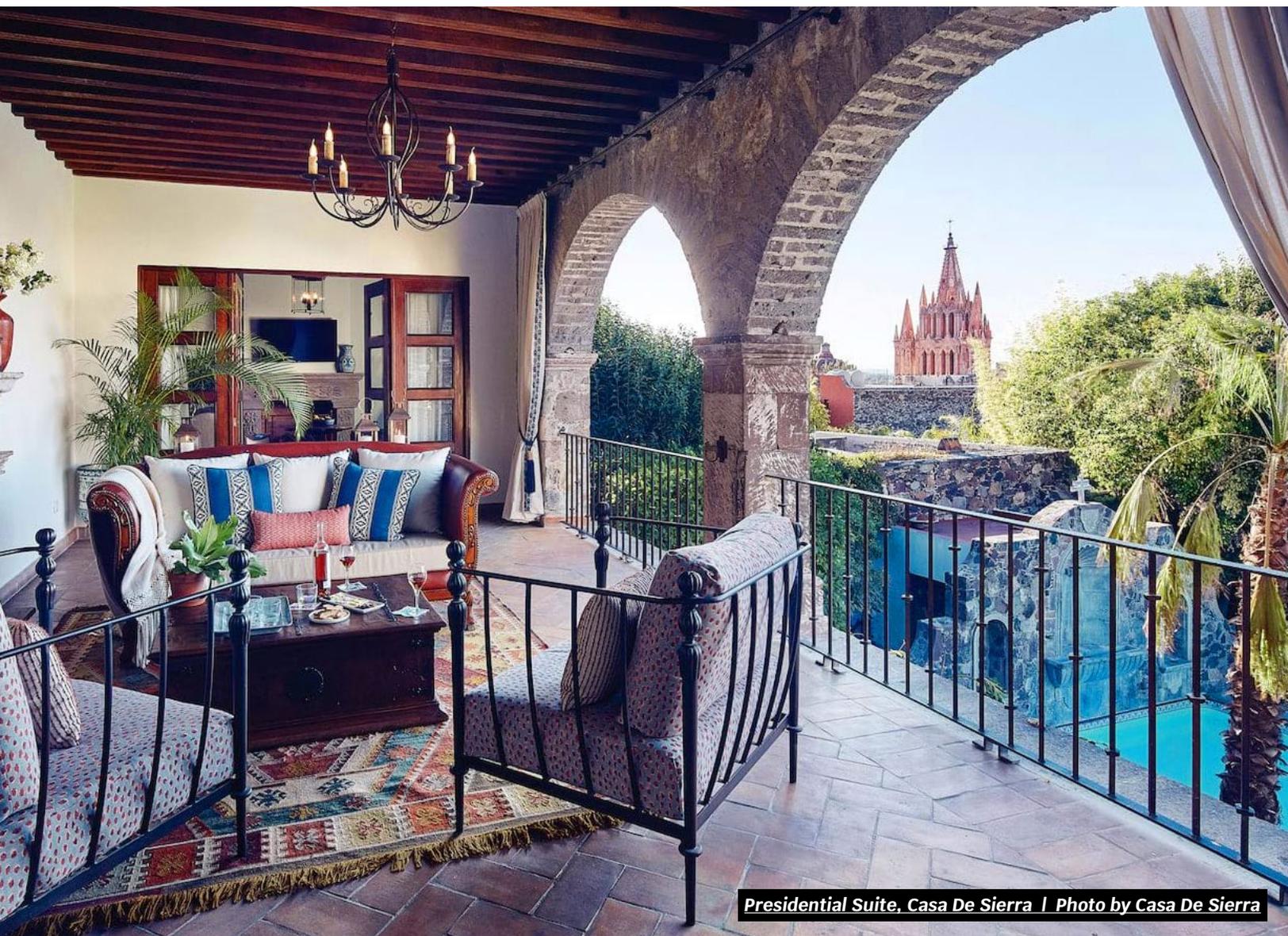
Live Aqua Urban Resort

Live Aqua Urban Resort San Miguel de Allende is only four blocks from the town's main attraction: Parroquia de San Miguel Arcángel. The hotel offers a seamlessly mix of modern and traditional architecture which features natural elements such as slate, rattan, and oak accented by pops of whimsical color in furnishings and fabrics.

Casa De Sierra Nevada

Located in the center of old colonial San Miguel Del Allende, known for breathtaking monasterial architecture, Casa Sierra Nevada is outstanding in every possible way. The hotel features a great rooftop terrace overlooking the old colonial city and breathtaking sunsets.

Fountains and beautiful blowers characterize the estates that comprise the hotel. These historical buildings show charming courtyards, balconies, and more.



Presidential Suite, Casa De Sierra | Photo by Casa De Sierra

THINGS TO DO

Church of Saint Michael the Archangel

The skyline of San Miguel de Allende is characterized by the steeples of the Church of Saint Michael the Archangel, which tower over the center of the main square. The church's architecture is a majestic example of the neo-gothic style.

One might think that the church was built around the same time that San Miguel de Allende was founded, in 1555. However, it is not the same church we see today.

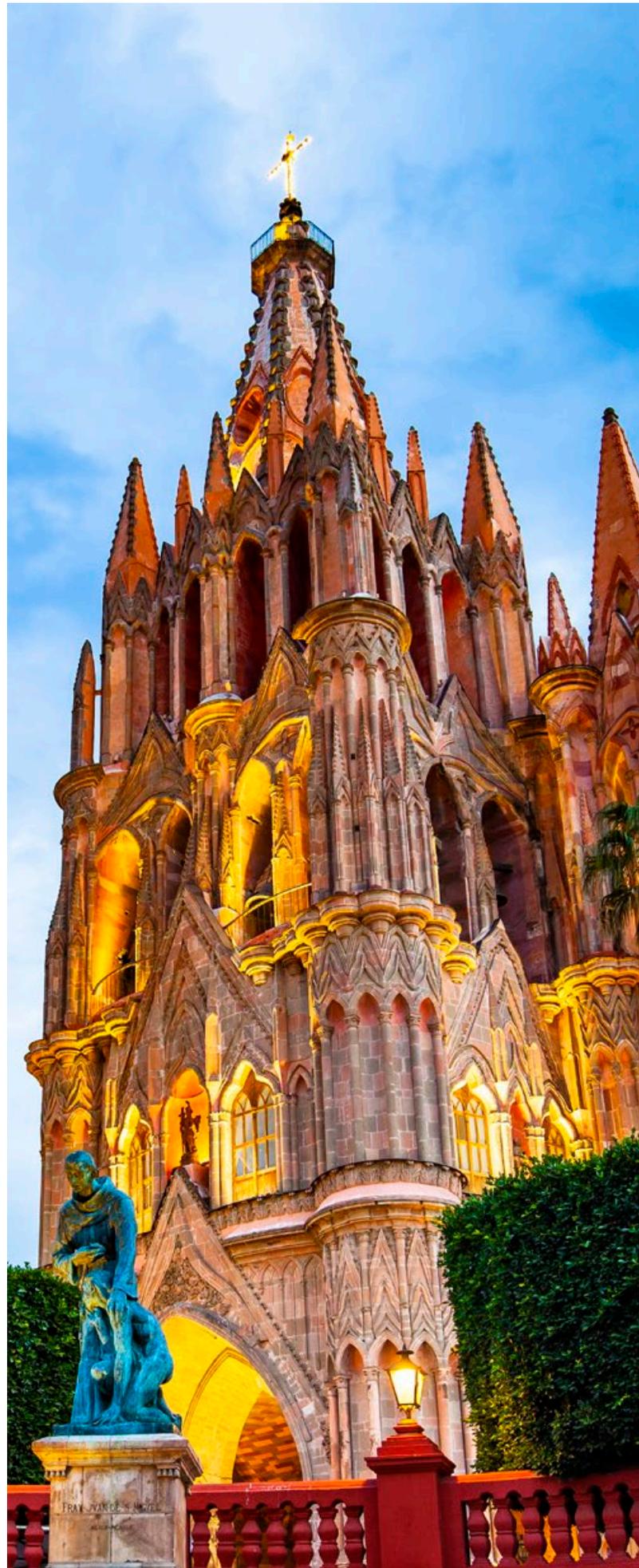
The original temple collapsed due to deterioration and defects in its construction, but the order was immediately given to build a new church and, thanks to the architect Marco Antonio Sobrarías, a masterpiece of baroque style was built. Unfortunately, the church would again show multiple cracks and would not survive.

Finally, the project that gave rise to the church we see today was assigned to Zeferino Gutiérrez, an indigenous stonemason, who designed the Church of San Miguel Arcángel that we see today. His inspiration came from a postcard of the famous neo-Gothic church in Cologne, Germany, which Zeferino treasured in his home.

The church was built in ten years, during which time pink quarry was quarried from the slopes of the extinct volcano, Palo Huérfano. Despite the criticisms launched against the artist for having built a neo-gothic building, breaking with the eminently colonial style of the city, the church was inaugurated in 1890.

An extremely interesting fact is that the murals of the church carved in stone with religious motifs have some figures of rabbits or frogs. Those depictions correspond to beliefs that survived the conversion to the Catholic faith, and this could be interpreted as a last act of creedal resistance or a fusion between the two cultures, the Mexican and the Spanish.

This figurative clash of cultures most likely happened because the church was built by local workers who still had strong links with the pre-Hispanic culture (remember that the population in Mexico converted to Catholicism).



Vineyards

No trip will be remembered without tasting a glass of good wine (well, at least I think so) and San Miguel de Allende will surely be memorable, as it is a famous wine-producing region. The wine producers offer visitors a wine tasting routes that include visits to half a dozen vineyards, so that travelers can enjoy the nature and taste the wine itself.

A notable mention is the San Lucas Vineyard. Its architecture will make you think that you are in Tuscany.

This winery also includes a workshop where you can learn about the good use of lavender. In fact, lavender engulfs the properties of the winery. The cherry on top is a boutique hotel with 16 rooms that allows you to live the experience more closely and intensely.

If you want to visit the Hacienda San José Lavista, it is recommended to make reservations beforehand and to end the visit with a tasting of different kinds of wines.

Your wine tasting should not exclude Vinícola Toyán, not far away from the center of the city. This winery specializes in organic wines, which are left to mature in a cellar 14 meters deep underground. Tours include a tasting of several different wines, complemented by appetizers made from the local cuisine.

Hot springs

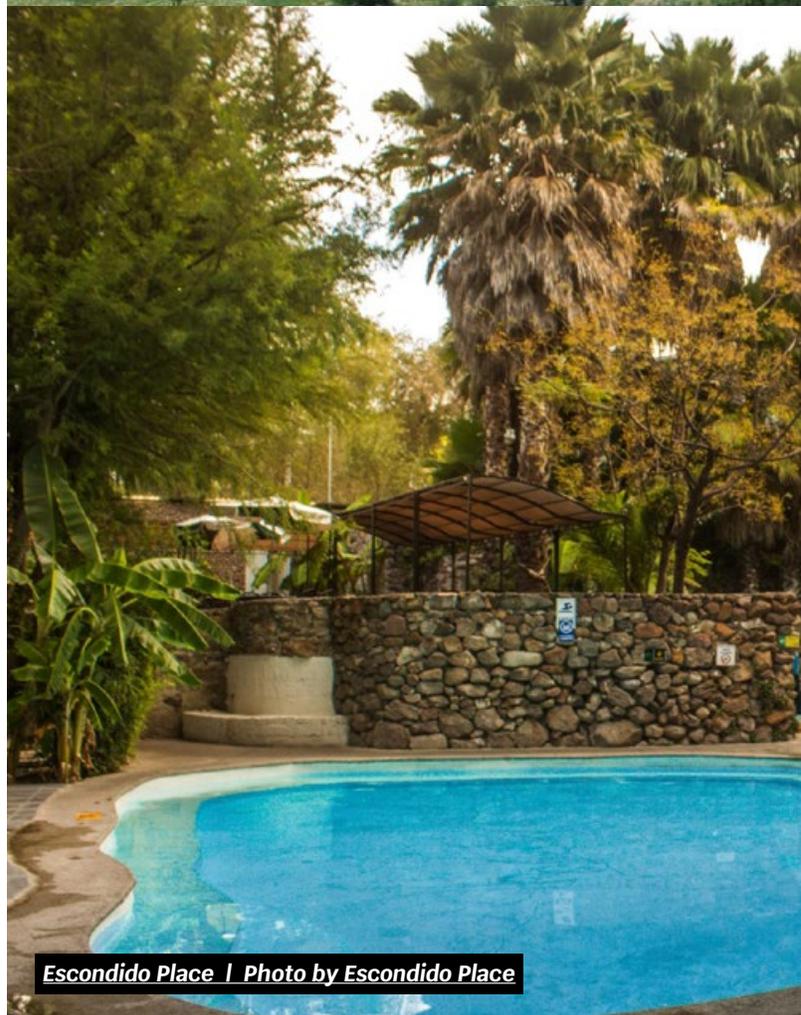
Hot springs have a long tradition in Mexico's popular culture. In fact, they are believed to help increase the body's oxygenation and have healing properties for conditions such as dermatitis and rheumatism, among others. Truth be told and regardless of the possible healing properties, the simple act of immersing oneself in warm waters and a relaxing environment is a pleasure in itself worth experiencing.

Hot springs flow in San Miguel de Allende as a result of ancient seismic activity that existed in the region. This allows the city to be a hot spring sanctuary and a sensory experience.

There are three hot spring sites in San Miguel de Allende for a day of total relaxation. Escondido Place is cataloged as a conceptual park, as it is made up of different indoor and outdoor pools, some of which are connected to each other to enjoy the experience in different scenarios. For example, there are gigantic boulders with water runoffs along the route. There are also splash pools for the little ones.



Hacienda San José Lavista | Photo by Hacienda San José Lavista



Escondido Place | Photo by Escondido Place



La Gruta is a spa located 20 minutes from the center of San Miguel de Allende. Its main attraction is that the hot springs are outdoors. However, they have a very special area housed in a small grotto with dim lighting; when you are there, you will feel like you are in a steam bath, and you can even relax with a jet of pressurized water falling on your back. There is also a restaurant on site.

Finally, there is the Xote water park, the oldest hot springs site in San Miguel de Allende. It opened its doors in the early seventies and its great advantage is that it offers slides and temazcal baths. It is located on the road leading to the historic city of Dolores Hidalgo, where the independence of Mexico began.

Nightlife

If after a few days of relaxation and hedonism you feel a little nostalgic for the city lifestyle (and you've recharged your batteries), there are plenty of options for bars and restaurants. San Miguel de Allende is a city where you can find bars and nightclubs for people of all ages and tastes, or if you prefer a different kind of nightlife that has nothing to do with parties and dancing, you can simply explore its bohemian, colonial-style streets, which is a highly rewarding experience.

Whether you are looking for a romantic dinner in an old colonial mansion, a full moon night in a vintage courtyard, or dancing to the latest hits in a lively atmosphere, San Miguel de Allende will not disappoint.



Gustavo Adolfo Solís Montes
Managing Partner at Cynthus

in

Gustavo is the founder and managing partner of Cynthus, a Consulting and Training company founded in 1997 in Mexico City. He is also a former partner

of Ernst & Young working in Mexico City and New York. He has an extensive experience in the fields of IT Auditing, Risk Management, Operational resilience, Information Security, and IT Governance. Gustavo has been involved with ISACA for many years, acting as International Vice President and Mexico City Chapter president. He is the author of the book "IT Audit Re-engineering" and co-author of the book "Information Technology Security: Building Trust for an Interconnected Society." Gustavo holds the following certifications: CISA, CISM, CGET, CRISC, COBIT, ITIL, and ISO 31000 Lead Manager and Accredited Instructor. Cynthus is a premier provider of professional training in México and Latin America.



Understanding Digital Transformation

Making decisions that affect the lives of an organization's employees is not an easy task! That is even more pronounced in the relatively new trend of digital transformation. Luckily, many scientists, mathematicians, managers, have shared their expertise with the world through books.

Take a look at a selection of books discussing digital transformation, Big Data, AI and machine learning, cloud computing, blockchain technology, and the ethical use of algorithms!

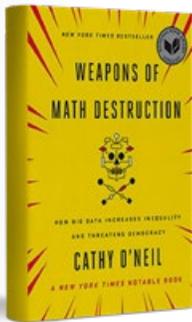


Digital Transformation: Build Your Organization's Future for the Innovation Age by Lindsay Herbert

Lindsay Herbert provides her readers with an elaboration of a very practical guide to all successful digital transformations. The guide which constitutes the structure of the book is called BUILD (an acronym for bridge, uncover, iterate, leverage, and disseminate). The BUILD guide – coupled with the telltale signs of successful digital transformation efforts – makes the book a great resource for the managing directors of every organization.

Read the book for practical suggestions in every stage of BUILD or use it for its probing questions, the answers to which should define the context of your organization.

Weapons of Math Destruction by Cathy O'Neil



This book by the mathematician Cathy O'Neil is a must-read for everyone involved in data collection and processing. In an analogy with weapons of mass destruction, O'Neil stresses the risks that come with the abuse of data collection and processing and designing algorithms based on that data, even if the people carrying out those activities have good intentions. Data collection and processing are two very sensitive activities, and breaking data protection laws can result in incredibly high fines.

Weapons of Math Destruction sheds light on the stories of real life people who had major damages in their lives resulting from algorithms (such as getting fired, having it impossible to land a job, having it impossible to get health insurance or a loan, or even having their family lives disrupted by algorithms that calculate employees' workhours). Ultimately, knowledge and advancement of technology has two sides, and ethical professionals must look at both.

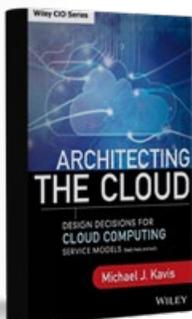
Blockchain, Big Data and Machine Learning: Trends and Application (Edited) by N. Kumar, N. Gayathri, M. Arafatur Rahman, B. Balamurugan



With blockchain being a concept we've all heard a lot recently, it is worth taking some time to learn more about it. This book offers insights into blockchain, its influence on Big Data and machine learning, to improve processes in peer-to-peer networks.

The book is also a great source of information regarding security concerns, as well as the protection of the privacy of data principals. The many authors in this book provide informative chapters on blockchain technology and its use in Big Data, cryptocurrencies, digital tools used in the healthcare sector, and studies on privacy-preserving models through blockchain.

Architecting the Cloud: Design Decisions for Cloud Computing Service Models (SaaS, PaaS, and IaaS) by Michael J. Kavis



An organization's management needs to be very careful before deciding on issues with major implications. This book by Michael J. Kavis provides insight from his own experience (or true stories that have happened to people or organizations he knew) about using the cloud for business processes. Business leaders and tech-savvies should read this book to learn more about the development of cloud computing over the years, cloud service models, frequent mistakes related to migrations to the cloud, how to architecture your organization's cloud strategy, and so on.

The book also contains specific information on different cloud models (SaaS, PaaS, IaaS), with helpful information to guide any professional into the world of cloud computing.

BIG UPDATES OF THE KATE APP ANNOUNCED IN MAY!

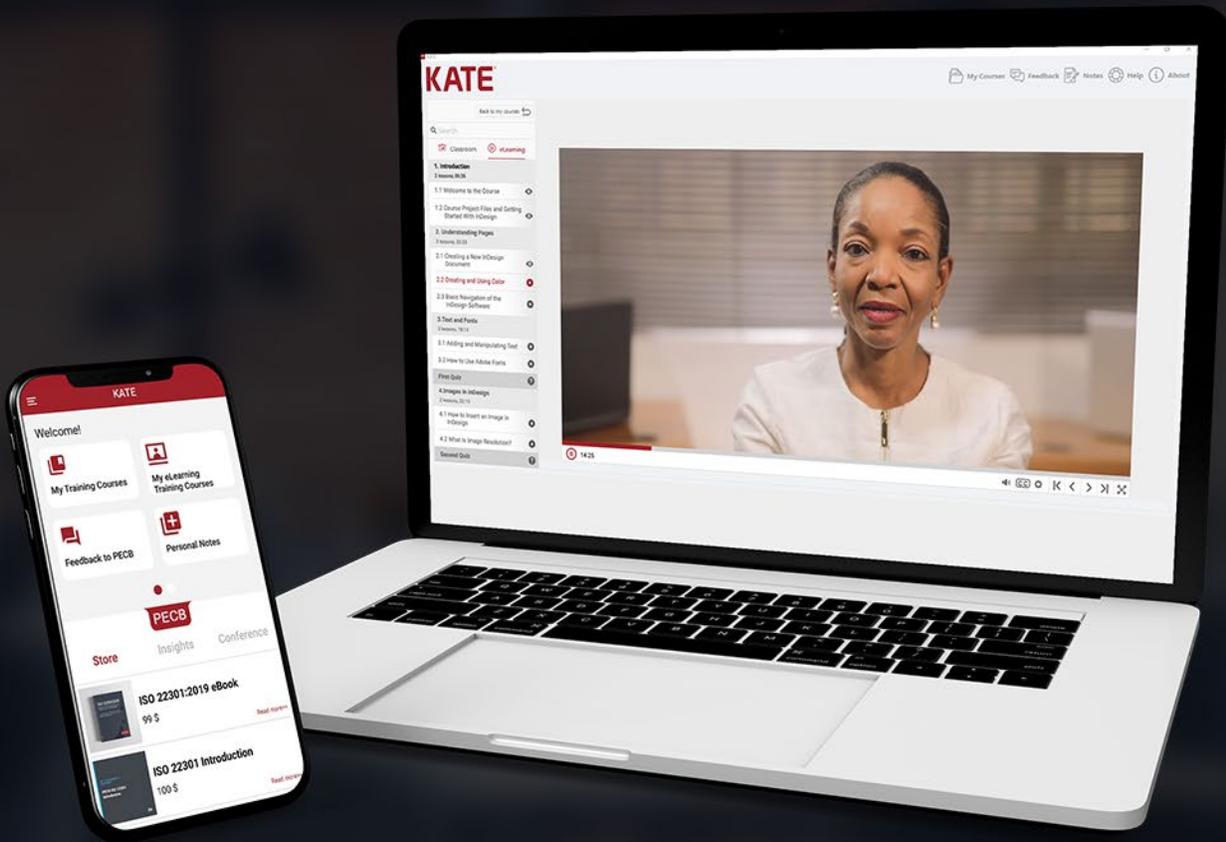
Continual improvement is at the core of our business strategy here at PECB and covers all aspects of our operations. As such, on May 31, 2021 we have released a new version of the KATE app! The updates are done in all operating systems.

The main features of the updated version include:

- ✓ Improved performance
- ✓ Better user experience
- ✓ Better navigation
- ✓ PECB eLearning courses supported in mobile version

You can check more details [here](#).

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How to Build a Trusted Digital Ecosystem through Business Continuity in 5 steps

 BY RENATA DAVIDSON

A "trusted digital ecosystem" and "business continuity" are seldom mentioned in one sentence, and quite wrongly so.

Let's start with the definition of the digital ecosystem. Hearing this term, one might think of IT systems, networks, maybe some peripheral devices like scanners or printers in the familiar business environment. But the world keeps changing, and we need to get along and take a broader perspective. Present digital ecosystems include hybrid, industry-specific solutions, and configurations, interlaced with various external services, often cloud-based, such as: wireless technologies, industrial control systems (ICS) and robots, internet of things (IoT), bring-your-own-device (BYOD), corporate-owned personally enabled (COPE), and so on. But, unfortunately, it is not easy to get your head around them and secure them appropriately.

The first obstacle is understanding how to prioritize components of our digital environment. Based on what criteria should that be done? In search of an answer, the business and ICT departments turn to each other, often in vain, or the requirements they receive are too broad, unnecessarily restrictive, or inefficient.

The truth is that setting these priorities right is a significant endeavor. But what could "right priority" mean in this case? By "right priority," I mean the priority which follows the organization's risk appetite.

Even in the most prominent organizations, there is not enough information on the current risk appetite. Everything concerning risk management, especially operational risk management, is often muddy and vague. In business continuity management (BCM), we tend to identify precisely the scope of risk management and acceptable risk level. Since the BCM System (BCMS) is all about preparing an appropriate reaction to risk, it can also help as a reference point for managing operational risk in other areas. Here is a proposition on defining the credible risk acceptance criteria and building a trustworthy ICT environment.

Set the scope

Organizations – commercial or non-profit – exist to provide products or services to the external world. The mission-critical activity is usually managed by one or many formalized management standards. Many of these standards require correct identification of the context of an organization – e.g., ISO/IEC 27001 and ISO 22301. In BCM, the context of an organization identifies all legal and contractual obligations (and even informal promises) made towards the external parties, based on which they expect our availability at a certain level. This exercise can and should also be used to identify information security requirements – confidentiality, integrity, and in case you operate under the NIS Directive in the EU, authenticity. Business continuity requirements, of course, refer to availability.

When we have identified all the BCM requirements, it's time to map out internal processes which meet expectations. These are our key processes. As the next step, we may use the organization's context to build a map of interdependencies between business processes and the assets supporting them.

This first step in BCM is often overlooked or conducted on a high level of generality by describing some obvious facts – who we are, what we do, who our customers are, and so on. However, it's worth putting more effort into this. A detailed

context of an organization provides a root reference point for risk assessment and adequate further development of an ICT infrastructure – knowing what kind of requirements we have to fulfill.

Potential impact

The most crucial step in building a digital ecosystem, which will be appropriate for your organization, is assessing the potential impact (financial and non-financial) of not fulfilling previously identified external obligations. Based on objective data derived from financial documents, legal regulations, and contractual clauses, business impact analysis (BIA) helps us understand our "level of pain" and why and when certain things need to happen to avoid negative consequences. Only based on this assessment, we can define and justify our internal business continuity requirements for each key process:

- maximum tolerable period of disruption
- a minimum level of recovery
- maximum period of time after which the process needs to return to normal.

In BCM, we usually focus on these processes, bringing the highest negative impact within the shortest time. However, there is no reason why we shouldn't use requirements for all the processes covered by the BIA.

At this point, we know and understand our priorities and are ready to identify assets, including components of the digital environment, necessary to keep those critical processes running at the predefined, minimal level. These are our critical assets.

MITRE® Crown Jewels Analysis (CJE) methodology can be a great help in this task.

It is a common practice to define priorities for the ICT components based on the employees' experience or even on the cost of the solutions, where the more expensive the component, the higher its criticality. It may be a helpful approach for calculating the value of an insurance policy. Still, it's not a good indicator of the operational priority of this particular ICT system or service because we lose the relation to the business function.

Risk assessment & treatment

I observe a similar practice when it comes to ICT risk analysis. Companies use methodologies that base the risk assessment solely on expert judgment. It is a valuable source of information in risk management; however, when

we need to decide on costly investments in the new security controls, we need something more specific.

A trustworthy risk analysis is based not on the educated guesses, but on the measurable criteria built on data on the potential impact of business interruption (or information security breach if we include this aspect in our assessment). In such an approach, the probability is of little importance. Instead, what counts the most is the potential impact of a particular threat.

Risk assessment lets us identify all the gaps between business requirements for ICT availability and its actual capabilities. Business process owners and ICT operations then jointly decide on the risk treatment plan: either filling the gaps in security measures, or accepting the risk of inevitable business interruptions. There is no third way. Thanks to the BIA results, those decisions will be indeed "well informed," and both parties better understand each other's perspectives and develop mutual trust.

Implementing some of the risk treatment plans can take months or even years, in case there is a need to change our ICT architecture completely. However, we shouldn't get disheartened by that. It is advisable to keep in mind that in BCM and information security management, it is the journey that matters, not the destination. Due to the dynamic changes in ICT environments, we may never attain our goal of uninterrupted, undisturbed secure operation, but we should keep on trying, steadily reducing the distance between us and the "bad actors" or simple bad luck.

Response

BCM Strategy, which is the next milestone, defines what we need to do, why, when and where to focus on first, what needs to be available, what can be omitted, and who is needed. The BCM Strategy comprises top-management directives on how to proceed in the worst-case scenario. The BCM requirements, defined during business impact analysis, tell us why we should do it.



BCM Strategy defines our 5 Ws (what, who, when, where, and why). From the ICT point of view, it forces us to take a close look at where the critical assets come from, how we ensure their availability, within what timeframes, and in particular, what our recovery options are: external service providers, the backup, and/or alternative solutions.

It's one of those steps in building organizational BCM, where we find additional vulnerabilities: SLAs (service-level agreements) which are not in line with the risk appetite, unique and hard to replace service providers, backup or alternative options which require changing operational procedures, the list goes on.

Business Continuity Plan and ICT Readiness Plan answer this question: "How do we implement BCM Strategy and the top-management directives it contains?"

There is a significant added value for ICT operations in developing contingency procedures collectively during workshops. When representatives from different ICT departments work together, they can reveal several vulnerabilities, gaps, and missing links, which they could otherwise overlook. Furthermore, such an approach ensures that we haven't excluded any uncomfortable fact from our analysis or haven't made any unfounded, optimistic assumptions.

A tiny hint from my practice: business departments should write their procedures after the ICT teams. If we develop the contingency procedures in such an order, the business knows in detail what they can count on during a crisis.

Verification

Testing BCM procedures and solutions is the best tool for the verification of organizational resilience. Well-designed and prepared tests and exercises reveal the actual state of affairs, the real problems, and the threat to our digital environment. But, the organization needs to understand that tests on which we can rely are time-consuming, and the more complicated the ICT environment, the more thought and effort we need to put into it. Still, tests are an integral part of the process of building trustworthy BCMS and ICT services.

I can't recall tests, no matter their type, which haven't improved ICT and organizational resilience. Testing and exercising of Business Continuity or ICT Readiness Plan successfully replace traditional training of employees and is also an effective tool for verifying the readiness of external providers. Without the tests and exercises, our contingency plans shrink to a declaration of goodwill.

Conclusion

To truly build trust into your operations, including the digital ecosystem supporting them, your organization needs a proactive audit and risk management role. Their aim should always be to support the continual improvement of business continuity efforts, to indicate gaps, non-conformities, and recommend corrective actions to remove them. Unfortunately, sometimes auditors try (often in good faith) to cheer the organization by praising the efforts and turning a blind eye to the shortcomings and vulnerabilities, causing a severe disservice to everyone involved and undermining faith in the organization's resilience.

By following the steps above, the Business Continuity Management System (BCMS) can become a strategic tool for a watchful oversight of vital processes, and since all activities depend on ICT technology, it's also helpful in managing the digital ecosystem and improving its trustworthiness.



Renata Davidson

PECB ISO 22301 Master
 PECB ISO 22301 Lead Auditor
 PECB ISO 22301 Senior Lead Implementer
 PECB ISO 28000 Lead Implementer
 PECB ISO/IEC 27032 Provisional
 Cybersecurity Manager

Renata Davidson has worked in business continuity management since 1998. She is the first professional in Central and Eastern Europe to be certified by Disaster Recovery Institute International. During her career, Renata has led numerous projects for various European companies and has served the Polish government as an expert advisor.

She is the founder and CEO of Davidson Consulting & Partners LLC, a partnership of experts specializing in business continuity, operational risk management, and process management. She is also a published author of many articles and books on BCM and risk management. She has experience in professional education as a college lecturer and has conducted many BCM training sessions, workshops, and business continuity plan exercises. She holds several PECB certifications.



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Using education to close the skills gap created by digital transformation

 BY LUNDRIM SADIKU, PECB



Digital transformation is often defined as the incorporation of modern technology into the daily operations of an organization, which gives rise to fundamental changes in how organizations function. These changes include how organizations manage their processes and organizational functions, how the production or manufacturing lines are designed, how services are provided, or even changes in their business models.

In addition to changes of work “tools,” digital transformation implies a need to change the overall attitude towards modern technology. For instance, many people may fear that technology will take over their jobs. While that fear should not be invalidated – in fact, employers who want to showcase good leadership should empower and reassure their employees – it is also something that should be addressed.

One potential cause of that fear may be the fact digital transformation widens the skills gap, according to several publications.

Since the skills gap is a major problem, listed as one of the top hurdles in the way to successful digital transformation, with 64% of respondents in [one study](#) saying that they lacked the necessary human resources to support DT, there is a need that the education sector can satisfy.

How can organizations use education and focus their learning and development (L&D) efforts to bring about a change in employees’ skills and thus close the skills gap?

DIGITAL TRANSFORMATION THROUGH EDUCATION

Education and training should be one of the first avenues to explore when you need to close skills gaps in your organization. The benefits of investing in the workplace training are many, and that could be why the budget for training per employee has seen a steady increase over the last decade, according to a [report by Statista](#).

For educational institutions or organizations willing to invest in employee training, there are some factors to consider. Let’s focus on them individually.

1. Identify the skill deficiencies and plan ahead with an end-goal in mind

When designing training programs, it is best to know the context of your organization, and list all the areas in which there are knowledge or skills deficiencies. Using needs assessment models or gap analyses to see the current state clearly and the desired level is one way to start.



Planning is necessary because the most effective workplace training programs should be treated as projects with an end goal in mind. It is customary, therefore, to think about important milestones, review stages, update stages, and the like.

2. List resources already available to you

While you are conducting a gap analysis, it would be useful to identify all the resources that are already at your disposal. This would include existing onboarding programs, training schemas, cooperation with local training providers, and so on. Identification of deficiencies, that was the first step, and the existing resources will let you know what training sources to keep and what to let go, if they are not fulfilling your organization's needs.

3. Create new training programs or upgrade existing ones

In line with what I wrote above, upgrading existing training programs as necessary is a must for a successful workplace training program. At this point, it is worth paying attention to what is known as “blended learning.” This approach to training and education, as the name suggests, is a blend between formal and explicit instructions, and the so-called learning by doing, where the learners are given agency to determine the course of their own learning.

Blended learning benefits greatly from technological improvements, with eLearning courses being available to an unprecedented number of people. And that leads us to the next step.

4. Consider the growing potential of eLearning

I have written several articles explaining the growing need for online educational content, especially in highly specialized areas, in which it would be difficult to find training in many countries.

Two of the greatest benefits of remote-learning platforms are that, first, learning is continuous, meaning that as technology develops, so do online training courses, thus learners are given updated information in the majority of cases. Second, online training courses allow for the

so-called “self-paced” learning. Knowing the pressure many employees may be under, adding training onto that would backfire. Instead, allowing them to take their time and set their own training schedule seems like a much more productive approach.

5. Seek personalized solutions

If you need training in how to implement management systems in line with ISO standards, for instance, look for training providers that meet your needs and requirements. While learning about a certain topic, business continuity for instance, in a general sense is useful, it is still not the same as taking a course on business continuity specifically tailored according to ISO 22301.

6. Structure your internship programs

Learning by doing is proven to be one of the most effective ways of acquiring new skills. Therefore, your hiring strategy of new interns need to be a well thought out process. In other words, do try to focus the potential of your interns in those departments that are lacking in human resources.

Additionally, hiring from overlooked talent pools, such as formerly incarcerated people, immigrants, people with no university degrees, and so on, can bring great benefits to those people, the organization itself, and the society as a whole.

KEY TAKEAWAYS

Lack of talent or competent personnel is one of the most cited high-probability, high-cost risks in organizations around the globe, according to a report by [Gartner](#). The inevitable trend of digital transformation is only making this issue more pressing. Therefore, closing skills gaps through training and education should become part of every organization's long-term strategy.

There are some aspects to consider, however, such as: planning, identifying available resources, creating new training programs, considering new training methods, seeking personalized solutions, and re-thinking your organization's internship and/or employment strategy.

ISO 37301 COMPLIANCE MANAGEMENT SYSTEM

In May, we have announced that the ISO 37301:2021 (Compliance Management System) Introduction, Foundation, Lead Implementer, and Lead Auditor training courses are now available.

ISO 37301:2021 is built upon its predecessor, ISO 19600:2014. Hence, following the publication of the ISO 37301:2021 standard, ISO 19600:2014 has been formally withdrawn.



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HOW TO MAKE THE MOST OF

BARCELONA



MOST OF A LAYOVER IN

BARCELONA



PECB advises you to avoid traveling nowadays due to the ongoing COVID-19 outbreak. However, make sure you add this incredible destination on your travel bucket list.





Sightsee

You're in a new city, why not take the opportunity to do some sightseeing! With a mix of modern and classic architecture, and a kaleidoscopic cultural scene, there are plenty of things to see and do in Barcelona, even if you only have a day.

One of Barcelona's biggest attractions is the Sagrada Família. Designed by Antoni Gaudí, this is one of the most famous churches in Spain, an unfinished masterpiece which began construction in 1882 and is scheduled to finish in 2026. Book tickets in advance if you want to tour inside.

Gaze at more of Gaudi's amazing architecture as you make your way along Passeig de Gràcia. Don't miss the Casa Batlló with its "tiny mosaic tiles and mask-shaped balconies and topped with a shimmering roof of lizard-like scales".

And while it's a little out of the way, consider visiting Park Güell; a great public park where you can enjoy a green space surrounded by modernist art. The highest point in the park offers wonderful panoramic views over Barcelona. Like Sagrada Família, you should book your tickets in advance.

Dine

Barcelona is one of the world's best food destinations, and while you can bounce from one Michelin star restaurant to the next, you don't have to seek out fine dining to eat world-class food.

You can find Catalan cuisine in casual settings all over the city at very competitive prices. Tapas bars from Michelin-starred chefs are popping up left, right and center, and beach-side shacks and street food stands are serving some of the best bites in town.

A local favorite for coffee and cake and is Café d'El'Opera, a café in the middle of La Rambla with a history dating back to the 18th century. The hectic La Boquería market is another local favorite, where you can find fresh fruit, fish, vegetables and other local foods.

Keep in mind that in Spain they eat late. While lunch in most countries is usually around 12 noon you might not find a place open to eat before 2 pm here. And likewise in the evenings, Spaniards tend to take dinner later at the night, mostly after 9 pm.





Spa

If traveling has truly taken its toll, why not spend time relaxing at a spa? While you can pamper yourself at a spa in the airport itself at Terminal 1, Barcelona has many relaxing spas, and there are several wellness centers tucked away in hidden alleyways or inside stunning hotels.

One of our favorites is 43 The Spa. Located on the 43rd floor of the iconic Hotel Arts, with spectacular panoramic views of the beach from the treatment rooms, this spa has a solid reputation as one of the leading spas in Europe.

The spa offers treatments from the prestigious luxury skincare brand Natura Bisse, a favorite of many beauticians around the world, as well as massages, and a water circuit which includes a hydro massage pool, saunas, steam rooms, and ice fountains.

Beach

Tired from your long haul trip, and just want to chill out on the beach? You're in luck! Barcelona's beaches stretch for a massive 4.5km and offer an array of free activities.

From basking in the Spanish sunshine to mixing with the locals over a game of beach volleyball, you'll never be short of things to do at the beach. You could even bring along a picnic and save money on dining out if you want to.

If you're taking this route, make sure you've packed appropriate beach gear (like a towel, suntan lotion, etc.) in your carry-on.

Shop

Be mindful not to blow your whole travel budget before you reach your main destination, but Barcelona is a fabulous city for shopping and the most important market in Spain.

Women's fashion is particularly well represented in Barcelona, and all major international brands have stores here. Popular Spanish brands you should keep an eye out for include Mango, Zara, Massimo Dutti, Custo, Desigual, and Adolfo Domínguez.

The pedestrian friendly Passeig de Gràcia is the most famous shopping street in central Barcelona, and this is the perfect location to mix your shopping with sightseeing, or taking a break for some coffee or tapas at a local cafe. Most shops are open from 10 am to 8:30 pm, and you shouldn't be surprised if they close between 2 pm and 4.30 pm for siesta.





If you're hoping to catch a sale, winter sales generally start around the second week in January and last until the end of February. Summer sales usually run from July 1 to the end of August.

Sleep

If you find yourself with an overnight layover, or you're jetlagged and just want to nap, you can either sleep at the airport (a facility called Premium Traveller is available at Terminal 1), or organize transfers to take you to a hotel.

Barcelona has a huge range of hotels for every budget, though if you're looking to make the most of your time we recommend a hotel located on or near the iconic La Rambla, which will allow you to take in some quick sightseeing before heading back to the airport.

Our favorite hotel is the four-star boutique Casa Camper Hotel Barcelona. If you're looking for a budget alternative, we recommend Hotel Curious. Located with spitting distance of La Rambla and Plaça de Catalunya, Hotel Curious offers a five-star location for a fraction of the cost of neighboring hotels.

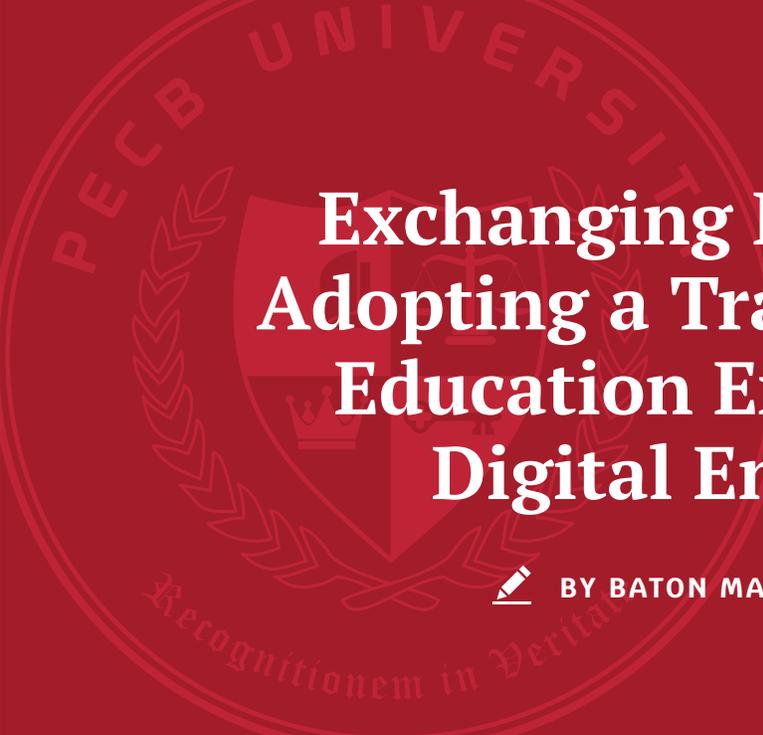
Party

Want to make the most of your Barcelona layover? If you're in the mood for a party, Barcelona is renowned for its thriving nightlife, and you have a huge range of options from cocktail bars, nightclubs, cafes, and hotel bars.

For the best clubbing in Barcelona, Sala Apolo has become the number one club space for indie Barcelona, and concert hall for label-free gigs. Razzmatazz, Moog, and Luz de Gas are other popular nightclubs.

If you're in the mood for a calmer scene, visit one of the jazz clubs at Placa Reial, or check if there is a concert on at Palau de la Música Catalana. Head to Las Ramblas and the Gothic Quarter if you're looking to find the heart of Barcelona's nightlife or El Born for a slightly more sophisticated scene.

The Catalan government is still applying measures and restrictions to limit the spread of the COVID-19 in Barcelona. Read [here](#) about the restrictions and recommendations in force until July, 5.

The logo of PECB University is a circular emblem with a red background. It features a central shield with a crown on top, flanked by two figures. The text "PECB UNIVERSITY" is written in a circular path around the top, and "Recognitionem in Veritate" is written around the bottom. The entire logo is overlaid on a dark red background.

Exchanging Bricks for Bits: Adopting a Traditional Higher Education Experience in a Digital Environment



BY BATON MATI, PECB UNIVERSITY



Looking back at the early days of modern higher education, the concept of establishing universities was a long process. The likes of Bologna University may have started in 1088, but it took up to 100 years for the oldest continuously-functioning university in the world to develop sufficient programmatic formalization and instructional [capacities to justify its chartered designation in the first place](#).

Then, it took another 50 years for the first woman in history to [obtain a university degree](#) there, and consequently the first woman to become a university professor. The march of “firsts” is nothing new for the academic world, yet unlike startling discoveries and improvements in the quality of life they have gifted to humanity, it now faces one of the most interesting and revolutionary challenges yet: the digital transformation.

While this process has received traction in the recent decades, the human society – in a perfect analogy with a living organism – when placed under the systematic exposure to information technology over several decades, and the COVID-19 pandemic, is poised to revolutionize and adapt to a new era of its manifestation: the digital identity and the distance-operating society.

For all its challenges, this revolution has its merits as well: at no point in history has education been more universally available to people. Few cultural, political, or economic barriers now stand in the way of people seeking information and knowledge, though a careful tone should be set when it comes to information truthfulness and reliability.

However, it is an undeniable fact that as people depend more and more on technology and the internet as sources of information, higher education institutions need to see beyond traditionalism and not just follow the digitalization trend, but pioneer it, because it is their prerogative to set a standard that all other sectors ought to follow.

True to the academic spirit, there may very well be a path that higher education institutions can follow in their pursuit of digitalization. It includes them beginning by transforming their organizational culture; shifting the focus towards individualized student experience; acquiring all technological tools to ensure a seamless transition; providing institution-wide training and development sessions for all employees; becoming a true learning organization; and developing a sustainable digitalization strategy. Let’s take a closer look at each of these steps.



- **Cultural Transformation**

Embrace digitalization and innovation as a cultural value

- **Student-centrism**

Shift the institution-centric focus towards enhancing students' experience

- **Technology appropriation**

Ensure interface intuitiveness and simplicity for everyone

- **Workforce adaptation**

Ensure everyone is onboard and familiar with the changes

- **Be a Learning Organization**

Remain responsive and attentive to evolving trends

- **Digitalization strategy**

Ensure sustainability by developing guidelines and procedures to keep this process up to date



Cultural transformation

There can never be a true transformation if the organization itself does not believe in it. No matter what type of institution it is, be it one with a long-standing tradition that dates centuries, or new emerging born-digitals, universities need to understand that digital change is inevitable first and foremost, and, by all accounts, a chance to innovate. Unless this urge to embrace digitalization as a change is championed through the organization by its leaders, and rooted in the organization's culture, there is no technology or human capital investment that can make it work.

In most cases, this means breaking with tradition of essentially what a class is and what a professor does, and ultimately how a learning environment is controlled by the institution (side note: there is no possibility to fully control the learning environment in a digitalized world). By understanding the changing role of education in the first place, institutions can aspire to promote an organizational culture where people seek technology as a means to become a better version of themselves, and by doing so, contribute to a more efficient institution.

Student-centrism

After instituting cultural change throughout an organization, it is imperative that institutions understand that their academic offers now compete in a global marketplace. This creates two very important implications: first, there is an opportunity to recruit students with great potential irrespective of physical distance, and second, students have access to an ever increasing roster of (de)centralized study program offers. From either perspective, in order to be able to leverage the digital opportunity, higher education institutions need to shift the batch mentality of standardized study experiences for entire student cohorts. Having the reach of technology at their fingertips, students' commitment to education is no longer a mutually exclusive task: they can simultaneously work, travel, and learn. Thus, institutions need to tailor their digital experience so that each student is exposed to equal treatment no matter their physical presence, and such system does not discriminate when it comes to students' previous experiences. Flexibility is key when planning for digitalizing higher education institutions: students want both flexibility and a sense of belonging.

Technology appropriation

In many people's minds, technological capacities is what digitalization is all about. Without establishing a competent infrastructure, all the efforts an institution puts in digitalization will be nothing but an idea. Alas, technology



alone will not be sufficient for digital transformation – there are innumerable cases when organizations have appropriated state-of-the-art technology, but no one used it – either out of resisting change, fear that technology will replace jobs (more on this in the next step), employee complacency, or lack of an organizational culture to embrace change and technology.

Thus, after having the appropriate culture in place and understanding the changing role of students in the new educational landscape, the integrated student information systems should replicate all academic and administrative venues and services, online. A true system would make it irrelevant for students to visit the campus at all (though they could, if they chose to do so), as they can follow the lectures live, be assigned different tasks and deliver assignments, take exams and get evaluated, as well as hold seminars, office hours and more, all from the comfort of their homes.

It should be noted though, that as distance learning is becoming the norm rather than the exception, there is an ever evolving concern about how institutions emulate controls (exam supervision, class attentiveness, student behavior, complaints, etc.), though the technology is improving to make these issues obsolete (PECB Exams platform, for instance).



Workforce adaptation

As discussed, having the technology when no one uses results in an expensive impasse. While transforming the culture is a major first step, employees need to understand the need for digital study experience, how their roles will be adjusted and adopted in the new face of the institution, and most importantly, attain comprehensive training to develop the skills to handle themselves. In this aspect, awareness is key: when people know where they belong, they understand that the technology is there to make everyone's lives easier rather than threaten them with loss of jobs.

Be a learning organization

No institution better emphasizes the importance of lifelong learning than the (higher) education ones. While all the previous steps prepare an institution to successfully transform to a digital environment, higher education institutions should stay ahead of (or even lead) future trends in order to stay relevant. Technology and innovation are never a final destination, so institutions should always stay alert to adopt new trends, develop new methods, and adjust their offerings for the needs of the labor market on a dynamic basis.

Digitalization strategy

This step is all about ensuring sustainability. Transforming one of the most traditional industries in the world requires a lot of effort and identity redefinition for institutions. The digital transformation should not be only a tool for survival, but rather a synergy for improvement. In this spirit, organizations should define policies and guidelines that steer the institution and its employees to carefully plan for future change, identify areas for improvement, and ultimately champion its implementation and development.

This roadmap is not a one-size-fits-all formula, as higher education institutions worldwide have radical differences in terms of what study programs they offer (more difficult for programs of clinical nature, laboratory-based ones, or trades in general), their current digital infrastructure, support (or lack thereof) of their respective accreditation/licensure bodies in this regard, or overall student body literacy and keenness to adjust to a digitalized study environment. These variables may affect the timeline when this transformation would be successfully implemented, but as we have established so far, this effort is the only way forward if higher education institutions seek to remain relevant in a world that is changing as you are reading this article.

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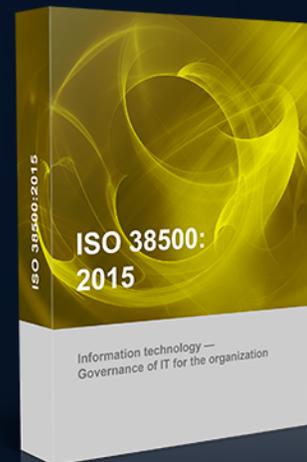
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