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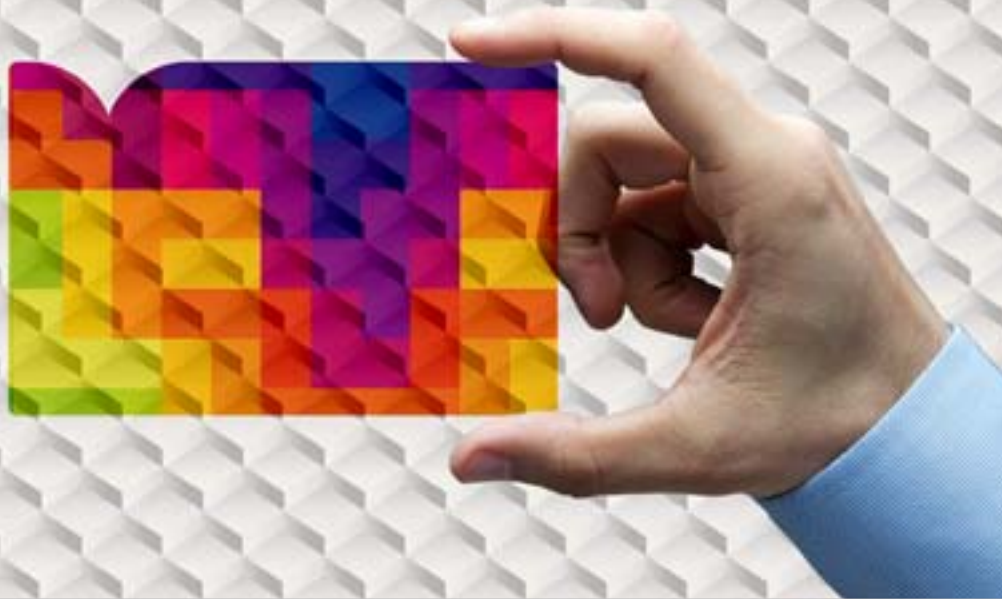
TechnoVision 2016

Technology Building Blocks for Digital Transformation



People matter, results count.

Lanny's Foreword for 2016

Lanny S. Cohen

Group Chief Technology Officer,
Capgemini

As we consider the continued and rapid pace of business technology disruption and innovation across global markets in 2016, we have fewer and fewer points of stability, predictability, or maturity upon which to frame — let alone address — the opportunities and challenges presented to our businesses. More the rule than the exception, the way we think about business technology introductions and impacts — and the way we respond to them — requires a regular and fundamental rearchitecting and repositioning to accommodate the new.

Foreword

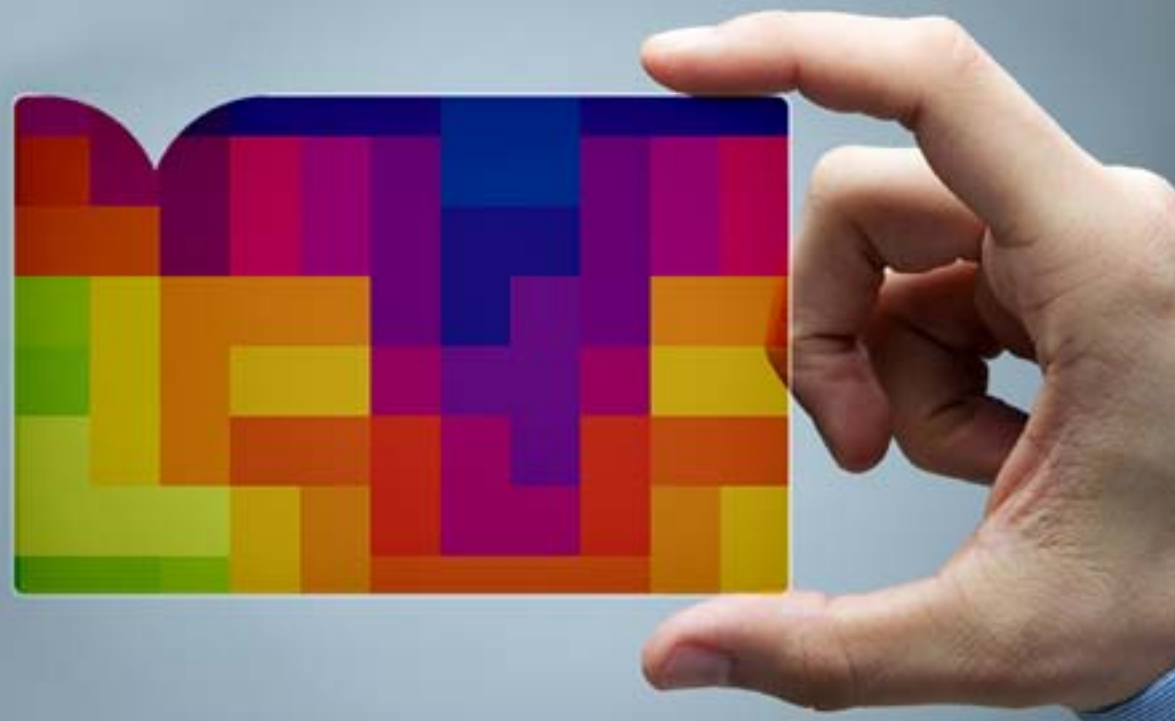
TechnoVision, I'm pleased to represent, is one such exception. Designed and developed with a keen appreciation for the fundamentals and core domains of today's business technology landscape, we've seen this body of intellectual capital and actionable references align and respond well to the continued pace of emerging technologies, and the business disruptions and innovations they enable. The TechnoVision seven-element framework and its building blocks — led by the Design for Digital principles — have been applied successfully and continually to industry segments, a diversity of enterprises, and countless process domains and technology environments. Hence, TechnoVision is proven in the massive and continuously disruptive markets we face.

Move ahead boldly and quickly in your technology journey with TechnoVision 2016. You have the benefit of proven intellectual capital aligned to the business technology challenges and opportunities that enterprises face today. Its value remains in its insights, flexible application, maturity, and diverse audience engagement. It's fun to read and an infinite source of inspiration for dialog. We believe by focusing on and framing the most important questions and responses to becoming a Digital Enterprise, TechnoVision 2016 is a crucial asset for business technology leadership and strategies.

Enjoy and we remain eager for your feedback.

> "TechnoVision 2016 is a crucial asset for business technology leadership and strategies."

Introduction



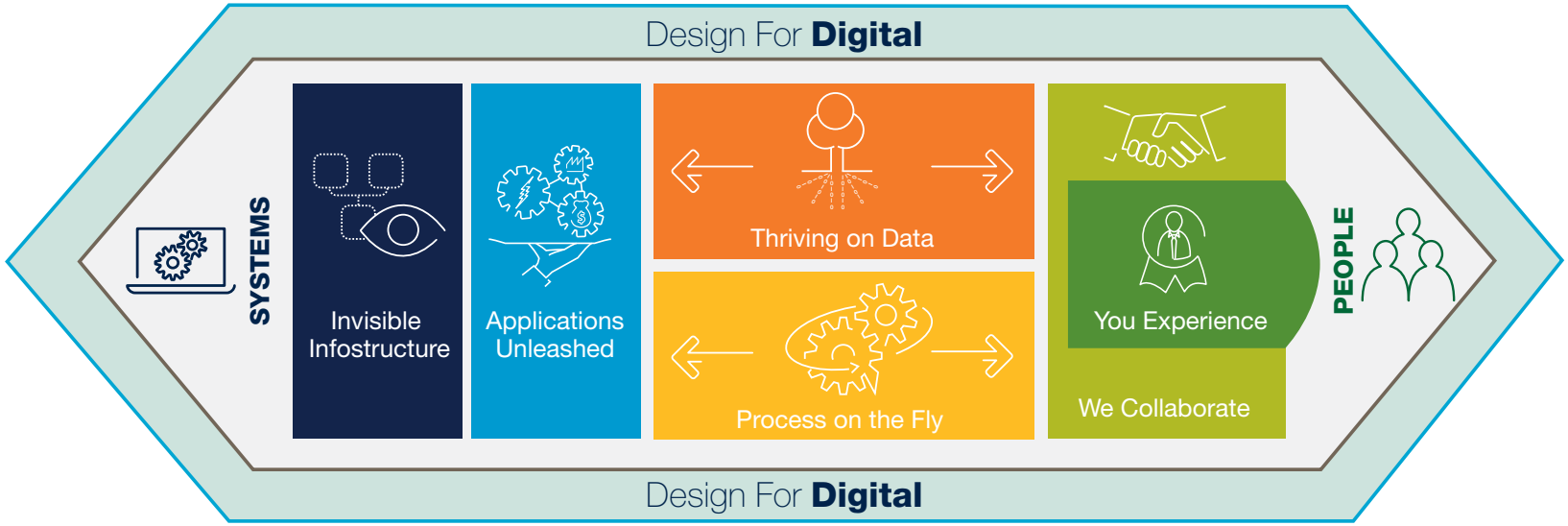
Introduction

If you want to think outside the box, you need one.

Well, as a matter of fact, with TechnoVision 2016 we have 37 of them. More than three dozen different perspectives on the way technology can radically improve – or even completely change – the business of an organization. The perspectives both describe the *what* and the *how* of technology-driven innovation and they are designed as a natural complement to our concepts of Digital Transformation.

Actually, we have taken the notion of boxes quite literally, as we have been applying our concept of the TechnoVision Theater throughout the year for educating people, aligning business and IT sides, creative brainstorming and kicking off Business IT strategy activities. It has shown us how important the art of *storytelling* has become in Digital Transformation and how effective gamification can be. We have applied Technovision in this way to literally build innovation 'totem poles', illustrating an innovative day in the life of a customer or employee, a breakthrough digital moment or even the very soul behind a newly evolving IT strategy.

But first and foremost, TechnoVision is a repository of – hopefully – inspiring ideas. You may be looking for very specific topics ("What's hot in Big Data?", "What is the direction of mobile applications?", "How does cloud drive the transformation of the data center?", "Is there a system behind disruptive



innovation?". Equally so, many people have found that TechnoVision is a catalyst for serendipity: they just navigate through its content, looking for fresh ideas and unexpected viewpoints. More than 40 of Capgemini's best experts have contributed to this 2016 update, voicing the accumulated knowledge and insights of 180.000 Business IT professionals across the world.

As you may recall from earlier TechnoVision versions, we categorize technologies with business change potential in six clusters (the 'what'). Two of them cover the foundational building blocks of a typical IT landscape (Invisible Infostructure for infrastructure and Applications Unleashed for core applications). Two of them cover crucial IT capabilities to deal with high-speed, high-impact digital change (Thriving on Data for leveraging data and Process on the Fly to manage processes). The final two cover channels to the outside, connected world (You Experience for creating compelling, individualized user experiences and We Collaborate to tap into the power of social).

Also, there is a crucial cluster of overarching design principles (the 'how') that should be applied throughout the lifecycle of applying technology to Digital Transformation: Design for Digital.

Introduction

For 2016, we have a first-timer with our decision to stick to the 37 trend blocks that we have identified for 2015. We feel that they are — without an exception — completely relevant to describe the technology trends for 2016. Then again, although you will see the same players, the stories will turn out to be quite different: there are new cases, new links, new perspectives, new trends. Our contributors have gone to great lengths to update each and every building block with the very latest insights. It hopefully makes TechnoVision on one hand a familiar friend but also an exciting, surprising new one, with quite a few fresh anecdotes.

In addition to the building block descriptions, we pay some attention to how to put TechnoVision to work, particularly in the context of Digital Storytelling.

Introduction

Here are the 2016 building blocks:

Design For Digital. Contemporary design principles that should be applied to all business technology challenges within Digital Transformation.

1. Digitally Intense
2. What's Your Story?
3. Business Mon Amour
4. Bon Risk Appétit
5. From Train To Scooter
6. Platform No. 3
7. Hack My Business Model

Invisible Infostructure. Infrastructure that evolves into an invisible, but extremely information-rich and powerful platform for business.

1. Virtual Lego
2. Let's Get Physical
3. Build, Release, Run, Repeat
4. Orchestrate For Simple
5. What Would Amazon Do?

Applications Unleashed. Radically rationalizing the core applications landscape while benefiting from an abundance of next-generation, Cloud-based solutions.

1. All In A Catalog
2. Reborn In The Cloud
3. Elastic Business
4. API Economy
5. No App Apps

Thriving On Data. Providing real business value through actionable insights, distilled from an abundance of data.

1. My Data Is Bigger Than Yours
2. Real Real Time
3. Now You See Me
4. Data Apart Together
5. Cognito Ergo Sum

Process on the Fly. Creating and managing flexible, responsive processes that are in sync with the growth of business.

1. Shades Of Process
2. Process Is The New App
3. Co-Process
4. Silo Busters
5. No Process

You Experience. Delivering the power of connection in order to do better, different and more business.

1. No Keyboard
2. Object Of Desire
3. Get A Life
4. End User, End Producer
5. Digital Self

Introduction

We Collaborate. Delivering the power of connection in order to do better, different and more business

1. Social Is The New Oil
2. Egosystem
3. Social Workers
4. No Work
5. Friend That Machine

As said, each of TechnoVision's 37 building blocks features the invaluable contributions of dozens of Capgemini's leading technology experts. We've included their profiles at every building block for your reference. Don't hesitate to contact them for further information or discussion; they expect you to do so.

Think you can improve our perspectives? By all means share your builds with us; we like to keep TechnoVision fresh and relevant.

Happy exploring!

Ron Tolido
Senior Vice President / Global CTO,
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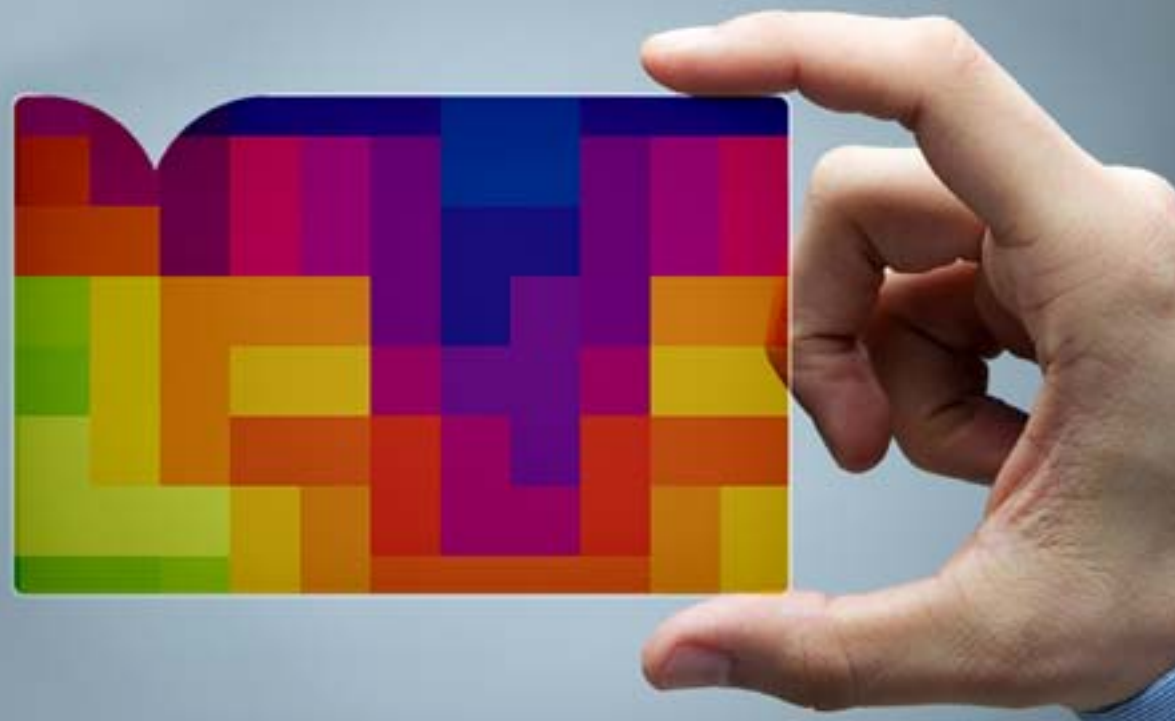
Digital Transformation and TechnoVision 2016



Digital Transformation and **TechnoVision** 2016

Your expert
Pierre Hessler

To understand the relationships between business and information technologies, since its inception in 2007, TechnoVision always looked at business drivers first and at the technology building blocks needed to implement them, second. Starting with the 2015 edition, and continuing with TechnoVision 2016, we look at technology first and business second.

Why this kind of Copernican revolution? In the recent years, many of the drastic changes that TechnoVision helped understand and anticipate, have indeed happened. The most important of these changes is that people are now technologically fit — in their private, public, and professional lives. As a result, businesses have to be as fit, or run the risk of irrelevance in the eyes of customers, clients, partners, and employees. From the start, businesses and organizations have to factor technology into their thinking, strategies, and drivers. Without this integration of technology from the outset, businesses would craft useless, powerless designs and plans — dead on arrival, unfit for the digital world.

This is also why Chief Information Officers — offering technology services to implement business plans — are becoming Chief Digital Officers (or getting one as a peer). They bring technology thinking, and then services, to help craft and implement digital business change. This is also why these same CIOs, as they are at the center of Digital Transformation, need to make their own organizations digital — Digital IT — because IT organizations are not born digital!

This revolution is making classical business transformation, where technology is just one of the implementation streams, obsolete.

A New Type of Transformation

Ahead of anybody else, Capgemini Consulting anticipated this consequence and created, four years back, the concept of **Digital Transformation.** It then engaged in an ambitious research program with MIT, the lessons of which are summarized in the Harvard Business Press book **Leading Digital,** published in the fall of 2014.

While the research with MIT continues, it has already shown that Digital Transformation differs from classical transformation in three essential ways:

1. Information and communication technologies are a compelling *reason* to transform the enterprise
2. These same technologies are the dominant *drivers* of transformation
3. The "to be" of transformation is the *Digital Enterprise*

Under the pressure from customers, clients, partners, and employees, many enterprises are racing to become digital. The ones doing it well — coupling transformation mastery and digital mastery — are gaining substantial competitive advantage, translating into faster growth and greater profitability.

Much of the focus is now on customer experience, where the objective is to offer customers, independent of the channel used, a consistently engaging acquisition and service story. The employee experience has to follow, to match customers' raised expectations. Demand-driven supply chains are developed to precisely deliver the precisely understood wishes of customers and clients. And new business models take advantage of our new ways of working, relating, and living.

Moving at the Speed of Technology Change

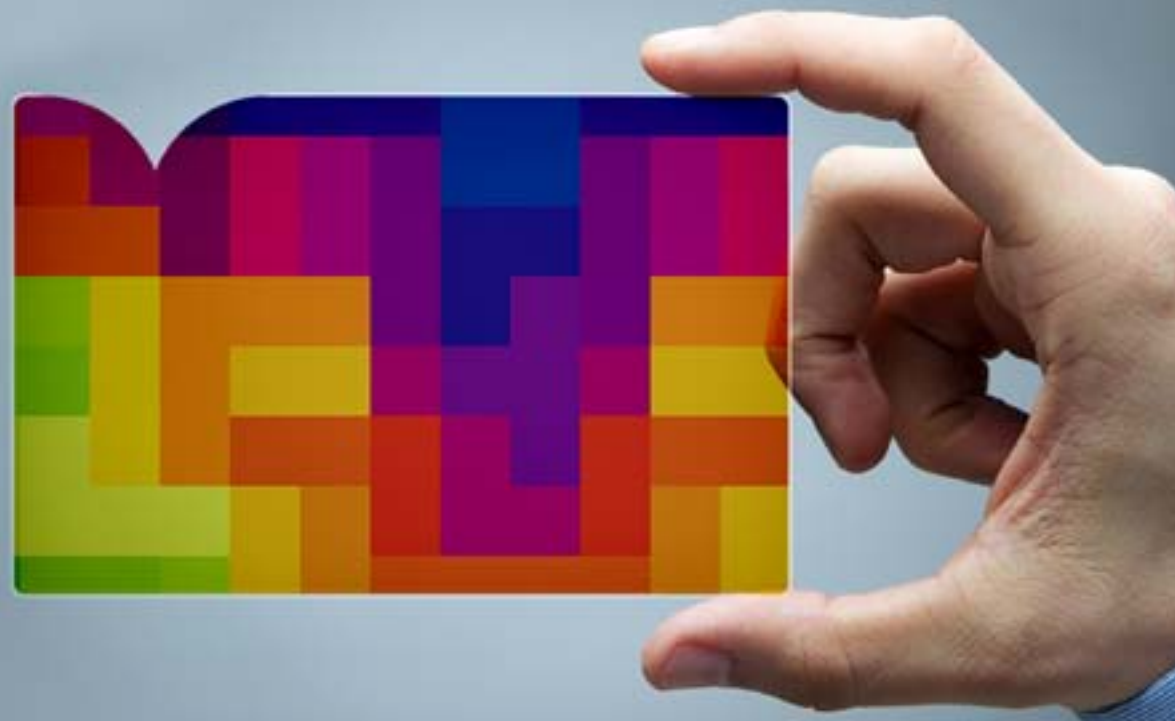
In the past, the "to be" of transformation, the transformed enterprise, had a life expectancy of a few years. Today, the Digital Enterprise is a moving target — moving at the speed of technology change. For example, the Internet of Things is rapidly becoming a reality, and it will trigger a new wave of transformation. Products and services of the enterprise will be its sensors into the world, extending it dramatically and constantly feeding back information on their working, their condition, the mood of their users, and their movements. The enterprise will have to gear itself to respond and react in real time, orders of magnitude faster than today.

Modern technology is so pervasive that nowadays everybody enjoys mobility, reaches into the clouds, behaves socially, and can even spell analytics. But familiarity doesn't mean understanding. TechnoVision 2016's ambition is to promote the understanding of current technologies, and to make it easier to grasp their business potential. It's therefore, conceived as a tool for Digital Transformation, providing:

- *Clarity* with the technology clusters as a stable taxonomy of key technologies
- *Understanding* through design principles and trends
- *Directions,* thanks to building-block descriptions that make business sense

With such an ambition, TechnoVision 2016 is not carved in stone. It will remain a *Work in Constant Progress* — just like Digital Transformation.

Clustering with a Purpose Within TechnoVision 2016

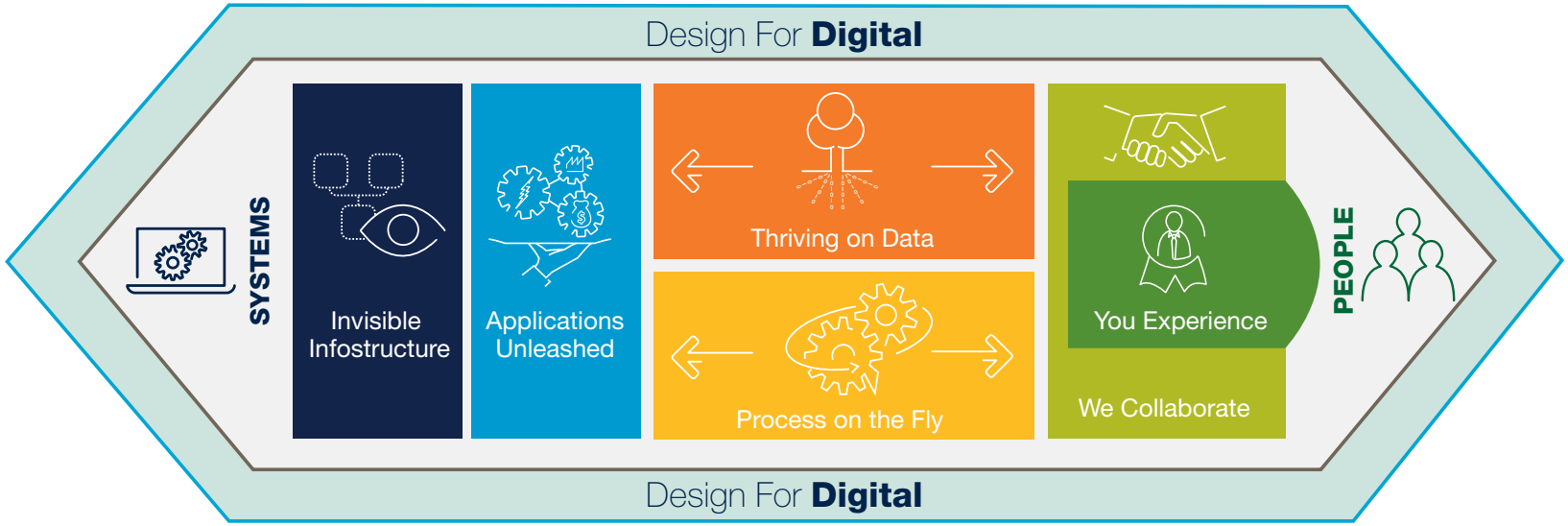


Clustering with a Purpose Within TechnoVision 2016

Your expert
Pierre Hessler

TechnoVision structures technologies into seven clusters. Luckily, perhaps surprisingly, these clusters defined in 2007 have retained their taxonomic and pedagogic value, while the building blocks they're made up of, have been revised seven times, radically in 2014, significantly in 2015, and again updated for TechnoVision 2016.

Clustering with a Purpose Within TechnoVision 2016



The first cluster surrounds all others. It's used to cope with the evolving environment — open, service-oriented, in the Cloud, social — in which modern systems and applications are designed, developed, and operate. Two years ago, we gave it a new name for a new purpose: the ***Design for Digital*** cluster with seven *design principles*. The design principles are not descriptive, they're prescriptive. To be truly digital, the enterprise should *design* its *technology* in accordance with them — Design for Digital Transformation.

Design for Digital is taking center-stage in many of our discussions and applications of TechnoVision. After last year's revamping, we keep updating them based on what we've learned.

The six 'operational' clusters, the ones that help go from design to execution, are grouped in three **tandems**. One can look at them from a **people** perspective — how do we live technology? Or, from a **systems** perspective — how do systems work? Here we'll start from the systems. When discussing TechnoVision with business users, one would of course start from the people and social experience.

First Tandem: The Foundations of the Enterprise

The **first tandem** associates ***Invisible Infostructure*** and ***Applications Unleashed.***

In our personal use of technology, we're happy to ignore *infrastructure.* The *Invisible Infostructure* cluster groups the technologies that will allow enterprises to achieve the same objective: seven or eight years ago a vision, today, with the omnipresence of the Cloud, getting tantalizingly close!

For more than twenty years, ERPs have dominated and shaped the *application* landscape, giving it the structure that these monoliths proposed and imposed. The Cloud frees up the application landscape. Applications are no longer dominated by ERPs and traditional development. They come from all sources, like in catalogs. The whole world is now the enterprise's development organization. In 2015, to reflect this evolution, the earlier Sector-as-a-Service cluster was renamed *Applications Unleashed*.

Second Tandem: Bridging Systems and People

While the first tandem addresses the technologies that are the foundations of the enterprise, the **second tandem** has an entirely different character. It groups those technologies that are needed to bridge the systems and software foundations on one hand, and people experience on the other, into two clusters: ***Thriving on Data*** and ***Process on the Fly.*** Without them, the enterprise could not participate in the modern use of technologies and therefore, could not be digital.

When *Thriving on Data* was born as a cluster, it could have been called Thriving on Big Data. However, the expression had not been crafted yet. And the cluster deals with more than Big Data and delves into data management, analytics, and the real advent of real time. Data is no longer the purview of IT and their systems; it's now used and generated by customers, networks, social media, and increasingly *things.* The Digital Enterprise is as much outside-in as it's inside-out.

The internal workings of a company obey well-defined processes. It used to be a major event called transformation, when these processes were substantially modified. For the company to entertain a different, permanent, and close relationship with its customers, and more generally with the world, such fixed ways of working will not do. The Digital Enterprise needs to react appropriately to customer situations and wishes. The *Process-on-the-Fly* technologies serve this purpose, and help achieve a long-held ambition to make the enterprise adaptive, therefore fit for the digital world.

Third Tandem: The Visible Side of Technologies

With the **third tandem** of clusters, we come to the visible side of technologies, the ones we use every day. And it's by now clear that they can bloom, thanks to the first tandem, the base of all information systems,

and thanks to the second tandem, which provides the bridges between the enterprise foundations and the new world of technology as we live it.

You Experience groups the technologies that give us a different way of working and living. The best of the smart phone apps embody them, with unprecedented levels of function, power and ease-of-use — not to mention fun. Not only do we enjoy them as users, we turn into producers of information and intelligence.

And technologies make it easy for us not to remain alone! Thanks to them, ***We Collaborate,*** and not only achieve new levels of awareness and affiliation, but also of social power, crowd thinking, crowd creating, and crowd producing, which is equally unprecedented.

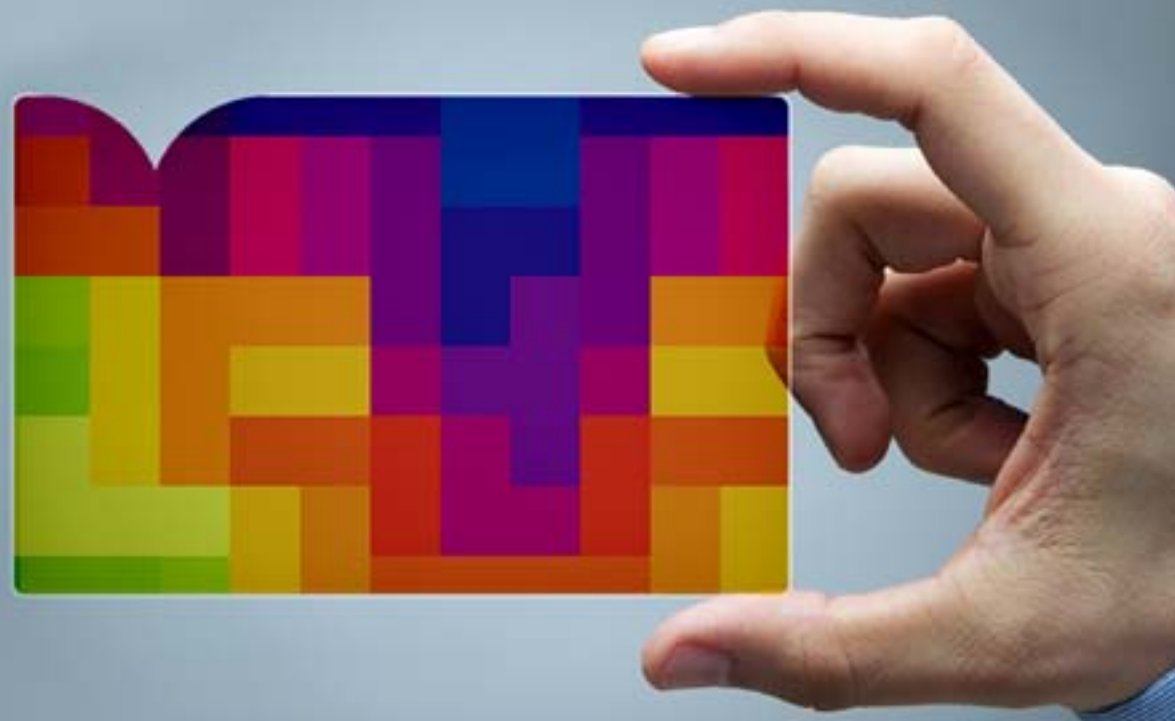
Technology developments come so fast and furious, mushrooming and confusing, that even professional watchers have a hard time keeping pace. To IT professionals, they can be distracting, even paralyzing. To business users, they all too often look individually promising, but collectively dizzying.

This is where TechnoVision 2016 helps. The clusters provide **order** and a form of **stability.** They're easily understood and positioned. And using the method described in the *How To* part of the e-book, one can craft the Digital Story helping to understand the issue, leverage the opportunity, solve the problem at hand.

> "The TechnoVision clusters provide order and a form of stability. They're easily understood and positioned."

The Digital Story:

Putting TechnoVision To Work



The **Digital Story:** Putting TechnoVision To Work

Your expert
Pierre Hessler

There are many ways to use the TechnoVision building blocks, for example to systematically check a project, a portfolio, a vision or an architecture on how up-to-date it is. It also provides input – sometimes entirely relying on coincidence and serendipity – for innovation, disruption and conundrum solving. It can be used as a common language between business and IT: particularly the use of cardboard, physical building blocks in the TechnoVision Theater setup, which has proven to be highly effective in engaging both 'sides' in an animating, inspiring dialogue.

But more than anything else, TechnoVision is a tool to tell your Digital Story. The **Digital Story** shapes an opportunity, answers a question, gives directions, resolves an issue. The relevant clusters, design principles and trends (selected with the tried-and-tested Surgeon's Scalpel approach) are woven with other views and considerations into the Digital Story.

The TV Digital Story is not any story. It is told **with a purpose**: to narrate the solution to a business or technology problem, solution crafted with the help of TechnoVision in combination with other sources and tools.

This purpose explains its three characteristics:

First it is **fractal**: for a story, it means it can be told, using the same logic and red thread, at three levels:

- the cluster level, as some kind of *executive summary* or even an elevator story
- the principles and trends level, as a kind of *enterprise story,* detailed enough to acquire substance and credibility
- the level of the principles and trends content, to create a *detailed, architected solution* description — getting closer to execution.

Second, the Digital Story is **federative**: it unites all interested parties — business and technology; it threads together all sources, currents and thoughts; it sums up the wisdom and experience of all contributing individuals and teams ; it is fun and clever enough to motivate and interest all involved!

Third, the Digital Story is **conclusive**: starting from the question or issue at hand, it gives a comprehensive answer – at the chosen fractal level - looping back to the starting point, thereby providing as a minimum a complete, understandable picture, hopefully a compelling call to arms !

An Example

Let's illustrate the art of telling a Digital Story with an example.

Suppose the question at hand is about **speed**: how can your company accelerate its rhythm – in tune with the *prestissimo* beat of the digital economy? A complex question of course, for which technology, and therefore TechnoVision, delivers much of the answer, but not all of it.

For that story — told here without the specifics of your situation —, we choose a well-proven, narrative trick (which is all too well-known from the TechnoVision building blocks themselves): each step in the story will start with a 'NO'.

The story starts with the *NO PATIENCE* syndrom of digital users and consumers, taken individually or socially — the You Experience and We Collaborate clusters (the green ones, on the right, close to People) giving the main keys to this syndrom. The story goes into details as they seem helpful. For example, the No Keyboard trend shows how the immediacy of visual interactions contributes to the lack of patience…

The Digital Story: Putting TechnoVision To Work

If there is *NO PATIENCE*, there can be *NO DELAY*. The Infostructure is Invisible (the dark blue cluster at the left, close to Systems) only if it provides answers in no time! a precondition for the rest of the story to make sense. And the trends within the cluster give us a choice of levers to accelerate, refining the story.

Going through traditional processes, step-by-step, to interact with customers and clients is a sure way to lose them. The story continues with *NO STEP-BY-STEP*, as illustrated by the (yellow, bridge) Process on the Fly cluster. Instant adaptation to the whims of users and customers is a must, otherwise they will for sure lose patience! The suspense increases…maybe No Process (one of the trends in this cluster) is where the story goes. And users are impatient to have one single answer from the whole company, an episode told with the help of the Silo Busters trend.

But users and customers expect answers with content, in shapes and forms which, have to change fast to keep up with their expectations. Traditional ways of developing applications cannot deliver with the speed required : *NO WAIT* is the motto – a part of the story the (light blue) Applications Unleashed cluster helps to tell. Notably with a vivid description provided by the All in a Catalog trend, for speedy delivery!

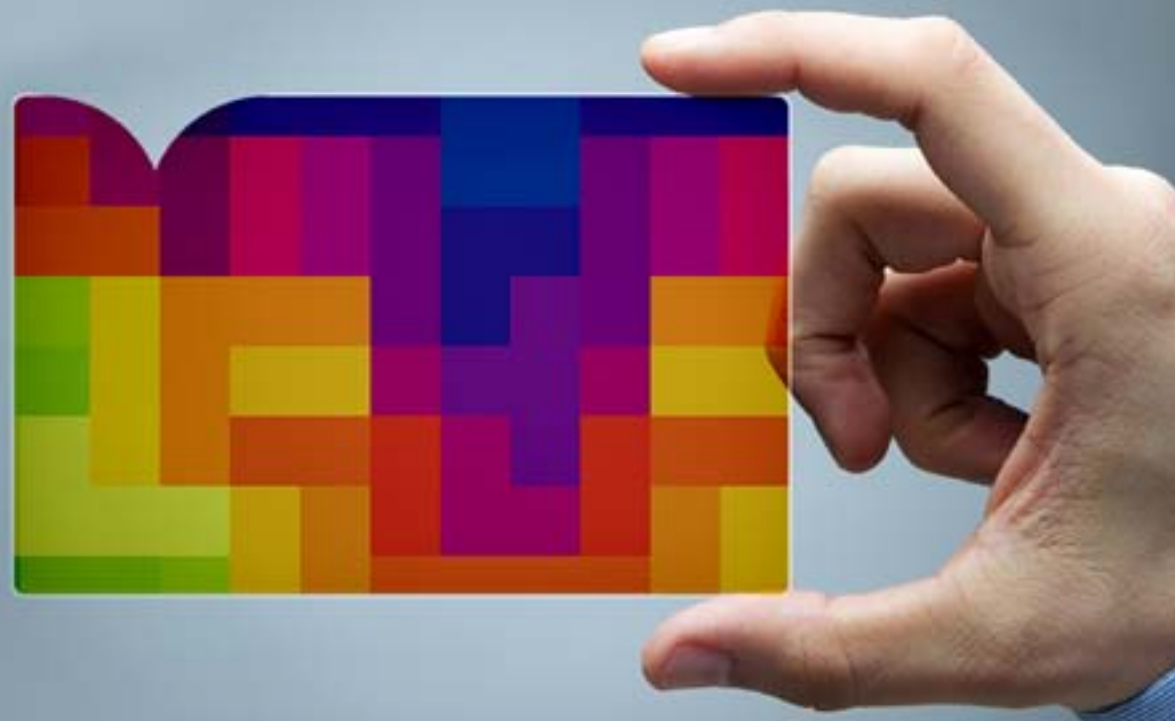
NO DATA FLOOD gives the story a dramatic turn; data — big, small, operational, historical, external - can be too much, can slow us down, while the (orange, bridge) cluster encourages us to Thrive on Data. But the trend Real Real Time gives us one of the keys to speed: the precise data, even better the targeted insight, delivered at the moment it helps deal with impatient customers, is the answer.

And our story comes to its conclusion: speed can be gained if and when one goes through the whole story, and the transformation adopts the *NO NONSENSE* motto: design principles of the past are dead, long life to the Design for Digital cluster (the one surrounding all others) — first of all to new relations between business and technology, as advocated by the Business Mon Amour principle!

TechnoVision 2016 –

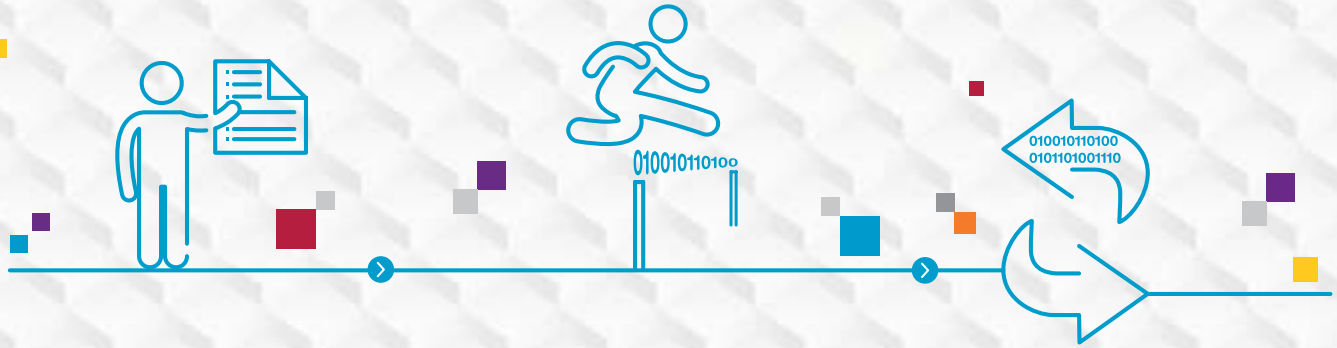
Clusters and Building Blocks

- Design for Digital
- Invisible Infostructure
- Applications Unleashed
- Thriving on Data
- Process on the Fly
- You Experience
- We Collaborate



Design for Digital: Prescription for the Digital Enterprise

DESIGN FOR
DIGITAL



Your expert
Pierre Hessler

Digital Transformation isn't only about Digital Capabilities — understanding and mastering the technology drivers to business change. It's just as much — or even more — about Leadership Capabilities, the ability of an organization to create an executive-driven vision, an enabling governance, individual and social mobilization, and united IT and business sides. Our Design for Digital principles stipulate the changes of the technology mindset that are required to successfully enter the digital era.

In most discussions that use TechnoVision for input and inspiration, *Design for Digital* takes center-stage. Its principles resonate individually, but compel as a set of seven. They propose a very different way — the digital way — of looking at business, users, technology integration, and applications:

- Our first two — ***'Digitally Intense'*** and ***'What's Your Story?'*** — build on ***some of the key lessons digital masters taught us***. The successful Digital Enterprise matches the digital intensity of its customers and clients and creates a digital value network to serve them in radically new ways.

  Technology inspires the business to craft a new story for the market, and provides the vehicles to carry the message.

- ***Business Mon Amour*** advocates striving for the fusion of business and technology, rather than 'just' alignment.

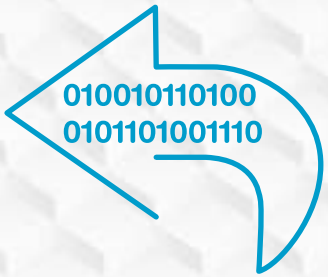
- ***Bon Risk Appétit*** emphasizes the growing importance of security as a concern, but even more so as an opportunity.

- ***From Train to Scooter*** — a TechnoVision 'classic' — suggests we should understand and master business/IT transformation at different speeds and dynamics.

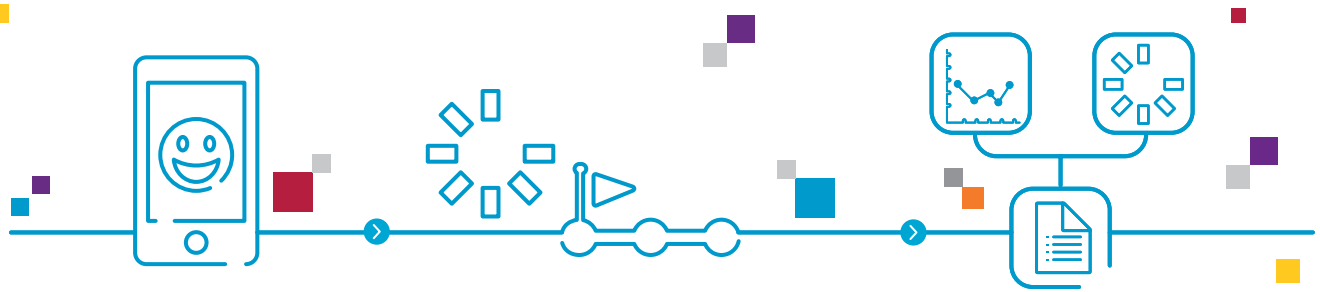
- ***Platform No 3*** is a plea to build digital platforms that marry enterprise-grade stability with next-generation agility; central with de-central.

- Finally, ***Hack My Business*** Model promotes a disruptive mindset for reinventing business models through new technology.

Feel free to use the design principles to create the right mindset on the path towards the Digital Enterprise; or simply as a checklist for assessing and creating solutions; or even better both. We hope they will be the base for another round of rich discussions and progress on the digital journey!



DIGITALLY INTENSE



Your expert
Pierre Hessler

For any organization to become a 'digital master', it needs to create sound digital leadership, understanding how technologies drive the creation of a superior customer experience, the optimization of operations and even the reinvention of entire business models. It also needs a Digital IT team willing, able and ready to catalyze Digital Transformation with the right mix and architecture of new technologies: mobility, insights, social tools, solution catalogs, and the Cloud.

Design for Digital

The classic enterprise depends on information technology for many of its business functions. But the *Digital Enterprise* is fundamentally different. It serves digital customers and partners at their own pace by a whole new set of rules. It plays the digital world's game.

More than *four years of solid research with MIT* has shown us what it takes to become digital masters and our foundational book, Leading Digital, demonstrates that it requires the right blend of *digital leadership* and *transformation leadership*.

In this first design principle, we focus on the essence of digital leadership, or in other words: what it takes to become *digitally intense*.

Understanding the ways this next wave of technologies transforms the business is a core capability. We distinguish at least three:

1. Technology informs, then amplifies, customer expectations. Through better customer understanding, leveraging digital opportunities for top-line growth and the creative use of multiple customer touchpoints, a superior **customer experience** is created.
2. Technology removes the traditional constraints in organizational **operations**. The increasing digitization of processes is key, as is the use of technology to enable employees do their work in different ways and drive effective performance management.
3. Finally, technology drives the era of disruption. Reinvented **business models** emerge from platform technologies, digital enhancements to products and services, and new, technology-enabled routes to a global market.

When crafting a new digital strategy, or reassessing an existing one, enterprises should establish their primary areas of impact.

They should also remember that IT organizations are not born digital! They have themselves to become digital, in order to play the right role in the Digital Transformation.

This transformation is driven by many different technologies and each organization needs to shape its own radar screen. A few developments in technology stand out and should be considered in concert to maximize impact:

- ***Mobility*** should be the 'alpha' and the 'omega' of every solution. Creating mobile applications worthy of the Digital Enterprise is not a matter of squeezing information into smaller (even if they're getting larger) screens. It requires considering the mobile device, including wearables, as the *primary way of relating* — the umbilical cord between enterprise, individuals and their communities.

Design for Digital

- ***Insight*** — not just data — must be embedded into every move of the Digital Enterprise. Insight through *information*: every source of data has to be tapped, from the contextual through the social to the operational; insight through *interpretation*: data is given sense through analytics and visualization; insight for *action*: driving the next step of every process.
- ***Social tools*** as the way to connect the organization to consumers, employees, partners and 'things' and tap into the collaborative powers of the crowd, whatever that crowd consists of. Social shouldn't be an afterthought, but should be a crucial, integral part of the design rationale of any solution.
- ***Catalogs*** are the foundation of quick, agile and enterprise-scale solution development. They provide industry best-practice solutions, processes and services to quick-start any chance initiative, providing the *art of the possible*. It's a matter of using as much of what's available, and only minimally adding what's different.
- ***The Cloud*** is the default power to draw on. It provides processes, platforms, solutions, and the underlying *Infrastructure-as-a-Service*: invisible in its deployment, simple in its management and infinitely scalable and flexible in its use. Although the Cloud may not entirely be the *de facto* enterprise standard yet, it sure has defined the new benchmark.

Effectively combined, these drivers will increase the digital leadership of the enterprise through every *new project*. And it will even increase on a broader and faster front, if existing developments, ongoing programs, and existing solutions are *revamped* or *repositioned* to take even greater advantage of true digital intensity.

WHAT's YOUR STORY?

Your expert
Maggie Buggie

The name may suggest differently, but Digital Transformation is all about people. Whatever solution is shaped, it needs to be based on an outside-in perspective, designed from a deep empathy for what drives the people involved. And as we're only human, we prefer compelling stories above a long list of requirements, hefty specification documents and multi-layered diagrams. The ability to tell a story, and even better to listen to a story, is critical in creating digital experiences that actually excite and delight.

Design for Digital

Much of Digital Transformation focuses on the customer experience, operations, and new business models. In these fields, and in the next areas of transformation, new solutions have to visibly and powerfully help leadership turn digital investment into digital advantage. The best way to achieve that purpose is to move from the concept of ***or*** to the concept of ***and***.

The 'Digital Enterprise' as a 'social enterprise' deeply understands that people are integral to making the transformation vision true. It appreciates *people as individuals* and it appreciates the *power of the crowd* to intelligently co-create with customers, employees, partners, and others involved, in a culture of collaboration for mutual business benefit.

The priority of the digital enterprise is first to respond to, second to anticipate, every wish of its customers, providing them with a first-rate experience. The customer perspective is fast becoming the viewpoint from which all enterprise transformation is being assessed and shaped. But long-term growth and profitability depend on investing in the *front end of the customer experience* and investing in parallel in *enabling capabilities*.

To successfully invest in enabling capabilities — such as adaptive operational processes — the *customer experience and* the *employee experience* have to be developed along symmetrical lines. We need to visualize a coin, the two sides being the customer and the employee value propositions.

Finally, a key measure of transformation leadership is the corresponding evolution of *the enterprise* and of *its ecosystem*. Social has transformed the way in which enterprises conceive their place in the world and how engaged they're with it. They evolve their cultures through a process of co-creation and innovation; they harness the collective intelligence of their ecosystem and engineer their enterprises to use social to maximize the transformational impact of their solutions.

In such a world — with multiple perspectives — it's a matter of taking a radical outside-in approach, always taking the viewpoints and drivers of the individuals involved, as the starting point. Design Thinking (as mastered by iconic companies such as IKEA) should be a key inspiration here. It combines the notions of **purpose** (taking the needs of personas as input for envisioning *customer journeys* and *employee journeys*), **human-centricity** (tapping into the power of *empathy* and *compassion*) and **iteration** (mixing research, creativity, intuition and experimentation to jointly create solutions in an explorative way). Design Thinking certainly requires new skills such as creative design, human research, concept testing, and user experience (UX) development.

The excellent new, future vision of the Consumer Goods Forum ("Rethinking the Value Chain: New Realities in Collaborative Business") prominently features the persona-based journeys of different consumers in 2025: Jorge and Isabelle in São Paulo — typical city-dwellers with young kids, Manju and Puja — a newly married couple living in a single story dwelling in the Indian countryside, Maureen — an 'empty nester' from a small city in the south of England, Jamie — a 26-year old business professional living in urban Boston and not interested in owning a car, as he often works remotely. Though their eyes, we much better understand their individual needs, what drives them day-to-day and to what extent the new digital world will change their lives.

Above all, design thinking requires the appreciation of a good, compelling story. If we start to live and breathe the stories of our customers, partner and employees — of our fellow humans — we are truly well on our way to become digital masters.

BUSINESS MON AMOUR

Your expert
Pierre Hessler

Digital Transformation needs a true fusion between digital capabilities and business change, not merely alignment. To earn 'business love', the IT department must successfully deliver, while demonstrating digital mastery and the ability to innovate through technology. First, the requirements binder needs to go. Once seen as a bridge, it's now often perceived as a barrier between business and IT. Instead, digital platforms need to build the inspiration to jointly assemble the right solutions for change. The IT function is successful, if the business side happily takes the stage to testify about technology benefits, and the lead in Digital Transformation projects. Plus, holding a significant part of the budget doesn't hurt.

Historically, love has not exactly played an essential role in the relationship between business and information technology. Mutual distrust is not the right Petri dish for love. Business never liked the IT black box — too much mystery, too much jargon, too much cost, too long lead times. IT never liked the business fortress — too arrogant, too much jargon, too many changes, too much impatience.

As they needed each other, they found a way of working together. Business puts together big binders of requirements, ships them to IT, which, a few months or years later, delivers the finished product — an application that, when it works, meticulously fulfills every requirement. Good in theory, frustrating in practice; today's application by definition reflects yesterday's requirements.

In the era of Digital Transformation, business and IT are condemned to love each other for one simple reason: *business without IT doesn't survive; IT without business impact, dies*.

Luckily, love has become so much easier. A natural emotion, you might say. Business people have become fans of modern technology. They now see it through the smiling faces of their smart phones, tablets and smart 'things'. IT people share this passion, and appreciate how technology changes business.

When in love, one speaks in a way that is easily understood by the partner — goodbye jargon! When in love, one spends lots of time together. Ideas are generated, separate strategies converge and become one, projects are integrated, responses come before questions. A single rhythm binds the orchestra. When in love, one experiences harmony and collaboration.

Utopian? No, a way of life for Digital Enterprises, and one of the keys to their success.

How do you know when business and technology are in love? Here are five indices.

1. They **burn the requirements binders** and adopt new preferences for creating solutions:
   - *Capabilities* over *Requirements*
   - *Value Scenarios* over *Use Cases*
   - *Working Prototypes* over *Specifications*
   - *Dialogs* over *Paper*
   - *Catalog* over *Custom-built*
   - *Joint understanding* over *Positions*
   - *Pictures* over *Descriptions*
   - *Stories* over *Structures*
   - *Platforms* over *Crafting*

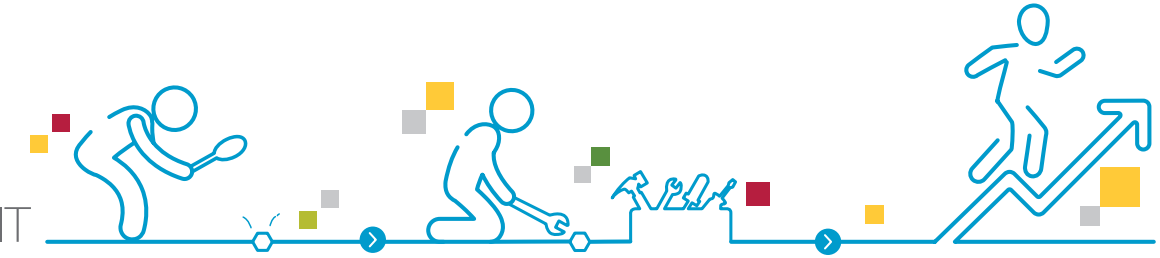
2. They work as **one team**. Enterprise projects are entrusted to teams assembling all necessary competencies and capabilities.
3. They start **before the start**, exploring and creating together. In the value chain, to ensure products and services truly fit the digital world, research and development includes information technology.
4. They draw **one architecture** only — the enterprise architecture depicts, in a single blueprint, the flows of business, their technology embodiments, and the envisioned changes.
5. And they regularly deliver, but **never end** their development; because, as a part of the world of networks, the enterprise needs to constantly adapt and connect and readapt and reconnect.

Whichever 'side' you're on, always ponder if you've taken the effort to ensure **true love** on the other side. Digital Transformation is a long, but exciting journey and one shouldn't undertake it from the point-of-view of a 'marriage of convenience'.

Your experts
Bernard Barbier
and

Pierre Hessler

BON RISK APPÉTIT



On their digital journey, enterprises must always be connected to the outside world. This puts a strain on security. Openness and connectivity seem to stimulate their opposites. However, hiding behind an impenetrable corporate firewall is a digital passion killer and preparation for every security breach is an illusion. Instead of walling themselves off, organizations must develop a healthy appetite for risk, using smart tools to quickly detect intrusions and respond in real time. Furthermore, security must be an integral part of the solutions life cycle not an afterthought. A digital platform with built-in security actually enables new business, rather than preventing it.

The *Bon Risk Appétit* design principle is not about eliminating all risks — a an impossible task. It's about doing business at the *acceptable* level of risk. It's also about taking a fresh perspective which not only makes the risks acceptable, but could turn them into opportunities — a new competitive advantage, or a disruptive business model.

The perspective has seven components:

1. Information security is no longer the purview of the IT department. It's the business, and notably the **top of the business**, that's taking over risk management as a key component of every strategic decision. For the Digital Enterprise, cyber-security is not just a condition for *survival*, but is also the way to create *trust*, an essential ingredient in dealing with digitally enabled customers and clients. Security should become an *enabler* to new business, or even the catalyst for disruptive business models, that were unthinkable before new security technologies became available.
2. Information security should be built in as a central feature of the **enterprise digital platform**. Agile solutions can quickly be developed near the businesses that are also inherently secure. Furthermore, security should be embedded end-to-end in the solutions life cycle not as an afterthought, or exclusively in the domain of architecture, business analysis, infrastructure, or applications. Where mixed DevOps teams are quickly becoming popular as they remove the classical barriers between applications development and operations, it makes a lot of sense to make security experts an integral part of these teams.
3. At the center of risk-thinking is **enterprise data**. What's it worth? At what level should it be protected? Who should be able to access what? How to classify and archive it? How to destroy it? When? As the Digital Enterprise increasingly relies on its *IQ*, it focuses risk analysis on what makes it intelligent. A situational approach is crucial here; not all data is the same and there isn't a one size of security measures that fits all.
4. Not every security breach can be predicted and avoided in a black swan world. The **early detection** of any attempt to steal or corrupt data is key. Early detection minimizes damage in the same way that early recognition of software flaws minimizes the cost of error correction. Equipped with tools like HP's Security Information & Event Management, the security data scientist spots anomalous behaviors, unfolding attacks and initial damage, so that immediate action can be taken.
5. Risk management should always be done with the **customers in mind**. The success of the enterprise depends upon their trust. Customers deserve an accurate picture of their data from the use that is made of their information to the way the enterprise protects them as if they were their own employees. Their business will be their way to thank the enterprise. It's also a crucial cross-check that any security expert or risk manager should continuously make: are the measures we're taking still helping the customer to do business with us, or are they by now, actually preventing business?

6. Risk management should also be done with **partners in mind** — on their trust depends the success of the enterprise. Many are becoming Digital Enterprises, and these relationships will be rescripted to reflect new respective roles. An essential part of the script will be devoted to the type of intelligence, enterprises share and the type that remains their own. With that comes also an analysis of the risks, business partners are willing to share, including joint measures that should be taken to detect anomalies and respond in real time.

7. In view of their constantly full executive plates, business executives often find it too difficult to translate their fears into clear actions. Helping them define their security To Do's might well be the most productive security measure. The simplest way to organize these To Do's is in three categories:

- compliance obligations
- business risk 'cartography' with the matching measures
- responsibility towards clients to maintain relations of trust

In any case, an open and situational mindset is crucial to give security its rightful place in Digital Transformation: as an enabler for business and a foundation for change. A perspective that surely whets the appetite.

FROM TRAIN TO SCOOTER

Your expert
Ron Tolido

The next generation of business technology solutions need a very short time-to-market, are created and delivered in an agile way, and are developed and owned in the closest proximity to the business. These solutions are like 'scooters and cars', whereas the current application landscape typically contains 'trains and buses'. Think about when to apply the right rhythm. Build the platforms to support multi-speed IT and explore new, flexible ways to create solutions while applying agile approaches like Scrum and DevOps, as well as rapid development tools.

In many organizations there's an increasing friction between 'Central IT' — in charge of the big core systems, ERP, and enterprise data — and business units, which can't wait to put their hands on the latest Cloud and mobile solutions.

The bulk of the budget belongs to Central IT, which uses it mostly to keep the lights on for the existing applications landscape. Their focus is on industrialization, simplification, and cost control. It may thus get easily isolated from the business side, condemned to sustain existing systems with an ever-shrinking budget and too little headroom to innovate. As a result, business units are understandably tempted by *bricolage IT* for short-term solutions, at the risk of applications sprawl, redundancy, *data apartheid* and silo building.

The right way to deal with this is through multi-speed IT, each 'speed' with its own dynamics, timing, economic models, governance and design considerations, and therefore each with its own development, testing and maintenance tools and methods and with its own capabilities.

Two of these 'speeds' pertain to the stable and naturally more centralized part of the IT landscape: in our transportation analogy, *Trains*, the industrial-strength backbone enterprise systems, and *Buses*, a bit more specialized and flexible. Two others are part of the business landscape, with the need to be fast and adaptive: *Cars*, supporting smaller, specialized groups, and *Scooters*, providing apps and tools for individuals or teams.

Connecting and keeping them all in synch, there is a fifth, crucial 'speed' that provides the platform IT services in our transportation analogy, the Station, the hub of the enterprise. It takes care of synchronization, integration, integrity and security and makes application and data services available between the two worlds. Building a digital platform – together with its key vision of releasing the notion of highly centralized control – is described in more detail in the Platform No 3 design principle.

Train-style development typically assumes solid requirements management, a clear distinction between IT supply and demand, predictable and definable outcomes, enterprise-grade systems and tools, and a medium- to long-term (waterfall) phasing of development and releases of solutions.

In the world of Scooters, agile solutions are rapidly built and released by joint teams of business users, developers, testers, and operations experts. They leverage digital platforms, notably featuring APIs and high-productivity development tools. What's available in the catalog determines the *value scenarios* that are delivered. Classic requirements are considered harmful.

As capabilities, resources, methods, tools, measurements, and key performance indicators vary widely from one 'speed' to the next, it makes sense to adopt an organization to manage them, each on their own, and also as parts of a whole.

Multi-speed IT acknowledges that the current business technology landscape is too varied to address through one, unified set of approaches and tools. One should probably not ask a builder of trains to create a fancy scooter. Or vice versa, for that matter.

Platform N°3

Your expert
Ron Tolido

Platforms are 'eating the world': wherever supply and demand meet in seamless and engaging digital ways, new value and new business models are created. High time for the IT department to unleash platform power as well. A compelling digital platform features APIs, open datasets, service catalogs, integration, frameworks, solutions guidance, tools and collaboration support. It enables business units and partners the like to quickly create their own market-focused solutions, while leveraging enterprise grade information and services. It provides the best of both worlds, being at different speeds, 'letting it be' for the best digital results.

Here are some whispered words of wisdom for IT departments that find themselves in times of trouble: *there may be an answer*. It's in letting things be.

You see, interesting enough the business side tends to be more enthusiastic about technology than in a long, long time. The Cloud, Big Data, social media, smart 'things', and mobile devices — all part of the emerging 3rd platform — have brought tremendous new opportunities for true Digital Transformation. No need for the evangelization of IT merits anymore and actually, the IT department finds itself now all too often in the position of *blocking innovation* — rather than driving it — consumed as it is by keeping the lights on in the existing application landscape.

The key to dealing with this is not in desperately trying to stay in central control. It's most certainly also not in stopping de-central initiatives by business units that aim to create their own solutions in close proximity to the market.

Instead, CIOs should embrace the reality of multi-speed IT, gradually, but decisively, shifting the center of gravity from their enterprise systems to a **digital platform** as the *pièce de résistance* of the IT department. This platform — the 'station' between the 'trains' and the 'scooters' — bridges the stable and predictable world of enterprise systems with the agile, opportunistic world of Digital Transformation. It lets business units, partners and even consumers quickly create the next-gen solutions they envision, while preserving crucial enterprise-grade qualities.

What then does a digital platform look like?

Standards like the ones within The Open Group's Platform 3.0 are still evolving, as enterprises start building their first instantiations.

Actually, many pointers can be found within TechnoVision (notably the 'fourth' trend block of every cluster). For example in our vision on infrastructure, in which we describe an orchestration and integration platform, front-ended by a self-service portal that simply provides business workloads as the ultimate cloud instantiation.

It's also in our plea to consider the API as the application, opening up core enterprise applications through a catalog of service interfaces, or even rebuilding it as a set of loosely coupled micro-services.

Certainly it also surfaces in our description of the new data landscape, leveraging open data, master data management and Business Data Lake technologies to provide a perspective on data — if necessary in real time — without imposing restrictions on storage, structure, or access.

Often underestimated, but extremely powerful, is the use of Business Process Management solutions to bust the silos of existing core processes, giving the business the opportunity to augment, improve, and even create brand new processes without having to touch a single line of code.

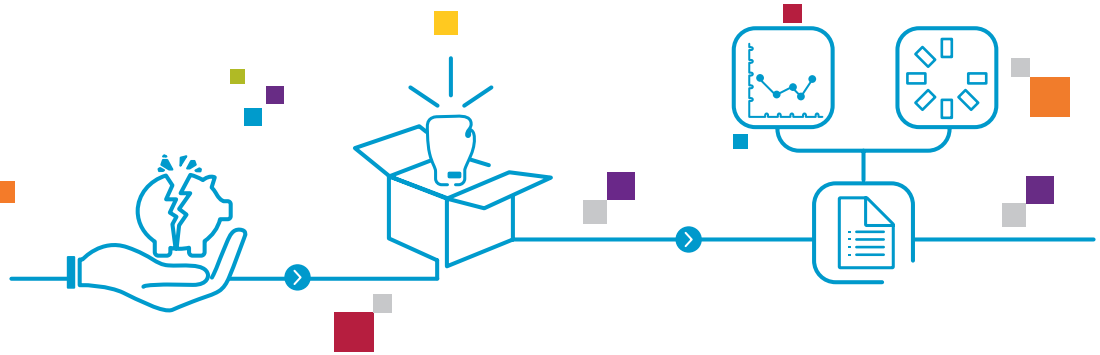
Finally, the best producers of mobile apps might be end producers, wherever they are, as long as they're provided with the right power-tools, frameworks, and APIs to create compelling, yet enterprise-grade solutions themselves.

As with any *platform play* — even when it's eating the world — the success of a digital platform is determined by how attractive it is to both the supply and the demand sides.

In order to be the keystone species of the enterprise ecosystem, the IT department needs to be in a continuous, *hothouse dialog* with its business stakeholders, co-creating parts of the digital platform on the go. Opportunistic decisions are good; an agile approach, based on a bold architectural vision of change is better. In any case, *showcase projects* that deliver early business benefits on the first components of the new platform are extremely valuable; they provide the healthy balance between the digital impatience of the business and the monumental task of modernizing the IT landscape.

Burning platforms need digital platforms; so that Digital Transformation can be.

HACK MY BUSINESS MODEL



Your expert
Ron Tolido

New technology is the engine behind radically reinvented business models. Undeniably, it is the age of digital disruption. It comes in two flavors, depending on whether enterprises choose to thrive on disruption or are simply confronted with it. Creating disruption needs an open mindset, bypassing what's established, and thinking the unthinkable. Although it seems to be an oxymoron, there is actually a system behind digital disruption. Dealing with disruption, whether it comes from the outside or not, requires a responsive digital platform and an agile organization. A Black Swan world asks for Black Swan measures.

Nassim Taleb's equally relevant and amusing The Black Swan describes the phenomenon of the black swan as a metaphor for unpredictability and disruption. You see, until the end of the 17th century the inhabited western world presumed that there were only white swans. This insight was based on observation and a bit of extrapolation; as far as the eye could see, only white swans were present. Furthermore, this always had been the case. Therefore, everything indicated that in the future, the situation would be the same. Until 1697, when Dutch explorer Willem de Vlamingh sailed into the still unknown continent of Australia and bumped into flocks of black swans on the very first river he took.

Black swans occur when we least expect them and they cannot be predicted based on what we know and see. Clearly, the new wave of digital technologies — Cloud, Big Data, social, mobile, 3D printing, the Internet Of Things — is creating a whole new bunch of black swans; especially when these technologies are combined to create products, services, and business models that have never been seen before, or were simply deemed impossible.

Guess we all know the striking examples of digital newcomers that are shaking the core of incumbents with compelling products, low prices, and lightning-fast delivery. Not constrained by the usual obstacles, they can offer propositions in new and unique ways. Ask taxi companies, travel agencies, bookstores, record companies, hotel chains, and newspaper publishers. It's easy — and tempting too — to envision a *valley of doom,* where enterprises will end up if they don't take immediate action.

The good news: digital disruption (see our dedicated Beyond The Buzz episode on this) can bring phenomenal opportunities to established enterprises as well, as long as they choose to thrive on it and leverage their corporate assets and qualities at the same time.

Even better, creating disruption is not just a matter of unleashing raw creativity, hoping a decisive moment of epiphany will magically occur. There's actually a system to it.

In Leading Digital, 5 archetypes of digital business model reinvention are described:

1. **Reinventing industries** involves substantial reshaping of an industry structure, as Uber did for the taxi market, Airbnb for lodging, and iTunes and Spotify for music. In all cases, this involves introducing a business platform that equally attracts buyers and suppliers, leveraging economies of scale to an extent that is very difficult to match by existing businesses. Yes, software and platforms are eating the world. And that's great for a business. If it's part of it.
2. **Substituting products or services** directly replaces core products or services with a new digital format. As technology is virtually unconstrained, there is no reason why products and services that can be digitized are sooner or later replaced by their digital instances. Whether it's in books, music, snail mail, or 3D printing, in many cases organizations must cannibalize part of the existing business in order to embrace the new format. Look at Netflix for how it's done, or at Post Danmark.

3. **Creating new digital businesses** involves the creation of new products and services that generate additional revenues. Established enterprises are at an advantage here, as they have the phenomenal opportunity of leveraging their existing assets and brand with digital augmentation. The Internet Of Things brings lots of inspiration here and brands such as Nike, New Balance, and L'Oreal lead the way.

4. **Reconfiguring value delivery models** means recombining products, services, and data to change the way an enterprise plays in the value chain. Using technology to connect products, services, and information in a different way can build new stickiness with customers and competitive advantage. It may often involve *cutting out the middle man* — clearly demonstrated in insurance, retail and travel — but companies such as Volvo prove that it's possible to open new, direct channels to the client while enriching existing (dealer) channels at the same time.

5. **Rethinking value propositions** uses new digital capabilities to target unmet needs for existing or new customers. Reinventing business models is not always a matter of being disruptive. It can also mean taking a fresh, *repositioning* perspective on existing products, services, and assets and simply using the next wave of technology for renewal. Insurance Company, Tokio Marine used mobility and real-time data to create 'one-time' insurance for very specific purposes and circumstances and media company Entravision used the fine-grained customer behavior data it was collecting to set up Luminar, an entirely new analytics business.

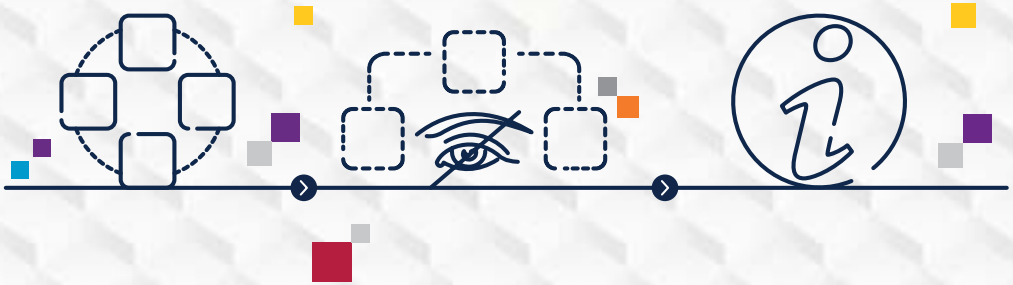
There are many more ways to design for disruption. TechnoVision 2016 describes numerous technology trends that hold disruptive potential, particularly the last ones in each 'cluster'. Have a look for example at What Would Amazon Do, Cognito Ergo Sum, Digital Self and Friend That Machine for fresh inspiration. No matter if an enterprise finds itself at the sending or receiving end of disruption, an open, digital platform (or Platform No. 3) is a prerequisite for agility and responsiveness. The API Economy provides essential reading, just like End User, End Producer and Data Apart Together. Clearly, businesses need to at least understand the mindset of a start-up, if not mastering it, and Train to Scooter dynamics provides an introduction to it. Have a look at our 10 principles for platform design for another, complementing perspective on this.

It often takes a radical outside-in perspective to find true disruption and design thinking can come to the aid here, just as much as reaching out to the ecosystem of startups (guided or not), as innovation tends to happen elsewhere. In our network of Applied Innovation Exchange labs, the focus is not only on practically applying innovative technology to business issues, it's also about continuously curating the ever expanding network of potentially disruptive solutions and ideas. Sometimes, this is done in a very systematic way; just as often it may be a matter of trusting the power of serendipity.

In any case, it's going to be an exciting roller coaster ride and we may equally enjoy the views of *valleys of doom* and *mountains of growth*. Oh, and if you bump into them, say hello to the black swans.

Invisible Infostructure: What Infrastructure at-its-best, Should Look Like

INVISIBLE INFOSTRUCTURE



Your expert
Gunnar Menzel

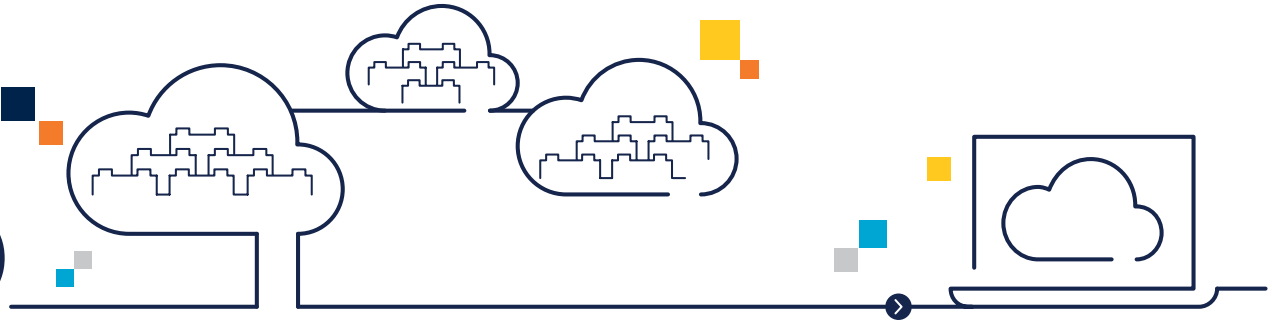
The days when we had to meticulously design, construct, and implement our own unique and dedicated IT infrastructure, are almost gone. Instead, we welcome an era that consumes 'right from the catalog'. We use powerful, pre-defined services and workloads that support us, like a truly hassle-free utility that satisfies any Digital objective. Combine this with the incredible richness of information — through sensors, mobile devices, and all those 'things' — and you start to get both the 'Invisible' and 'Infostructure' part of the equation.

But "Invisible" doesn't mean we can ignore IT. The infostructure is at the heart of the enterprise, and as such, it requires careful and appropriate consideration. It needs to provide secure and reliable access to application services and data that mixes traditional and new deployment models, and existing and innovative technologies alike. This will require nothing less than an orchestrated journey that must navigate this hybrid reality, for years to come.

The Hybrid Cloud (where you mix private on premise and public off premise services — we call it hybricity) clearly takes the lead in accelerating infrastructure innovation, and so do the next generation of mobile, social, data, and process technologies. Together, they constitute a highly agile *3rd platform* (after the mainframe and PC platforms that we're so familiar with), bringing with them, unprecedented opportunities for enterprises to grow without having to deal with the complexities of the underlying technology.

In the end, this is where we believe infrastructure is at its best: invisible, yet relevant and incredibly insightful, focusing on what matters most — business outcomes.

VIRTUAL LEGO



Your expert
Ajith N C

Virtualization is the key ingredient for rendering the IT infrastructure invisible, and start benefiting from the cloud. It reduces costs and deals with the mounting complexity of divergent technology platforms. But, there is more. With infrastructure rapidly composed from 'virtual Lego' building blocks, it enables businesses to become more agile, more responsive and faster. A complete, software-defined infrastructure solution stack deployed in minutes and applications running in unbreakable 'containers' that shield off all peculiarities of technology; they are more than a metaphor for running a business with similar qualities.

Fueled by new and enhanced virtualization technologies and accelerated by the insatiable demand for computing power, infrastructure advances rapidly. Even though virtualization has existed since the 1960s (originally as the logical partition of mainframe computing resources), it has now significantly evolved past the simple abstraction of pools of processors, memory, and storage. Indeed, virtualization is coming of age, ultimately with infrastructure capabilities combined in containers that are literally *business-aware*.

Software vendors drive the further evolution of compute 'hypervisors' and enable new types of abstraction at various layers of infrastructure. Hardware vendors deliver pluggable modules for hardware virtualization, and push on-chip management and security components. Intelligence is being aggregated from the hardware stack into the hypervisor layer, and being integrated closely with powerful orchestration platforms to automate operational tasks, thus providing a single *pane of management*.

It's illustrated through concepts such as Software Defined Data Centers (SDDC) and Software Defined Networking (SDN) and enabled by industry standards such as OpenFlow and OpenStack.

Hyper-convergence takes it a few steps further, notably in the area of Cloud infrastructure. It aims to stop compute, network, storage and software living on their own. Instead, it intimately connects and integrates them, packaged into highly virtualized, self-contained and infinitely scalable appliances ('boxes' really, as illustrated by platforms such as SimpliVity's OmniCube and Nutanix).

Another, arguably even more 'virtual' way this trend materializes, is through *software containers* (such as the remarkably popular, open source-based Docker platform). They support fully self-contained application 'packages' which can run on any operating system platform and in any deployment scenario, whether it's a public Cloud, private Cloud, or even 'bare metal'.

Although Docker provides a lightweight version of virtualization with almost zero overhead, the platform delivers some impactful advantages around application portability, simplified multi-tenancy and rapid deployment. Having said that, with infrastructure starting to resemble Lego, the software that runs on top of it needs to change as well. An application architecture of fine-grained, light-weight microservices will align much better with containers than a big monolith.

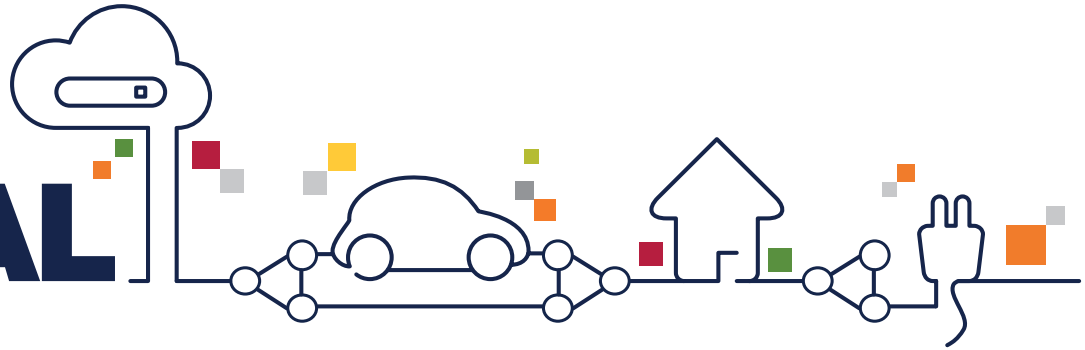
At this point it doesn't need too much imagination to visualize the Lego analogy. Software containers can eliminate application environment dependencies. It differs from virtualization by sharing a single host OS (rather than replicating). They are showing a new way of delivering on the cloud promise of agility and cost savings. The plug and play capabilities of Docker enable application containers to run with higher and more efficient hardware utilization as well.

The power of Virtual Lego obviously helps to squeeze the most out of an infrastructure, and manage complexity. But more importantly, it massively drives down speed to market. Still, with all its abstraction features, containers still assume that both operations and software development staff are very much aware of the underlying infrastructure stack. That's why alternative visions — for example the AWS Lambda smart, completely self-service — should be carefully watched and considered as well.

Hypervisor-based virtualization solutions have brought down deployment times from days to minutes and now, platforms such as Docker take it to the next level by enabling instantaneous provisioning times measured in seconds. They also enable the application to be run across multiple cloud providers without any extra tweaks. This is how the underlying infrastructure becomes truly invisible.

It is where infrastructure meets the pace of Digital business, together building on a cellar-to-ceiling capability, combining compute, network, storage and software to create real business outcomes instantaneously, rather than in weeks or months.

LET'S **GET** PHYSICAL



Your expert
Corey Glickman

While we tend to associate technology with the virtual world, the physical, 'real' world is equally a part of it now. With a multitude of tangible objects connected to the network, sensing and storing data, the boundaries between both worlds are quickly blurring. The Internet of Things provides unlimited opportunities for organizations to become smarter and become more intimately linked to their customers and partners, ultimately creating an entirely new business. And the trend comes full-circle with the rise of 3D printing, which allows enterprises to materialize ideas and concepts in ways that were previously unthinkable.

Invisible Infostructure

Let's stay safely away from definition games and simply assume — together with our trusted friends from Wikipedia — that the Internet of Things (IoT) is the "interconnection of uniquely identifiable embedded computing devices within the existing Internet infrastructure". Estimates differ, but the near future (2020), is likely to feature powerful networks comprised of 80 billion connected, intelligent objects, of which today we have only achieved 1%.

In such a world, *anything* connected to the network spews data. To collect and analyze that data, infrastructure truly becomes an *infostructure*: a foundation that builds new business capabilities on top of things, devices, wearables, and even smart 'matter'. Data, intelligence, and analytics capabilities thus form a crucial component of any infostructure linked to the IoT.

Another key component will be to provide access to smart objects through open, standardized and catalog-based Application Programming Interfaces (APIs), where the technology inside the actual objects in many cases will not be within the domain of the IT department, but will certainly be accessed through APIs, instead. Actually, mastering API management systems such as Mashery — recently acquired from Intel by Tibco — Apigee's Link for IoT or MuleSoft's API manager might be more key to your IoT projects than getting a grip on the 'things' themselves.

New architectural frameworks are required to address the significant technology and business challenges. Along with an initial focus on application development, sensory analytics, and a new IT infrastructure, these frameworks will need to include (open source) machine architectures, governance, regulatory provisions, and the type of security capabilities that can provide adequate safety for the users of those 80 billion connected things.

Organizations are forming consortiums (such as the Open Interconnect Consortium), providing development platforms (such as IBM's IoT Foundation and Microsoft' Azure IoT Suite), and exploring new industry standards (such as HyperCat) to drive IoT adoption.

It's important to realize that the Internet was born from the need for humans to connect with other humans. As a consequence, the Internet has a starring role to play in providing *'real-world human context'* to the IoT picture. Even though a substantial part of the communication between objects within the IoT will be Machine-to-Machine (M2M) in return, tracking human behavior and offering productive, new, and desired features for customer needs will be the true measure of success for the IoT.

For a practical real-world example, let's look at Phillips that allows external developers to use IFTTT (*If This Than That*) API scripts for their smart products, like the Wifi HUE light bulbs. By releasing more products that can be accessed through IFTTT, Phillips allows customers to mash-up customized IFTTT 'recipes' and share them with the outside world through a dedicated website. Phillips then analyzes how consumers use their products and what new features they might desire in the future, thus driving smarter product releases.

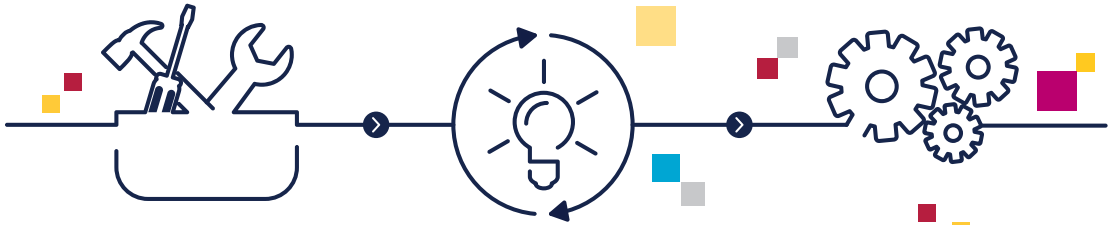
Michelin's CIO Agnès Mauffrey tells how the IoT will help the company shift from selling tires to delivering smart serivces: "We use new technologies from the IoT to collect a broad array of extremely accurate data, such as tire (US English) pressure. Once the data have been analyzed, our engineers and technicians can issue recommendations, typically for improving the safety and profitability of a fleet of vehicles. Services are created from these recommendations. We have deployed a laboratory that operates in real time, the 'road usage laboratory'. Smart sensors have been fitted to 2,800 vehicles throughout Europe. These vehicles belong to drivers with varying levels of experience. Their journeys will be studied over a three-year period. Furthermore, the data collected are not exclusively reserved for developing services. Our researchers use the data to mastermind new products with the aim of continually breaking new ground in the market."

Only 'things' do not become 'virtual'; the reverse is happening as well. General Electric successfully used 3D printing to manufacture an entire, functional jet engine. 3D printing is clearly coming of age. 3D printing — or *additive manufacturing* — is the process of making three-dimensional solid objects from a digital definition. The virtual design of an object is made using a 3D modeling program (or a 3D scanner to replicate an already existing object). These objects can be printed with embedded intelligence, by infusing unique identifiers within the objects during their creation. It's yet another illustration of blurring of the physical and virtual worlds.

Authoritative market estimates describe an IoT revenue pie of over 10 trillion dollars in forthcoming years. That makes a strong incentive for existing and future businesses to claim a slice. However, monetizing the IoT (see our elaborate analysis here) is in no way trivial or self-evident. Businesses will need to address the balance between the physical and digital world through *'make', 'buy', 'partner'*, and *'crowdsourced'* models. In any case, the IoT is no longer a futuristic projection. It's happening right now and true value creation depends not only on smart data gathering and analytics, but on solving identified human needs.

Architects will need to design and deploy a stable, secure, and open platform to fully leverage the potential of the Internet of Things in all of these dimensions, even if it's not always clear how smart objects will create value. When such a compelling platform emerges, infrastructure becomes *infostructure*.

BUILD, RELEASE, RUN, REPEAT



Your expert
Gunnar Menzel

Enterprises are raving about DevOps: the agile, perfect fusion between IT Development and IT Operations, supercharging deployments while keeping near-perfect quality. By using one platform with a unified and highly automated 'train' of tools, DevOps teams develop applications, test, integrate, and package them for deployment. Plus, they promote to live in a continuous, uninterrupted flow, if necessary releasing many times a day without fail. It requires a thorough understanding of what components constitute a state-of-the-art DevOps platform. Also, it needs a true mastery of the agile approach at the business level. If done well, it eats away all barriers of the solution life cycle, bringing experts together in high-productivity teams that 'never sleep'.

The speed of application development, and notably application change, is increasing — particularly in '3rd platform' areas around Cloud, mobile, social, and *real real-time data*. The typical Car and Scooter dynamics require going through the entire solutions life cycle in days, hours, or even minutes. But at the same time, the necessity of a rock-solid quality of solutions is paramount. Our very business performance depends on Digital and we cannot afford mistakes, because we're in a hurry.

Here's the conundrum: we want it ultra-fast and of the highest quality, while being totally in control, delivering top-in-class quality.

A new, exciting approach addresses this apparent oxymoron: DevOps. A portmanteau between 'Development' and 'Operations', it's a concept that connects developers, quality assurance, and infrastructural operations in such a way that the entire "build, release, run repeat process" operates as a continuously producing factory. The team-centric DevOps ethos tears down traditional silos to tightly integrate business, development and operations to drive agility and service delivery excellence across the entire lifecycle. It features clear roles, responsibilities, inputs, and outputs and as such, requires a mature, established governance to get there.

The main aim of DevOps (check out our definitional white paper and my full keynote) is to revolutionize the change process, de-risk IT deployments, delete the stereotypical "but it worked on my system", and eliminate the silos between developers, testers, release managers, and system operators.

And these DevOps promises are high: increase agility by factor 30, speed up by factor of up to 8000, increase reliability by factor of 2, and 12 times faster mean time to recover. That would drive market share and productivity by a factor of 2, which could lead to 50% increase in market capitalization.

However DevOps is still a young capability and due to an unbalanced focus on tools, many DevOps implementations fail to deliver on the promise. DevOps implementation can become a large people change program and the key to success is to find a fine balance between people, process and tools (see our DevOps: don't be left behind deck).

The tools and products that are being developed in this space all focus on automation to maximize predictability, visibility, and flexibility, while keeping an eye on stability and integrity. With the advent of open-source and Virtual Lego, a DevOps team can simply construct any environment it needs. It's an area that many tend to focus on first: to create a *train* of specialized tools that allow for an almost automatic execution of the solution life cycle, all the way from change requests via versioning, development, integration, testing, configuration, and packaging to deployment on the live-run environment. Examples of these 'tool train' components include Docker, Puppet and Chef, as well as newer entrants like VMware's vRealize Code Stream.

In addition to these tools, many vendors are now focusing on the DevOps platforms to run the entire "tool train". IBMs BlueMix — operated on SoftLayer — includes a large number of predefined tools that can be used out-of-the-box to hook tools together. Even mainframe capabilities are being opened, with Bluemix providing CICS interfaces.

Let's look at an example. Imagine you're a developer creating a code for SuSE Linux, who's developing a 3rd platform-based application, using a

Cloud-based development environment. In order to test your application, you need to move the code plus configuration information to a separate unit-test environment and once tested, the application needs to be installed in a 'user acceptance test' environment. Once users have OK'd the app, it requires a last performance and security test, all before it can be deployed on a live environment that sits in a hybrid Cloud.

Before the era of DevOps, you would have requested each and every move and construction via an Environment Manager, using an internal (and maybe only PC-supported) proprietary change management system, taking days and sometimes weeks. Not to forget, all the issues that would arise from subtle differences between the approach of various "sysadmins" involved, resulting in a divergent nightmare of test and target platforms.

Fast forward: in a DevOps team, you use the expressway. You work with the same UI and tools as all your colleagues in a tight, multi-disciplinary team. You have the ability to create, deploy, and destroy an environment using standard templates and blueprints, increasing the ability to shortcut fault analysis to your code, only. You can kick off full, pre-defined install sequences, eradicating the need to manually install anything. What's even better is, it supports any target platform, be it Unix, Linux, Windows, or even Mac mainframe, installed either on- or off-premise, virtualized or non-virtualized.

You're not cutting corners here. You're simply going to benefit from the highest degree of automation and standardization to repeat the entire solutions life cycle over and over and over again at supersonic speed.

It requires mastering agility at all stages and it needs perfectly aligned teams with committed specialists from all crucial disciplines: developers, testers, *and* operations. Now would be a good time to get them acquainted. And probably it makes sense to start exploring the new approach, only in the most suitable areas first, such as mobile and Cloud-based applications rather than the critical, core-applications space.

Once *in flow*, an optimally tuned DevOps team can set a shining example to the rest of the enterprise.

Build, Release, Run, Repeat. All before lunch.

What if the business could do that too?

ORCHESTRATE FOR SIMPLE

Your expert
Har Gootzen

Organizations clearly see the benefits of the cloud in cutting costs, improving agility and boosting innovation. What organizations don't like to see is the complexity of providing and consuming cloud services. Integration of cloud services from different providers, security aspects, hybrid deployment and varying service levels are no simple issues. This is where 'service orchestration' comes into play, providing the power of the cloud through a platform of simple, easy-to-consume services. Such a platform provides organizations with a path towards leveraging the cloud that they can follow on their own terms.

A cloud orchestration platform organizes, provisions and integrates various cross-cloud cloud services — public, private or hybrid — to provide easy-to-consume business services. Besides this 'stitching' of horizontal services (Software-as-a-Service, Platform-as-a-Service and Infrastructure-as-a-Service), supporting functions and layers are part of the orchestration platform as well. Services from different clouds, different vendors and different providers are abstracted to a common level in order to make them 'executable' by the orchestration platform. Integration and aggregation functions take care of exposing traditional data center services to the orchestration platform.

Part of the orchestration capability is the cloud 'brokering' function, allowing the organization to mix and match horizontal cloud services from external cloud marketplaces. Cloud brokers add value to private and 3rd-party cloud services (such as those of Microsoft Azure, AWS, IBM SoftLayer, Virtustream or CenturyLink) by unifying service level parameters, reporting and billing.

To illustrate the relation between orchestration and brokering, imagine the ordering process for a fully configured and ready-to-use server platform being delivered as *Infrastructure-as-a-Service* (IaaS). This is referred to as *resource orchestration*. The user triggers the process from a portal that provides access to the service catalog of ready-to-use IaaS components. The orchestration platform handles the end-to-end automated provisioning of these components — such as a specific application server instance — including applying involved business rules like authorizations, financial controls, and capacity checks. The brokering function presents the user with a choice between private and public cloud resources, and lets customers leverage their existing technology investments.

We will soon see solutions that are tailored to market sectors like Banking, Insurance, and Retail, enabling the dynamic organization of horizontal services such as Software-as-a-Service and Infrastructure-as-a-Service with specific sector relevance. These ready-to-use cloud solutions can then be deployed by standardized templates and configured to customers' specific needs to reduce their total cost of ownership.

Orchestration as an enabler of higher-order concepts

The next logical step to resource orchestration is workload orchestration. Business workloads are given the infrastructure resources that they need, based on business policies. The workload orchestration platform ensures that the right workloads are made available to the business (e.g., an ERP solution, a productivity application, a full DevOps environment, or a mobile back-end application), providing the workloads transparently across public, private, and on-premise environments. This requires an even higher level of abstracting the infrastructure, another step towards the ultimate concept of an 'invisible' infrastructure. Cloud orchestration takes care of the management and consumption of infrastructure such that it is self-service, elastic, Internet-accessible and highly automated.

Organizations typically will be better off building on a ready-to-use cloud orchestration platform, rather than spending time and money on the in-house design and development of such a platform themselves. The build phase will then be all about integrating and aggregating these services and the more powerful an enterprise-grade cloud orchestration platform is, the easier this transition will be made.

With enough time, people and investment, an enterprise could however create its own orchestration service from the ground up. A European governmental organization built an orchestration platform over the recent years, allowing them to benefit from the agility of a cloud infrastructure in software development. The objective was to solve the issues of slow infrastructure delivery and massive demand for infrastructure by their big development projects. DevOps and 'agile' did not even exist as concepts at the time that design of the orchestration platform started; there were only unsatisfied customers. Also, there were no commercial platform products available in the market at that time. The in-house orchestration service was developed by infrastructure professionals rather than software engineers, and it is truly fit-for-purpose. It does require a lot of expertise to maintain it though, and off-the-shelf solutions more and more become a viable alternative.

Off the shelf

Indeed, today there would be no reason to endeavor on such a challenging development journey, because robust and tested platforms are available. Contributing to this growing availability of platforms is TOSCA (the Topology Orchestration Specification for Cloud Applications) that is governed by the OASIS organization. TOSCA is the base for defining a standard container orchestration specification that is portable across various cloud environments and container providers.

If an enterprise until now has avoided taking the leap into the cloud, it will find that an orchestration platform can significantly help make the transition painless, seamless and as gradual as desired. If the business is already in the cloud, it will finally unleash the full benefits by moving to a purpose-built, rigorously tested and fully integrated orchestration platform.

After all, a Cloud orchestration platform is a means to an end. An end to rigid and complex infrastructure management, that is. Enterprises want to grow and innovate, using Cloud services. A Cloud orchestration platform enables them to do so, without ever losing focus on their business objectives. It's as simple as that.

WHAT WOULD **Amazon** DO?

Your expert
David Blackwood

Many of the most striking innovations in infrastructure serve the key objective of the enterprise: creating a superior customer experience. So why not go the full circle and learn from some of the greatest retailers in the world, to envision the next steps in infrastructure? As consumers, we all know the power of the web stores, the likes of Amazon, Apple, Alibaba and Walmart. It only takes a quick look at Amazon Web Services to see what happens when IT gets the 'high volume / low margin / rapid delivery / great experience' treat of an online retailer. Infrastructure must become a high-value, high-experience commodity to the business. Want to challenge yourself? Regularly ask yourself what Amazon would do.

It's still an established benchmark for any application developer building a web shop, that before starting to discuss structure, activity flow, and layout, you take a look at the world's leading example and see what's hot. *What would Amazon do?*

Well, this time it's about frictionless access to IT infrastructure, as well as business applications. And it's equally a hot topic.

With an ever-growing catalog of infrastructure services from the Cloud and heir still rapidly expanding AWS marketplace, Amazon shows any IT department what they are up against in the forthcoming years: a neatly organized, easily accessible catalog of open, highly standardized, secure IT services, ready to deploy in seconds, paid per use, all in one invoice. And of course, at incredibly competitive prices. In its nine years of existence, AWS managed to lower prices dozens of times, all in the best tradition of the highly optimized retailer that they are.

Although, it's not just about price, customers seek innovation — and the AWS pace of innovation is unlike any of the nearest competitors — with 2015 exceeding the already remarkable 516 new features released in 2014.

Today enterprises long to embrace agile and flexible approaches to provisioning infrastructure, an approach that the likes of SMBs and start-ups have been enjoying for some time. The agile approach need not be a pipedream, often the best way to start embracing this is to investigate a bimodal approach to IT, where Mode 1 maintains the traditional systems, and Mode 2 catalyzes the agile web-native opportunities. The best way to facilitate this need for agility is to make the customer experience as simple as possible and provide them the tools to provision their own infrastructure. After all, they know what they want!

We often discussed with our clients how quickly, and through what steps, they could benefit from the public cloud. And the same advice is repeated: we're not saying an enterprise's entire IT landscape should be on the public cloud next year. But for sure, it is quickly defining a new norm in terms of how fast, easily and cost effectively a business should be able to procure and deploy new solutions.

That benchmark becomes apparent from the AWS marketplace (or, just to be perfectly clear, any comparable service from, for example, Microsoft or Google). Go to it yourself and browse around a bit. Will your IT department be able to provide the same compelling catalog with the same self-service, usage-based pricing, and deployment in minutes? And even more important, are your prices more or less on par with what Amazon is offering?

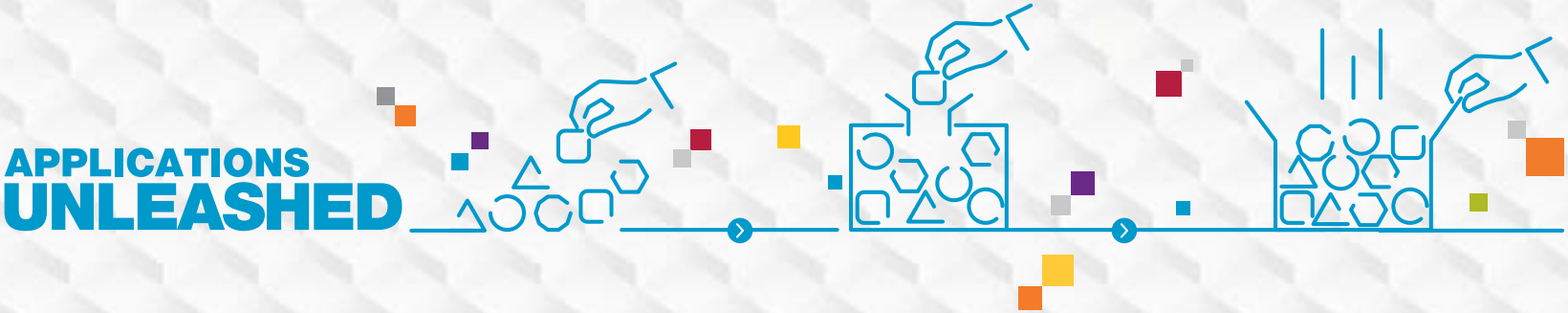
Amazon is taking a retail perspective on IT. It aims to provide high volumes of excellent quality at low prices and uses its impressive growth to innovate and continue to sharpen its proposition with new features and services. It's not a coincidence that the AWS marketplace starts to resemble the Amazon web store. You can only imagine what will happen when more business applications become available (anybody for a recommendation engine?) through the very same marketplace.

How is it all achieved? The answer is partially also in speed. Amazon is a build, release, run, repeat, master. Where many competitors struggle to successfully deploy application changes once a week without breaking live operations, Amazon is deploying fully automated and fully tested changes, more than 1000 deployments per hour.

So what does a truly invisible infrastructure look like? Where do Virtual Lego and Cloud orchestration eventually lead? It might be nothing more or less than an exciting online catalog, filled with ready-to-use, industry best practice business services.

Disruption can be as simple as starting to think like a retailer rather than an IT-provider. What would you do next?

Applications Unleashed: The Art Of Application Landscaping



Your expert
Ron Tolido

"Show me your application landscape and I'll tell you about your company."

In an ideal world, the application landscape would be a perfectly accurate reflection of the objectives and governance of an enterprise. It would be highly standardized and industrialized to enable and support core processes. It would be agile, responsive, and insightful at the right places to give an enterprise a differentiating edge.

In reality, there's a gap between the needs and ambition of an organization and a limit to which the application portfolio can address it. Keeping the gap as narrow as possible sounds simple enough, but it's a huge task that requires a daring, innovative mindset and determined execution.

The weight of existing application landscapes is reaching critical mass as disruptive technologies emerge and pressure the business side urges for more innovation. It's no longer a question of *whether* to rationalize, but rather *when* and *how* to do it.

More radical measures need to be considered to simplify and standardize the core applications portfolio. A stepwise approach often takes too long and the business side is tempted to go out and shop for cloud applications themselves. After rationalizing ten thousands of applications for hundreds of different companies, we have found that many organizations have a surprising lack of basic insight into their applications, let alone that they are able to understand the business value of each application, the way it is being used in processes and its dependencies on other applications.

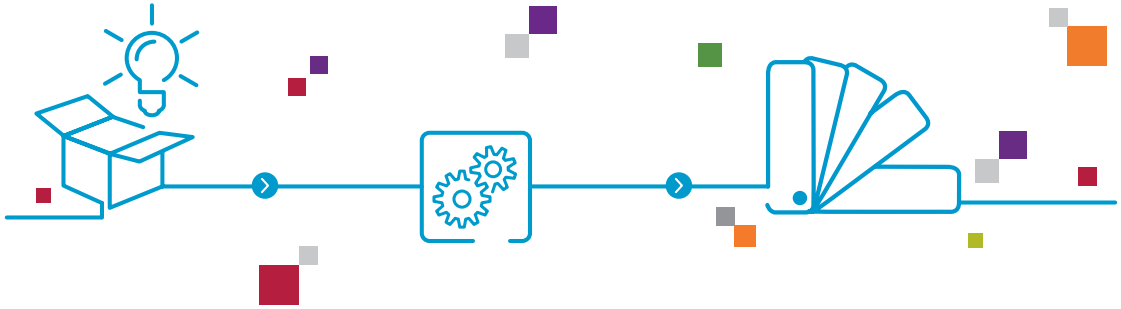
Informed actions are so much easier to take, and organizations benefit greatly from building some solid application intelligence, before taking bold decisions on where to move.

Now here's some good news: the cloud is bringing a whole new catalog of Software-as-a-Service (SaaS) solutions. As they typically contain industry best practices, replacing existing, often custom-build applications is not only cost-effective, reducing complexity, it also brings new value to the enterprise. However, thinking "catalog first" instead of "requirements first" asks for a change in mindset that ripples through the entire enterprise, not just the IT department.

Also, with the rise of what we like to call Vanguard IT tools and approaches (think DevOps, high-productivity cloud development platforms and No App Apps), organizations have new opportunities to boost their development productivity and create more innovative applications closer to the business.

So unleash that power. When core application landscapes are radically renewed, they not only become a stable foundation for the performance of the enterprise, but are truly a catalyst for digital change as well.

ALL IN A CATALOG



Your expert
Ron Tolido

The Cloud brings a brand new generation of Software-as-a-Service (SaaS) solutions. These solutions are not only cost-effective and feature the latest in user experience, they also contain industry best practices in terms of domain or sector functionality. Enterprises can greatly benefit from catalogs, first of all to radically renew their existing, aging applications landscape. Also, it's the quickest way to add powerful digital business functions that the organization needs to grows. However, constructing something from a catalog is different from building traditional solutions; it requires an 'IKEA mindset'.

If an organization's application landscape is a reflection of its business, then there are a surprising number of unique organizations in one and the same sector.

Although you would expect striking similarities between processes and the systems that support them, many enterprises will cultivate multiple, highly-customized instances of ERP. This makes it risky to upgrade to new versions of the application. In other cases, custom-built software further suggests that their processes and functional requirements are so special that no standard solution can support them. Being 'special' comes with a price however, since the core part of the applications landscape — without differentiating any value — consumes the better part of the IT budget (more in our Application Landscape Report).

Many core applications, both custom-built and package-based, used to provide a differentiating value to the business. Now, they are often consuming the bulk of available IT budget due to excessive maintenance costs, while the differentiating 'edge' is already found elsewhere around mobile, social, BPM, and Big Data. This is why it's time for a drastic move to good old 'vanilla' that uses out-of-the-box, non-customized versions of standard (Cloud-based) software or by step-by-step rationalization of homegrown applications to leaner, simpler versions that are easier and less costly to maintain.

Forward looking CIOs such as Canon's Caroline Serfass cherish the business principle of minimizing the number and scale of any customizations.

In the era of Software-as-a-Service (SaaS) we're quickly moving towards catalog-based applications that are essentially *multi-tenant*, used by many different organizations in the same way with certain configuration options. Multi-tenancy drives economies of scale, lower costs — particularly in the capital expenditure area — and a much shorter time to market.

SaaS champions such as Salesforce, NetSuite, and Workday (also, their incumbent competitors such as Oracle, SAP, Microsoft, and IBM) feature quickly growing catalogs of ready-to-use business solutions.

And the catalog effect extends beyond applications, as advanced analytics and smart cognitive solutions are way easier to buy off-the-shelf, ready-to-use than built in house by purple unicorn teams of data scientists and open source software engineers.

What's arguably even more interesting, are the marketplaces of third-party solutions built on the underlying Cloud platforms. Salesforce's AppExchange catalog features thousands of different horizontal and vertical applications that not only cover human resources, finance and administration, and ERP, but also industry-specific areas like Utilities, Manufacturing, Retail, and Government.

And IBM, among others, does pretty neat too.

It takes some time to get used to the new reality of *catalog power*. We don't shop at IKEA expecting to find the exact furniture that we initially envisioned and described in detail, in specification documents. Instead, we

browse through the catalog, wander around, and get inspired by the art of the possible. If enterprises realize that the case for catalog-based SaaS solutions is like IKEA (good design, high quality, sharp prices, ready to take with you and use immediately), they should adapt their solution development practices accordingly.

They need to appreciate the basic taste of *vanilla* as a highly cost-effective, low-maintenance foundation for both their processes and supporting systems. The next generation of standard, Cloud-based solutions (whether in ERP, CRM, HCM, or any other functional or sector domain) contains industry best practices that support many different organizations across the sector. A European investment bank replaced all of its custom-built core investment banking software by a SaaS solution (deployed on the Amazon Web Services Cloud) and as a result not only considerably decreased its IT costs but also could create and run more agile, more insightful processes than its major competitors.

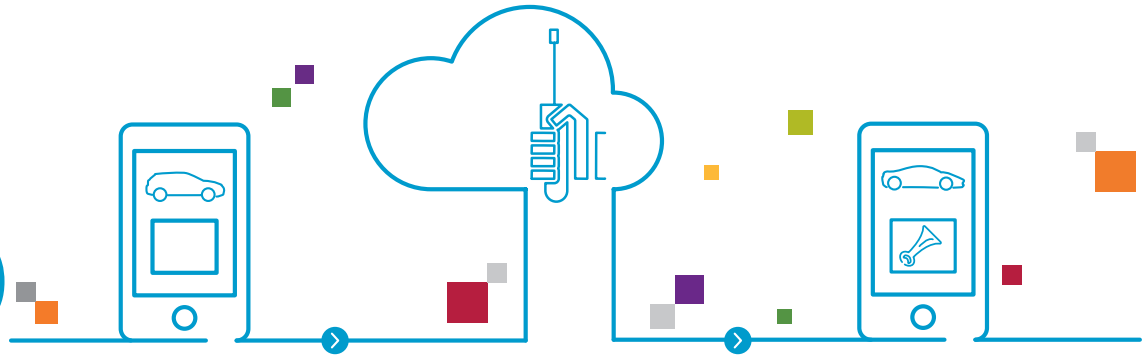
It's up to individual enterprises to take a hard look at their value scenarios and customer journeys (no detailed requirements, remember) and validate how well these industry best practices would work for them. Once done, then focus on the deltas on what needs to be adjusted and what risks need to be mitigated.

This reverses the usual process and makes way for both more radical application rationalization strategies (de-customization, de-instantiation, ripping and replacing of legacy applications) and for the quick implementation of next-generation SaaS solutions to drive business growth.

On top of a catalog-based applications landscape there are, of course, many ways to build solutions that help an organization to be innovative and special in the market, win the hearts of their consumers, have superior operational excellence or even do new business in entirely different ways. But these will be lightweight, car and scooter applications that leverage mobility, social, Big Data, BPM and the cloud. They may even be 'No App Apps.'

The keys to application renewal and innovation are out there. Just open up that catalog.

REBORN IN THE CLOUD



Your expert
Vikrant Karnik

Once organizations have implemented or built their first Cloud applications, they find they have a powerful, new development platform available. Now they need to leverage more of that platform, not only to create additional solutions, but also to renew their existing application landscape. This may be a matter of simply 'cloud-enabling' aging applications by providing them with a new front-end and integrating them with the Cloud. However, applications can be completely 'reborn' too, taking full advantage of living in the Cloud.

Many factors are challenging the fear of modernization in the enterprise application space. In some sense, the imperative to be more agile drives IT to question why their apps should change so glacially. The profusion of new development tools combined with methodologies that espouse agility is breaking down barriers in traditional IT risk areas.

The threat of becoming irrelevant to the business is forcing many enterprises to ask "how can my apps be reborn in the Cloud?" This is particularly the case with the advent of a new generation of Software-as-a-Service (Saas) solutions. There are also new, powerful Cloud platforms underneath. A quick look at the Salesforce App Cloud, Microsoft Azure, Pivotal Cloud Foundry, or IBM BlueMix makes it clear that these Cloud platforms provide many different options to renew the applications landscape.

A SaaS Solution? Only the Beginning

What should a CIO do to start delivering on the promise? Well, start segmenting the applications landscape. Conducting a systematic, facts-driven approach like the Capgemini Cloud Assessment on the portfolio of applications allows the enterprise to categorize and then make informed decisions about the next steps in modernization. With the use of automated tools, the enterprise can start with higher-level application meta-data that identifies the *low hanging fruit* as well as the *high impact applications*.

One can then dig deeper with some topological insight from automated tools that can traverse the application's testing environments and identify dependencies that become critical factors in Cloud suitability and placement decisions.

The last step is identifying the extent of replatforming needed for each of these application segments. This step has to be aligned with the strategic IT direction of the company while keeping the option to align to the exciting new developments in the IT technology arena like software containers.

Following this approach, we see that the typical *destinies* of application renewal look different when the target environment is a Cloud platform. To name the seven most obvious ones:

1. **Replatforming** applications makes use of the highly scalable and cost-effective deployment options of the Cloud to run existing applications more effectively.
2. **Resurrecting** applications consists of adding Cloud-based, possibly mobile, front-ends to applications to augment and improve their functionality and user experience.
3. **Rebuilding** applications leverages the next generation of rapid development and deployment tools to quickly and effectively recreate applications.
4. **Rebonding** applications trusts the considerable integration power of Cloud platforms to eliminate redundant, overlapping, or non-aligned functionality.
5. **Refactoring** applications is about improving, or simply documenting, the structure of applications — a more than welcome by-product of assessing applications for Cloud-based modernization.

6. **Replacing** applications involves taking a good look at the marketplace of Cloud-based applications to find replacements for the existing, typically custom-built applications.
7. **Retiring** applications relies on cost-effective Cloud storage to archive core applications data for possible future use so that the applications themselves can be de-commissioned.

Every organization needs to map its own cloud journey. For example, to reduce its total cost of ownership and improve agility, Dutch PostNL chose a full cloud strategy, focusing mainly on replacing existing applications by SaaS and rebuilding cloud-native applications, rather than replatforming workloads on a cloud infrastructure. Public cloud (Microsoft Azure in this case) was preferred to private cloud, with certain workloads kept on-premise only as a last resort. The entire IT landscape of 400 applications was systematically analyzed and then step-by-step made cloud-ready.

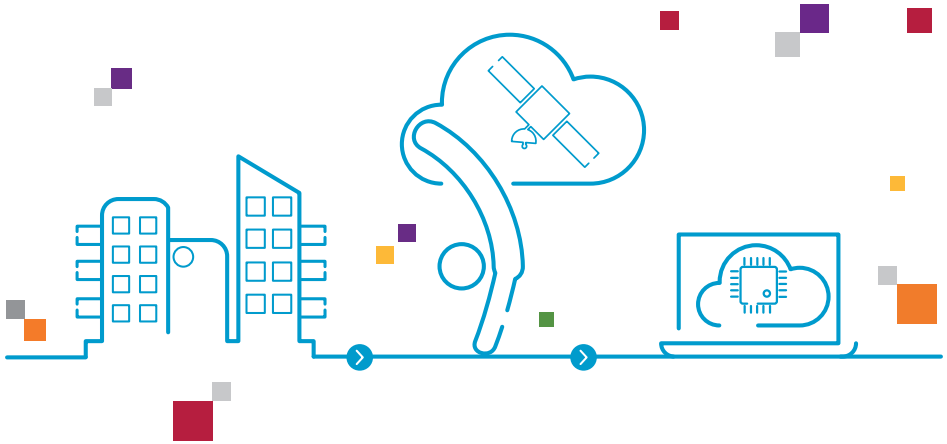
Sounds too Good to be True?

Yes, it's nothing less than a transformation, so there are risks to mitigate. The primary risk is interrupting the business services of the enterprise. This should be dealt with by involving business stakeholders from the start of the modernization program. Business is going to benefit the most by the flexibility and agility of the Cloud and if involved properly, it will be an enthusiastic partner in the journey.

Another risk that's often raised is the "futility of trying to stay current" as the technological advance is relentless and innovation seems futile. The question that enterprises need to ask themselves then, is if they can afford to stay still. What's competition doing during that period that can eliminate your future advantage? Actually modernizing the application landscape through a Cloud platform can help leverage the technological advances while focusing on the IT agility needed for enabling business needs.

In conclusion, we could appropriately quote the famous author James Faust who said "a rebirth out of spiritual adversity causes us to become new creatures." Maybe he didn't have modernizing applications in mind, but it sure does embody the opportunity of reimagining apps in the Cloud.

ELASTIC BUSINESS



Your expert
Fred Landis

A business is elastic when it can explore new activity areas easily, scale at will and gracefully shrink back when needed. It can rapidly try new things and explore new business models while remaining connected to the basics of the enterprise. To be truly elastic often requires building on the next generation of (SaaS) cloud applications, but fully incorporated into the existing IT landscape. Being agile and flexible at the edge requires integration at the core. The IT department that enables business users to test and learn with new services at will, while staying connected to their core data and applications, is uniquely positioned as a digital partner to the business.

For large, existing, traditional businesses, the new digital world can seem full of risks and challenges. Big enterprises are undoubtedly slow to change, hindered by long-established processes and operating models that have been built for efficiency, not flexibility. New, disruptive competitors emerge in no time, born in the Cloud and unconstrained by years of carefully planned capital investment.

Yet these same risks can provide tremendous opportunities for those that can find a way to harness them. New business models at the edge of an organization are likely to use Software-as-a-Service (SaaS) cloud applications, but also mobility and advanced analytics to 'test and learn' new business propositions. These organizations are the disruptors, not the disrupted. They're the 'elastic businesses'.

Elasticity implies flexibility and the ability to expand quickly and then shrink back just as fast. For a business, this means rapidly scaling up in response to managing peak demands, such as the launch of a new service, or a holiday promotion, or supporting the fast development of prototypes and new concepts. Central to this fleetness of foot is the ability to harness cloud applications, exploiting new opportunities at a speed, previously unseen.

The real trick is to link and integrate these elastic, agile, 'edge' investments to the core business strategy and a well-governed Digital Transformation. Capgemini's still on-going, collaborative research with the MIT Center for Digital Business shows that, over time, the businesses that get this right (the digital leaders) can be up to 26% more profitable than those that spend just as much on their digital technologies. These 'Fashionistas' crucially fail to coordinate, extend, and integrate across their broader business.

The truly elastic business doesn't respond to change, but leads it. This requires a number of components: a clearly defined digital strategy, governance across the C-Suite, willingness to test and learn (including making mistakes and the courage to shut initiatives down), adoption of outside-in customer-centric thinking, use of data-analytics to support and prove hypotheses, and integration of all new services within existing back-office IT systems. Certainly, businesses shouldn't build new initiatives without knowing how they fit into the current IT landscape and use (and enhance) customer data.

Organizations that establish the right IT principles of adopting new digital services can become truly agile at their edges. They can set up new services quickly and test them out in small (but real) areas, such as in a single store with one customer segment, or with a proportion of website traffic (A/B testing).

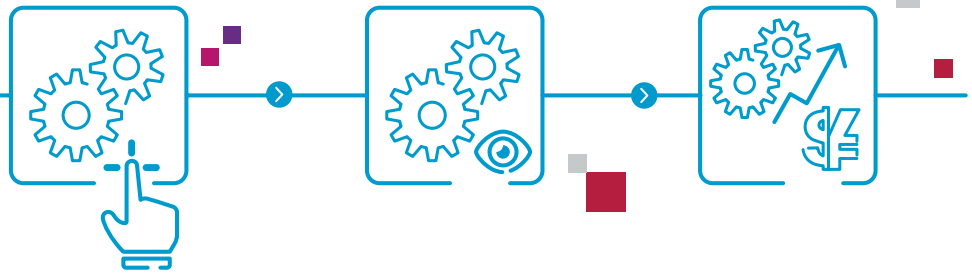
This isn't just a nice-to-have flexibility — it's absolutely essential for the future integrity of the business. It's all too easy for business users to adopt new SaaS services, or employ niche agencies to write cool mobile apps. But this can lead 'the edge' to becoming a series of islands of innovation. Eventually, the customer sees a disjointed mess, and the concept of a seamless omni-channel is long forgotten.

Need an example? A $7B Fortune 500 global manufacturer and distributor, present in almost 100 countries worldwide, faced a massive ERP upgrade for one of their large global divisions. In their quest to standardize and optimize processes across their global sites on one hand and lower costs for subsidiary countries on the other hand — while drastically improving local agility at the same time — they evaluated the next generation of flexible cloud solutions, notably NetSuite. An elastic blueprint and strategy were developed, based on considerations such as gap/fit analysis of processes, subscription costs, implementation costs, total cost of ownership and ROI comparisons for alternative solutions. The scope of this elastic strategy is currently set for 21 countries with more than 25% savings projected.

Indeed, the cloud is a main driver of elasticity. But given the bewildering array of cloud services and providers available, many organizations struggle to work out how to take advantage of the cloud. To help navigate this virtual jungle filled with options, you may want to have a look at approaches such as Cloud Choice, a way of bringing clients the best of the ecosystem along with tools and commercial frameworks to deliver that all essential agility.

The elastic opportunity is here. Regardless of industry, there is no time like the present to take next steps. Start stretching!

API ECONOMY



Your expert
Joakim Lindbom

Your core application functionality is too valuable to only expose through one and the same user interface. There are many more ways that your enterprise applications power can be leveraged, for example by your own business units, external partners, consumers and even maybe, just maybe, by your own IT department. Enter the API Economy, where the best Application Programming Interface wins. Let your business get up to lightning speed with your API catalog, while maintaining enterprise scale. Bring your application services as APIs to to the outside world and let them create solutions and new value in ways you never anticipated. Your applications really don't matter anymore. APIs do.

The inspiration for this trend can be found in open-source communities, recent open-innovation initiatives, and how major Internet corporations have enabled radical growth. The self-organizing structure in the open-source communities couldn't happen with a single master plan, instead most of the time, for any single purpose, several projects are competing; a way of winning the crowd is to make sure you nurture an ecosystem around your project. And the best way of attracting co-projects in the ecosystem is to say "Hey! Here's some cool APIs for you to use. Go play with them and let's see what magic comes out".

In many western countries, state agencies and municipalities have started publishing open data and open APIs, allowing anybody to consume and enrich the data and services to build apps and mash-ups based on it. Some extraordinary apps have come round, a repeated example is train information apps, placing relevant information about actual train status, delays etc., in the hands of the traveler.

In Sweden, the most relevant and accurate source of this data is no longer the agency providing it, but an app provided by a one-person company. When travelling, the app is faster, more accurate, and richer than the information you can get from the billboards on the train platforms.

Another example of extensive API usage is Netflix, which today deploys new versions of their services 100+ times per day. This certainly couldn't happen if Netflix was one tightly coupled set of systems, but with the help of DevOps and using APIs to isolate the components from each other in most ways, every delivery team is free to adopt, improve, and expand their service without having to interact with anyone outside the delivery team.

The API is the contract regulating the use of the service, and as long as the team observes that contract, they're only limited by their imagination and skills. Compare this with major corporations and authorities that would be hard-pressed to deliver more than two new versions every year. These organizations would be helped with an introduction to an API Economy and a slew of fractal organizational thinking.

The tools for API Economy are to a large extent present in the already known SOA suites, with the addition of API management tools like WSO2, Apigee, Microsoft's Azure Api Management, IBM's API Management, CA's Api Management, MuleSoft's API manager and Tibco's Mashery. APIs are valuable assets, and you need to treat them as assets that contain value like any products or services.

The main differentiator from SOA comes from a forced outside-in perspective. You need to think about what a presumed consumer could need and how that consumer would like to see your service. How can you facilitate and ease the usage of your service? How can you improve on an existing ecosystem and win over app developers, internal or external? And once there, how can you make sure your service improves, evolves, and adapts to the needs you cannot foresee today? It's a Darwinistic game, where adaptability and staying mean and lean is a better strategy than becoming omni-capable and bloated.

The main effect is one of going from the presumed, predictable, and plannable integration-driven efforts. Shifting the mindset to creating serendipity will cut the time dependencies within your system estate. Other

departments can now innovate on your data and your services, without having told you one year ago what they would do.

Internal start-ups/labs can drive in the speed of the market, rather than in the speed of the slowest back-end system; much inspired by Jack Welch's famous words, "If the rate of change on the outside exceeds the rate of change on the inside, the end is near."

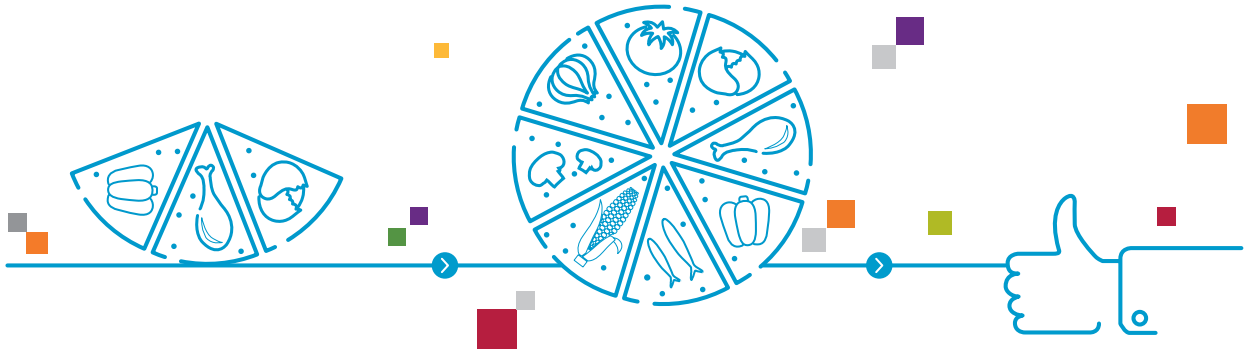
Salesforce provides a striking example of this API-enablement. Most of the daily traffic to its core applications, more than 70% actually, is based on API-usage rather than the browser-interface. Vendors, service partners, and customers have been able to build apps, mash-ups, and services without having to know too much about the innards of the applications. And Salesforce can evolve their systems without knowing how their customers are using them.

New Zealand Post provides a special developer resource center that enables its customers and partners to implement e-commerce solutions, by integrating their websites and mobile applications with New Zealand Post's APIs. The APIs are aiding the organizaton's transition from a traditional postal services provider to a new business model, focused on its parcels and logistics business. Execution of its API strategy has effectively opened the organization's platform, providing a broader range of services and a fast and effective way of integrating with applications and other platforms. For example, e-commerce merchants can now provide integrated domestic and international delivery options, rate finding, tracking and delivery choices through New Zealand Post's new Shipping APIs.

There are also good examples of apps mixing different cab-booking services, e.g., using the Uber booking API to get price quotations and GraphHopper to find the shortest route, based on crowdsourced map data from OpenStreetMaps. Or, if you do transportation, pick-up and delivery, or field-service work, using the APIs for Optimoroute with multi-stop route optimization could be the easiest solution to the classical traveling-salesman dilemma.

The application is the API. The interfaces to your core applications are the key to both liberating your existing IT estate and enabling its innovation and growth. May the best API win!

NO APP APPS



Your expert
Ron Tolido

With core applications becoming standard 'catalog' items, the differentiating edge of IT solutions will come from the next generation of applications that are not really applications anymore. They are quickly created by gluing reusable, IT services together, building on APIs and open datasets. They leverage visual, model-driven platforms that generate code or simply execute the models themselves. They are based on self-service BI, BPM and business rule tools that create solutions in closest proximity to the business. They build on mobility frameworks for new user interfaces without diving into the software underneath. Yes, the future app might still be an app, but not as we know it.

Let's assume you've done all the things that transform your application landscape into a set of unleashed applications: you have adopted industry best practices (building from the catalog) and eliminated excess instances, customization, and bespoke software; you rationalized and renewed your application portfolio, benefiting from new Cloud platforms; you have applied some next-generation SaaS solutions, creating a more elastic business and you have opened up your core applications through APIs.

Now, it's time for the cars and scooters: solutions that are created and deployed in the nearest proximity to the business and have a fast life cycle. After all, being just as standardized and rationalized as your peers in the sector is a basic necessity, really as a hygiene factor, but it will not provide you with the differentiating qualities to stand out in the market.

For that, of course, your organization needs to establish where it's different, where it's special, and where it wants to apply technology to be *digitally relevant and intense*. Then, you want to deploy the right processes, activities, and solutions as close as possible to where it really matters: the business. And, most important, you want to have the agility to quickly implement and improve your solutions, over and over again.

At this point in time, we are already aware that detailed requirements will not bring us where we need to be: too much time needed, too much friction between demand and supply sides, too much disappointment as a result. You probably also don't want to build all those car and scooter solutions using advanced, yet complex programming languages like C# or Java. They require highly trained software engineers, who are not necessarily suitable, nor interested in working in the middle of the business, even when agile approaches such as Scrum and DevOps are used to bridge the gap between business and IT and get optimized results within a given timeframe.

The future of a certain category of applications is not being applications at all, at least not as we know them right now. They are built with tools and platforms that don't require classical programming skills. It might be, at least to some extent, that business people use these tools themselves, feeling just a bit like software engineers. As a minimum, business and IT would be working much more closely together, preferably at the same place.

Need some Examples?

Platforms such as Mendix, OutSystems, Progress, and Magic provide easy-to-use tools to create visual business models that are turned into attractive, executable applications without ever seeing a single line of code. Salesforce's brand new Lightning tools provide many different ways to create Cloud-based and mobile applications using visual UI builders and "point-and-click app logic" through formulas, workflow rules, approval processes, and visual workflow.

Business process platforms such as those from Pega, IBM, and Oracle only require you to insert natural language business rules to create solutions that once relied on complex programming.

Compelling mobile applications can quickly be developed with platforms such as the Kony development Cloud, serving multiple devices and mostly

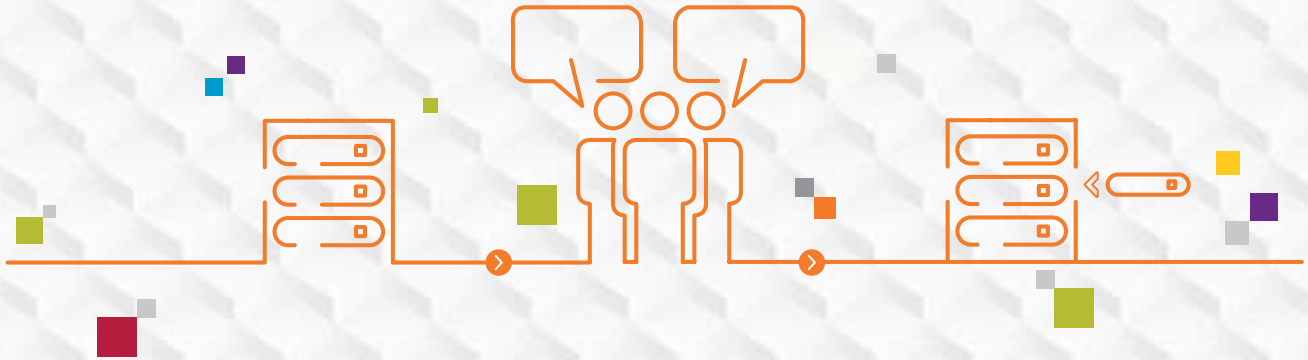
just requiring drag-and-drop actions plus maybe a bit of Javascript coding. And even blogging platforms such as WordPress provide development capabilities that utilize templates and plug-in scripts to create serious, compelling Internet applications.

As application developers, more than once we have responded to an RFP from a client by building a working solution with platforms like Mendix, covering 70 to 80% of the requirered functionality. It sort of helps winning the heart of business users if you come up with an already functioning application — if only the minimum viable product — rather than exchanging elaborate requirements, specifications and planning documents.

When it comes to extreme business agility, the best app might be no app at all.

Thriving On Data: The Journey to Becoming an Insight-Driven Enterprise

THRIVING ON
DATA



Your expert
Manuel Sevilla

When data is turned into insight, provided at the point of action, it creates true business value. Organizations benefit from next-generation Big Data technologies by reshaping their existing data landscape into a more cost-effective, yet increasingly agile foundation for business. They thus enable themselves to deal with the flood of data that is coming from connected people and things.

But there's more: predictive analytics – delivered in real time – substantially redefine business models. Monetizing data even creates entirely new ones. And there's no end to the disruptive potential of cognitive computing and deep machine learning.

Big Data is critical to many organizations. The Internet of Things, mHealth, online retail, smart energy, Industry 4.0, connected cars and the future of insurance all rely on actionable insights as a key component to make the promise real. It's at the very heart of their Digital Transformation. Well, potentially, that is. Research by Capgemini Consulting shows most enterprises put better insights from data at the very top of their digital priority list. And disruption is looming around the corner as shown in another of our reports. The majority of the companies interviewed believe that the new data landscape will thoroughly shake up business as we know it. New entrants use data to create brilliant, intelligent products and services with equally superior delivery.

But the journey to becoming an Insight-driven enterprise is a complicated one. It requires real technological and organizational change, all the way from starting within the right business and technology context via modernizing the data landscape and maturing governance to providing insights as-a-service at the point of action.

And more than anything else, it may turn out to be a matter of culture.

Not everybody within the organization needs to become an accomplished data scientist, but it sure helps to study the ways of these purple unicorns just a little bit more. By embracing data — living and breathing it — enterprises can take the lead to become truly insightful, making better use of the assets they possess and thus outsmarting the competition.

More agility, less infrastructural constraints, and a tight relationship between business and IT are at the heart of making better and new businesses with data. It's what Thriving On Data is all about.

MY **DATA** IS **Bigger** THAN YOURS

Your expert
Anne-Laure Thieullent

Is size still even a question? The new suite of Big Data solutions has created a tremendous opportunity for organizations to leap into a digital, personalized, business era. All without the limitations to volume, structure and availability they reluctantly learned to live with in the past. Today's question is how to put the fancy technology to work for the organization to become a top performer, whether it pertains to bringing more clients to the yard, optimizing operations, or even disrupting business models. By putting unobstructed insights at the heart of its business, an organization will indeed be able to claim that its business is "bigger than theirs".

Thriving on Data

As big data solutions have matured, preparing for the imminent wave of the Internet of Things (IOT), organizations across industries are looking to collect and transform data into business value. Besides the necessary discussions around the right best practice to implement for their next-generation data management platform (like transforming the data landscape towards a Business Data Lake) organizations are now increasingly looking at defining and realizing the business impact of their Big Data initiatives. From customer experience and operational excellence ("doing things better") to innovative business services ("doing better things"), this business impact can either help to survive or truly become a disruptor, by addressing the market with new, innovative services and products.

Consumer product companies aim to better understand the buyers of their brands to better anticipate market trends and design future products before their competitors do.

Telecommunications companies are prioritizing their network optimization efforts to serve their high-value customers more effectively, thus gaining a competitive edge in this dynamic market.

The French branch of Randstad (a multinational HR Consulting firm) wanted to re-boost growth and revive profits by creating innovative, high-margin services that address new customers. It created a digital, dynamic observatory of the French employment market, leveraging Big Data technologies. It allows Randstad to address their customers with new HR services, matching very specific client segments (identify job opportunities and recruiting companies, professional redeployment services, and mobility services, to name a few).

To achieve this level of transformation, and move progressively from "doing things better" to "doing better things", it is critical to think about how to integrate the new insights into business operations, into the very processes that constitute the way the business is run on a daily basis. Insights and operations should not be considered two separate areas anymore; it's a matter of fusing them.

A key success factor is the ability to industrialize the Big Data approach. In a highly dynamic and innovative technology ecosystem, it is tempting to get carried away with discussing the latest, shiny open source Big Data solutions. Unfortunately, it tends to keep organizations away from actually creating business value.

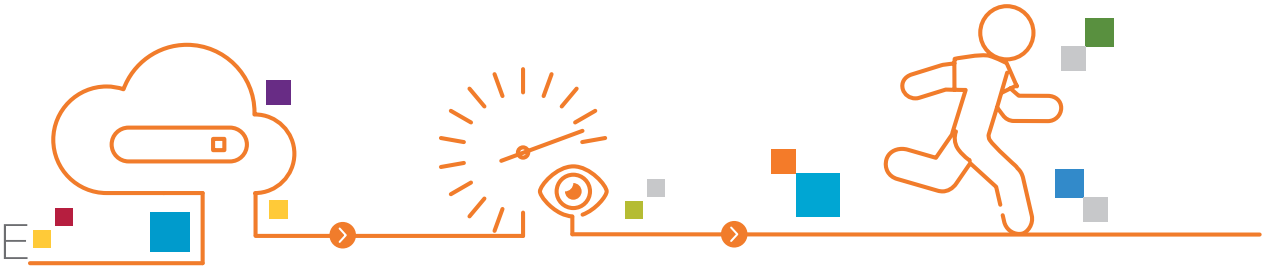
Luckily enough, Big Data technology providers are coming together to combine their efforts and ultimately make life simpler for their clients. Initiatives such as the Open Data Platform initiative or the very important integration of Spark into Big Data stacks such as Cloudera's One Platform are illustrative.

And by infusing the incumbent ERP world with next-generation insights (such as in Insight-driven Operations for SAP), the focus once more is back on business outcomes.

The way to succeed a Big Data initiative rarely lies in the ability to leverage the best cutting-edge technology solutions, although less limitations certainly mean more possibilities and opportunities. Thinking value-from insights-from data, all the way through the organizational fabric, will do much better though.

Telling the competition that your data is bigger than theirs will then mean that your business is doing better. And that's the real big thing.

REAL Real TIME



Your expert
Rüdiger Eberlein

It's true after all: size doesn't matter. Big Data really is about the ability to analyze and act in real time (fast data), using structured and unstructured data from sensors, transactions, and interactions from inside as well as outside the organization. This Big & Fast Data can be used to solve tougher business problems, improve processes, create more competitive advantage, and make more informed decisions in a tightly connected world. It can even be sold as an product. The focus now is to create ultra-fast insights, often within one single CPU cycle, to be used by the businesses or even automatically. If there's no longer a need to wait, the opportunities for radical business reinvention are limitless.

Werner Heisenberg was a German physicist and one of the key creators of quantum mechanics. In 1927 he published his *uncertainty principle,* for which he is best known. It states: "It is impossible to determine accurately both the position and the velocity of a particle at the same instant." Position is the identification of the relative location, in other words: *where you are*. Velocity is the speed and direction, in other words: *where you're going*. It's rumored that Heisenberg went for a drive one day and got stopped by a traffic cop for speeding. The cop asked, "Do you know how fast you were going?" and Heisenberg replied, "No, but I know where I am."

The same applies for many organizations today. They know where they are (or have been), but they often don't know where they're going.

The main reason? Their data is at rest even when it's 'Big.' It is mostly inactive data stored physically in any digital form — for example a database or a data warehouse. It may also be used primarily for historic reporting or analysis on mostly internal data by the IT department. Although the quality is high (data warehouses are often associated with a high level of superiority and a single version of the truth), the time to market is often low, often involving batch-oriented overnight architectures, and the value is accordingly low as well.

To be truly successful, organizations must transform from *hindsight analysts to foresight action takers*. This implies that data should be no longer at rest, but in motion or, even better, in use. It should flow in real time through the organization, changing business outcomes on the fly. Big Data is about where you are (position) and where you're going (velocity) with speed as the deciding factor.

Data streaming technology from vendors like SAP Event Stream Processor or Informatica VIBE data stream allows enterprises to collect and deliver small data packages accumulating into one large 'Data Lake'. Softwares like IBM Streams or the SAS Event Stream Processing Engine, bring complex analytics to operational data, creating faster insights and interactive visualizations to support business decisions. The in-memory SAP HANA platform supports lightning fast analytics on operational data as well and Teradata support the need for speed with its Massive Parallel Processing Database appliances.

Big Data is clearly not only about volume, as the name initially suggests. Volume is still data at rest, even when storing massive amounts to ultra-low cost in the newest Hadoop environments like those of Cloudera or Hortonworks. Sheer speed can already make a significant difference. A software infrastructure provider for telecommunications wanted to provide its clients with better real time information on the clients' customers, especially regarding their location. This would allow them to send real time targeted marketing offers, in order to reduce churn. By connecting Cloudera's Impala MPP SQL Engine for Hadoop directly to MicroStrategy, the production of crucial reports was decreased to just a few minutes, rather than the several hours it took in the past. Sometimes, that's 'real time' enough.

In order to be competitive in increasingly complex business environments though, organizations also need to be able to predict future outcomes, like customer behavior. This has to be done based on all the available data, historic and current. Big Data created a paradigm shift in the way we look at decision making today. Traditionally, structured data from internal systems like ERP had been the main source for corporate intelligence.

Now, unstructured data comes from sensors in machines, planes, trains, automobiles, or even your fridge. It allows companies to optimize their client's travel or create a predictive shopping list for the people in the supermarket, or use smart meter data to warn consumers about their behavior, all adding to the amount of data available. This is also where external data from websites or social media can tell enterprises about their own performance, about their brand, products and services (like Unilever did). Not with facts or dimensions from the IT data warehouse, but with engagement on social channels by customers.

We live in a time where Facebook can predict if someone is about to cheat or commit suicide, where Google can predict a flu outbreak and retailers can deduce that sombeody's daughter is pregnant. Governments open up their own data archives and actively support people to leverage their APIs in nothing less than an Open Data tsunami.

It's important to evaluate the data — through advanced analytics for example with SAS, Matlab or R (Microsoft thinks so as well) — but even more crucial to act before an event takes place.

A credit card transaction of a European citizen in South America shows possible fraudulent behavior. Do we block the card right away?

An online retail competitor changes the pricing for their three most popular products. Do we change our pricing policy in real time?

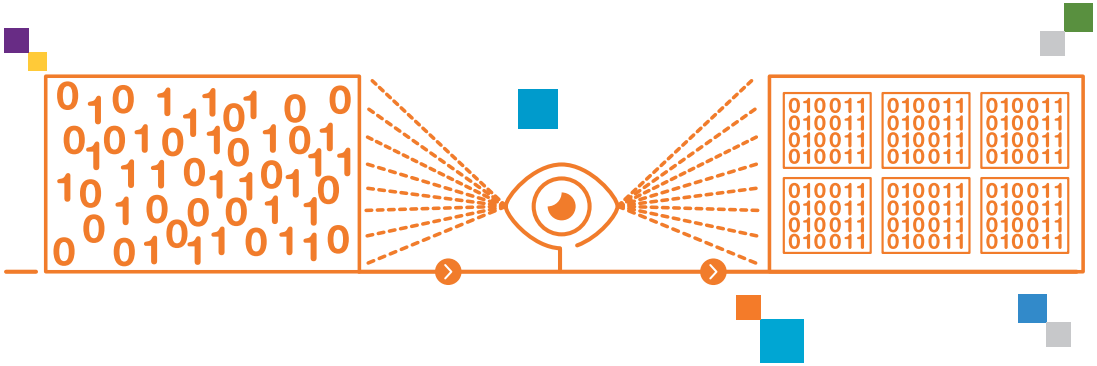
A railroad switch suddenly reports increasing energy consumption. Do we proactively perform asset maintenance?

When 'real time' becomes real — with no more need for waiting — the event and the action become one. And not necessarily in that order. It's not unlike that famous movie Minority Report, in which police forces use data to predict where a crime will take place and send Tom Cruise to the scene proactively, before the axe falls.

Talking about new business models.

Just imagine what this could do for your organization. Say my name: Big Data, it's Fast Data.

NOW YOU SEE ME



Your expert
Mamatha Upadhyaya

Such big data, so little time. The more we create from it, the harder it seems to deliver on the promise, even when the potential is so obvious. What is the secret sauce for creating truly actionable insights? Increasingly, it's is not just to be found in the realm of data science, but also in that of data visualization. When we combine the latest, staggering visualization technology with sound business rationale — orchestrating the right and left sides of our brain — we finally start to see. Our visual story about data becomes insight, then action, and finally real business value.

The main issue with data is that it's simply not accessible to everyday business people. It's difficult to understand, adapt, and exploit as a result of its increasing isolation from business as usual activities. To bridge this widening context gap, we need to embrace data visualization and embed its benefits into the operational fabric of our business. By doing this we can deliver intelligence, which is on point, insulated from underlying IT complexity, instantly consumable at the point of action, and instinctive in its application.

This is when real value is created from data.

Acquisition, marshaling, and increasingly pre-analysis of data is now a commodity. Big Data technology, cloud platforms and cognitive computing are accelerating real-time data insight as vendor technologies exceed the mainstream tipping point. Despite this, typical Big Data approaches are wedded to corporate data complexity and divorced from business reality.

The journey to enlightenment remains shrouded behind a veil of PhD statisticians and CXO command-and-control mentality. What's more, business users are dissatisfied due to an enterprise inability to deliver meaningful and adaptive insight. Maybe the *data artist* is the data relationship counselor that can bring business and IT together using common language.

To improve your corporate data relationship, think infographics, accessible visualization, interactive presentation technology, usable metrics, and wearable devices as crucial elements of your evolving digital palette.

If we believe that a picture paints a thousand words, and that data science and data art should be equal partners in Big Data success, what are the next steps?

1. Expand your data toolkit with infographics and visualization tools

From infogr.am to easel.ly, through piktochart to visual.ly and quid, we need to progressively simplify accessible visual metaphor technology. Vendors like Tableau or SAS with their Visual Analytics tools are just two mainstream examples of tools that enable business users to become data artists. Visualizations in Open source tools like Shiny for R are making information more palatable to decision makers. Turn data into an Object Of Desire and it's more readily consumed. Start-ups such as Datifex use 2D, 3D, game engines and movie special effects software as a visual interaction and transaction platform. To make information even more accessible to business users, Watson Analytics allows the user to ask business intelligence questions in natural language, applying increasingly powerful cognitive systems.

2. Adopt non-linear, intelligent presentation approaches

Armed with a Dan Roam mentality and your printed linear slide decks consigned to the waste bin, try out Cloud-based visual presentation technologies such as Prezi, Haiku Deck, and Slideshare to consolidate your ideas using visual, data-driven, dynamic, and non-linear approaches.

3. Embrace usable metrics

Take progressive action to ensure your reports and visualizations focus on a small, but perfectly balanced set of metrics through which you can easily monitor the development of your business accurately and, of course, incrementally.

4. Get physical to accelerate context

Microsoft's Band and especially HoloLens, Apple Watch and Oculus Rift are the early birds in the technology migration to *surroundable data context*. These technologies have the potential to inject meaningful personalization at each point of business and channel interaction.

In addition, as we swear by wearables, development frameworks such as Android Wear live and breathe visual thinking. With only a few square inches of screen real estate, we have to make the information count and therefore put actionable context before detailed narrative.

5. See the bigger picture

When looking at the overarching TechnoVision framework, we begin to see that Thriving On Data is a collaboration across all digital building blocks. It cannot stand alone. The reverse is also true as we can only deliver actionable data if we truly embrace the ethos of 'Process on the Fly' and, we can only easily visualize a complex story if we adopt a 'You Experience' and mobile design philosophy in parallel.

Visualization is also becoming critical where location and layout are key to understanding data. Overlaying footfall and customer movement data on a store map gives decisive insights to store managers. Boutique service providers like Prism SkyLabs use color coded data visualizations to turn the store layout into an analytics narrative, thus providing insights at the very point of customer decision making. If there were just data points without the visualization, it would be difficult for business users to appreciate the insights, let alone act on them.

Imagine if Uber just gave you a listing of available cabs and distances without the map and route overlay.

To deliver data context, we have to articulate our business transactions as visual stories. While data science may provide the corporate data pump, data visualization delivers the organizational smart meter, ensuring the right information is delivered efficiently into the hands of right person in the right format at the right time with 'a la mode' perspective.

Still looking for inspiration? Consider leading-edge examples of digital dashboards like the SAP HANA powered McLaren Formula 1 racing dashboard or understand the pulse of Amsterdam in these stunning examples. Then expose your inner digital-Van Gogh by consuming the perfection of simple visual design on the Information is Beautiful blog or Vizipedia to add color to your evolving data artist palette.

If we have continuous and actionable insight, we'll not only understand the situation, we'll see the next immediately. This could be a real epiphany as our data speaks in a language we can understand, morphs as our needs dictate, and finally becomes the ultimate driver to our ongoing Digital Transformation journey.

Value from data; it's not an illusion. Showtime!

DATA APART TOGETHER

Your expert
Steve Jones

What if there wasn't a single source of truth in corporate data after all? Many enterprises need to adapt to a federated business reality in which many different sources of data exist and there is a growing need to collaborate externally around data. In order to deal with this situation, and ultimately thrive on it, this requires the smart use of the next generation of Meta-Data Management, Master Data Management, virtualization and Business Process Management tools. They can deliver federated access to information, that soon may be spread across multiple Data Lakes. Governance in this world is markedly different from traditional data warehouse centric approaches. It needs to be much more agile and more business focused, but also needs to balance regulatory considerations and the need for free business collaboration.

As Capgemini's research with MIT Sloan, the Digital Advantage, found, companies that become digital, outperform their peers. Most tellingly companies that took the *conservative* route to digitization delivered the most managed route towards becoming a Digital Enterprise. The challenge for any organization looking to become digital is to leverage *all* of its data and to enable the business to combine it. The Fashionista approach is to opportunistically look towards technology silos for point solutions. The Conservative approach is to look towards governance and a consistent way for all the business to combine the information to their individual needs.

The modern reality of technical evolution is that the conservative approach is the one that embraces delivery and operation changes more aggressively and focuses less on individual technologies.

This view on information underpins the Business Data Lake which Capgemini co-innovated with Pivotal in 2013 and has since been adopted by both Informatica and EMC. Data Apart Together is not simply about how you combine data; it's about how you enable different business units to combine data in different ways. This is where governance, in particular Business Meta-Data, MDM and RDM, deliver huge benefits. The role of governance here is not to constrain the business by forcing a single view, but instead to concentrate on how a business can *collaborate* around information. This view on governance is essential when thinking about how business users actually leverage information.

For many years there's been an approach of focusing on the data *schema* to create a single and consistent view for every part of a company. The problem is that this doesn't reflect how people actually use information in their jobs. Nor does centralization in a single schema represent the actual reality of modern information challenges. Centralization may be desirable, but it's simply not always possible. Stakeholders look to create *personal* views that reflect the individual challenges that they, and their teams face. Thus the marketing lead for an airline puts customers at the center of their view, while the maintenance department looks for aircraft information. To enable analytics to be done against these disparate data sources is about enabling them to create the *right* insight for their problems, or to put it another way, *insight at the point of action*.

Governance needs to reduce focus on *schemas* and *data quality,* and build toward how data sets can be combined and therefore, on the identifiers that can be used to link those data sets consistently. Data quality becomes a *side effect* of governance rather than the goal. This approach is essential when looking at Big Data solutions.

It's ridiculous to think you can possibly create a single schema that includes all of the internal and external data that a company uses. Information from Facebook and other social media feeds is ever changing, information available from open government sources is continually added to, and unstructured information like email and attachments defy any sort of traditional approach.

Twitter and other Social media sites are already forcing firms to submit analytics to them rather than sharing their information openly.

Simply put, a traditional strategy of "one big database, one big schema" is irrelevant in the modern world.

In the Business Data Lake we've concentrated on governance from a *business perspective* not from a technical IT schema approach. This approach focuses on enabling collaboration and allowing the business to combine the various data sets within the Lake to create their own local views, and from there to see where more governance and data quality is required, rather than creating a central plan, which turns out to be wrong.

This focus on identification and cross-referencing means both transactional systems, as well as post-transactional analytics, can leverage the full range of organizational information in a managed approach that aligns with the business model and value. It thus delivers on the promise of digitization and delivers benefits earlier than technology-centric approaches.

Data Apart Together is a key trend that helps businesses and IT to recognize how the market has changed. It's about creating a platform that helps the *business* bring fragmented data together for its *local* purposes, not how IT imposes a single view on information that constrains the agility of the business.

COGNITO ERGO SUM

Your expert
Ron Tolido

The emergence of cognitive systems signals a breakthrough in the relationship between humans and technology. First of all in the way systems interact with people, showing more *human-like* ways of communicating — for example in using powerful natural language processing capabilities. But also in the way systems seemingly adapt and learn *fuzzy* human ways of absorbing and interpreting information, particularly when it's very unstructured and very complex. When applied well, it eredicates the usual friction between the individual seeking insight and the technology providing it. Cognitive systems thus can augment people at the point of action in the most fluent way, without imposing an all too obvious algorithmic perspective.

Is AI Really Elementary, My Dear Watson?

Ray Kurzweil famously predicted that by 2029, computers would pass the Turing Test, the moment at which intelligent machine behavior would be indistinguishable from that of a human. This prediction came *before* the arrival of the fax machine. He also predicted that by 2045, computers will be a billion times more powerful than all of the human brains on earth. Now whether we like Kurzweil's singularity vision or not, that would be truly deep learning, wouldn't it?

Cognitive systems like IBM's Watson – but also simply Apple's Siri and Microsoft's Cortana – learn, interpret and use natural language to communicate in increasingly more powerful ways. In some cases, these abilities extend existing applications, for example in the way Watson Analytics uses natural language to make it easier for business users to articulate their analytical questions.

But there is much more. Already in 2011, IBM's Watson performed as a contestant on the US game show 'Jeopardy' and won. What's astounding is that its exploits weren't coded by human engineers, but self-taught (with a little help) by reading and interpreting Wikipedia — all of it. In such a case, the cognitive technology not only uses natural language to understand and respond to the Jeopardy challenge, it also dives in the content itself — applying guided machine learning or even unguided, self-optimizing deep learning — to find complex patterns and associations and, ultimately, answers and new insight.

Often, cognitive systems are positioned as being able to explore and interpret massive amounts of unstructured data (not only text, but also for example audio, images and video) as opposed to the much better known analytics systems that particularly focus on structured data.

But a better look at typical cognitive toolkits shows all sorts of different ways of creating a compelling cognitive illusion, which, in its results and experience, all have in common that they come closer to the way humans communicate and interpret information. A service that analyzes tweets, blog posts, e-mails and articles to create insight around somebody's character and social orientation, might thus be based on very straightforward, structured algorithms. It may appear humanlike and fuzzy, but it's definitely not in the inside.

The next evolution in computing will create systems that know the answer to our questions before we ask them. This will be based on an insatiable ability to process enormous amounts of human and machine-generated log data in its raw and unstructured form to derive context, meaning, and perhaps most importantly of all, dynamic underlying relationships.

A combination of cognitive and analytical systems will facilitate strategic, economic, and political decisions, accelerating creation, ideation, and rationalization. And the more systems show their cognitive side, by using seemingly human-like ways of communicating and reasoning, the more they will be a natural augmentation to humans, thus improving the acceptance of technology to support — or even replace — their decisions and actions.

Thriving on Data

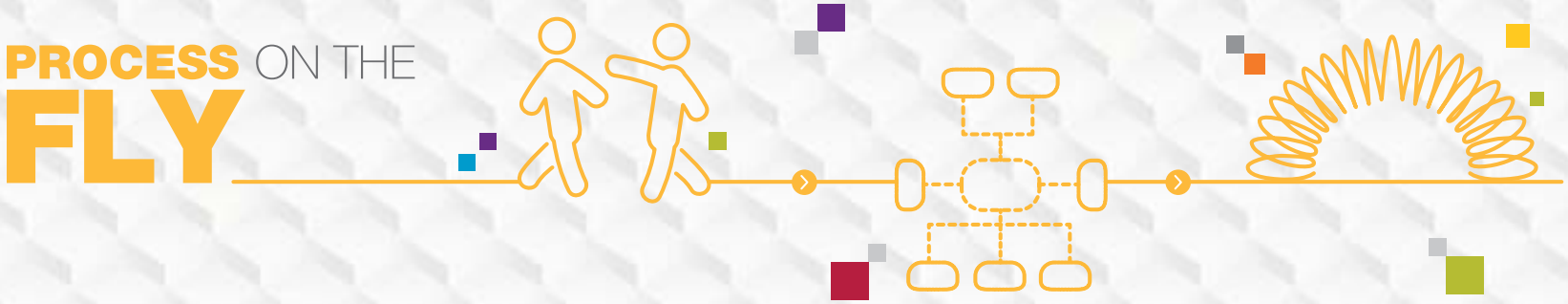
An innovative HR solution, based on IBM Watson Explorer and BigInsights, supports companies in the optimal management of challenges like recruitment, internal mobility and career development. Natural language processing, machine learning, predictive analytics, and advanced data visualization are all combined to enable this approach. With it, people can for example, be much better matched to capability requests. If needed this can be completed almost automatically, thus optimizing the allocation of often scarce resources while improving the career development of individuals.

Cognitive systems have the potential to automate patient diagnosis, research and development activities, product ideation cycles, financial and riskdecisioning, and supply-chain optimization to name but a few potential areas. And the overarching domain of machine intelligence — including robotics, autonomous systems, gestural computing, emotional recognition and A.I. — will only further shape the vision. (Here's a colourful, elaborate overview of technologies and topics).

There are tangible real-world examples in place today from cognitive cooking to personal diet advice, from improved heart disease diagnosis to reducing global crisis response times, and from biodiversity and conservation to faster recruitment screening. The possibilities are endless.

Conscious technology, and even more conscious people and enterprises — it may make the difference between just being there and being a true digital existence.

Process on the Fly: In Search of Agility and Responsiveness



Your expert
Lee Beardmore

While the trends and drivers of Thriving on Data make enterprises smarter and more insightful, the building blocks of Process on the Fly make them agile and more responsive. Together, they are at the heart of the digital platform that connects enterprises to the unpredictability of the outside world. As there are many different flavors of process, organizations can apply a range of technology options to support stable, predictable workflows, ad hoc configurable responses to spontaneous events and anything in-between.

Once a cliché now a necessity, flourishing in the world of digital disruption demands unprecedented adaptation to change. The vision of *Process on the Fly* combine process, rules, and event-management technology with custom software development to provide a platform that enables new ways of optimized working, *without* constraint and *with* control.

However, Process on the Fly involves more than just an orchestration platform. It may incorporate cognitive and robotic process automation technologies that carry out actions traditionally performed by humans. So as well as helping organizations introduce new processes quickly, wrapped around existing ways of working, it also drives execution efficiency so that outcomes are delivered more rapidly.

Speed of change needs freedom, but that doesn't mean it's free for all. Controls, regulations, and laws must be complied with, and auditors must be satisfied. This friction between freedom and control is one of the most interesting areas addressed by *Process on the Fly*.

For control, there must be a 'mega' process foundation that drives compliance. These are the *watchdog* capabilities that guarantee the integrity of the organization.

For freedom, *dynamic case management* provides an element of non-determinism, where input criteria and environmental characteristics drive alternate routes through any business process. These work in harmony with micro process applications that enable agility, they're are quick to build and quick to change — even *on the fly.*

When those are combined, the entire enterprise user ecosystem — employees, partners, and customers alike — operates in a way that's appropriate to their circumstances. When coupled with the building blocks of *Thriving on Data*, this heady mix of process technology delivers what business expects, immediate response to real-time insights and rapid evolution to match a volatile environment.

SHADES OF PROCESS

Your expert
Ard Jan Vethman

State-of-the-art Business Process Management tools make it possible to support, define, run, and manage processes in many different ways. Forget about carving process definitions in stone. Nowadays, depending on specific business needs, Business Process Management can provide at least 50 different flavors of agility, ranging from the classic pre-defined, workflow-styled process integration via document-based interaction, to dynamic rules and policy-based process choreography and, ultimately, to *no process* at all. There are many different shades to consider during an enterprise's journey towards increased responsiveness and flexibility.

Process on the Fly

What if we were to look at the processes within our organization the way we look at Google Maps? Could we identify the different shades of process immediately? We all know the benefits of a good navigation system, using up-to-date roadmaps and real-time traffic information (including your own position on that map). The way we travel by car now is so much more advanced than the state of transport was only two centuries ago.

But how well do we know the traffic that goes on in our own organization? Just think what it would mean to have the "satnav-level" of insight on your business processes as well.

Let's stay with analogies for a while and have a good look at our From Train to Scooter, Design for Digital building block. It differentiates multi-modal IT landscape in terms of agility and associated solution life cycles. *Train* solutions are the most stable and predictable, followed by the *bus, car,* and finally *scooter* ones.

It works very well to understand our different *shades of process*. A train network and schedule is based on standardized routes where the time between stations is known to the minute. The associated processes are therefore typically *straight-through processes* with few exceptions. The bus network obviously has many more stops and potential delays and detours, requiring more flexible options in the process.

Cars can follow many routes (and carry individual passengers) at all sorts of different speeds. As mentioned, this mode of transport has been impacted the most by the ability to use real-time information (maps and traffic information) to optimize the route. And finally scooters: highly individual, ultra-flexible means of transport that may allow taking unpredictable, *on the fly* shortcuts that weren't even foreseen in the street design.

If we look at the portfolio of products and services of leading process management suppliers, such as Pega, IBM, Oracle, SAP, and Salesforce, we see that they typically support these different categories of processes. They help to define and model the processes, run them through automated support, and finally monitor, manage, and improve them based on collected process metrics.

And indeed, recent research with the Consumer Goods Forum shows that value chains are becoming value networks, in which processes flexibly wrap themselves around the needs of the individual consumer. It demonstrates that our established perspective of a process — well defined, executed step-by-step, sequential — is in for a solid redesign.

Arming enterprises with so many different ways to deal with processes provides them with new power to reposition and optimize the data they exchange, and the way they're supported by IT solutions. Where insights & data technologies make enterprises smarter and more insightful, process technologies help to act on insights and ultimately be more responsive and agile. It makes *Thriving on Data* and *Process on the Fly* intimately entwined.

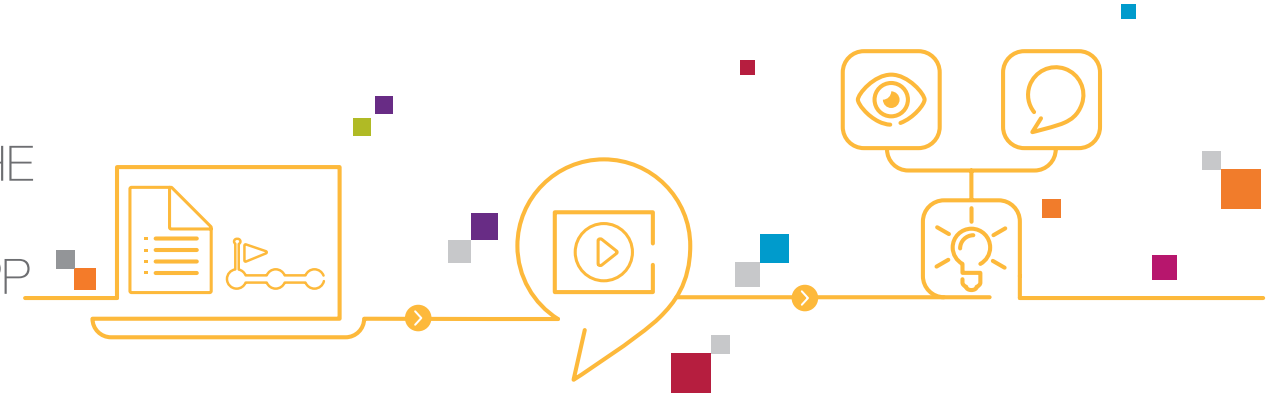
Process on the Fly

Process Mining can come in handy too. It's a set of algorithms that analyzes process event data and constructs the network of possible routes and traffic. This way, you discover how data actually travels through the processes within your organization (rather than how you thought you designed it). One of the typical discoveries is that there are many more "scooters" moving around than you expected, some using smart shortcuts, while others use risky non-compliant ones. Once you know this, you can either try to get people back into more formalized, better structured processes, or you can try equipping them with better information, so that they achieve their objectives safely and effectively.

So, start building your process network more interactively — possibly using process mining — and discover all the different shades of process and the associated optimal applications life cycle within the enterprise. Use this information and the right portfolio of BPM and business rules management tools to improve the enterprise processes, over and over again.

A seductive perspective indeed!

PROCESS IS THE NEW APP



Your expert
Léon Smiers

The next generation of Business Process Management and Business Rules Management Tools is so powerful that it actually can be seen as the successor to custom-built applications. Being able to define detailed process flows and decision trees enables both business and IT to create powerful, differentiating solutions that would have required extensive custom coding in the past. Now, much of the definition can be done on the fly, using visual models and (semi) natural language in the nearest proximity to the business.

Process on the Fly

With increased demand for digital interaction with customers and business partners, enterprises need to open up their IT Systems to external parties without compromising the security and stability of the internal applications, and yet provide the business functionality in a fast and agile way.

This is both a requirement from the inside-out of the enterprise (i.e., improving the agility for their knowledge users), and from the outside-in for improving the customers experience across multiples channels.

Inside-out

Over the years, ERP systems have been extensively customized to address organization-specific requirements. This arguably leads to tailored support for the business in a siloed manner, but at the same time, involves mounting costs for maintenance, high dependency on the personnel involved in the customization, long timelines to deliver change, and increased risks in upgrading the ERP system. The situation is certainly not better with bespoke software — often based on complex or aged programming languages — which makes it all the more difficult to maintain or extend the code. So the way the enterprise addresses their customers and partner demands is costly and not efficient.

Outside-in

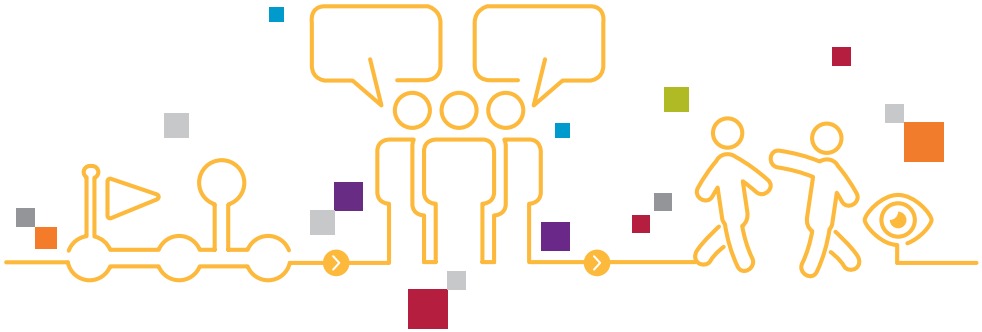
In the current situation most communication with customers and business partners is done in the old-fashioned way of phone, email, externalised websites and sometimes still even with fax. Externalised websites deliver the closest to what is required for digital interaction, but acts more on an atomic one-way communication channel. A customer orders a product, raises a complaint or requests a quote. On a more sophisticated Business to Business (B2B) and Business to Consumer (B2C) level, such as approval flows, quote discussions, product complaints interactions a more direct interaction with the business partner or customer is required. In the digital space, customers and business partners want to engage seamlessly thru any channels and expected a personalized response.

The process application in the cloud

The best of both worlds can be created by bringing back the business functionality to out-of-the-box usage of the ERP system (or simply leave the custom code alone, in the case of bespoke software) and at the same time introducing a high level of agility, by means of externalized process apps. All without customization or coding. The ERP system is used as originally intended and designed, resulting in more predictable behavior of the system related to usage and performance, maintained in a more standardized and cost-effective way. The process app externalizes the needed functionality into highly customizable solutions outside the core applications. They're supported by rules engines and task inboxes and can be delivered to different channels, including, notably, mobile devices.

Platform-as-a-Service (PaaS) cloud applications enable flexibility on top of the application landscape while minimizing the effort required by IT. PaaS application support business functionality such as process execution, integration, mobility and business data/intelligence. With PaaS we are now able to weave business partner communications into the company internal application landscape. Proces Cloud apps, such as the Oracle Process Cloud, are part of a PaaS solution that interacts on the one end as an interaction channel with customers and business partners and on the other end as a proxy to all internal applications. The communication between the PaaS solution and the internal systems is based upon a fixed integration channel that is both well secured and ensures that on the one end the required performance is provided for the interaction, and on the other end is not disrupting the internal application landscape.

CO PROCESS



Your expert
Fernand Khousakoun

Business Process Management Tools originated from platforms that focused on fixed, predefined workflows. Nowadays, the newest platforms include all types of social networking and process improvement support via different channels. This way, even the early development plus deployment and continuous calibration of processes can be done much more collaboratively. A process thus becomes a living, personalized asset. And who knew, it can even become your friend.

Process on the Fly

An organization's processes have traditionally been viewed as a *secret sauce* in their success and hence treated as closely guarded assets. This lack of transparency is compounded by multiple overlapping silos within organizations, each governing their own set of processes. This has inhibited the flow of information within enterprises, leading to the rise of *information and process autocracy*.

The absence of process collaboration will be increasingly seen as harmful for business in a highly connected world. Organizations are being forced by market dynamics and consumer expectations to not only adopt, but also embrace *information and process democratization*. In this new scenario, customers, partners, and suppliers expect to have real-time access to relevant and meaningful process information during their business interactions.

Leading BPM platforms have stayed abreast of this paradigm shift, by introducing dimensions of a much more collaborative process environment. The likes of Pega, IBM (Blueworks Live), Software AG's Aris Cloud, and Salesforce have embedded collaboration capabilities at the heart of their platforms, from modeling a process to executing and optimizing it.

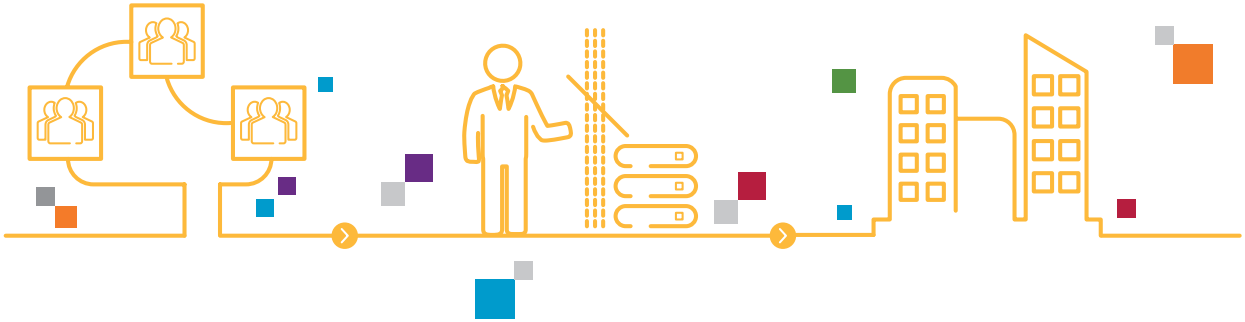
Today, internal and external stakeholders can participate across the spectrum of Business Process Management to deliver a truly collaborative method, capturing crucial process knowledge while doing so.

A credit union in the US was in pursuit of process excellence in order to improve both its member's customer experience and boost productivity. It found that the use of a collaborative process platform (in this case IBM Blueworks Live) helped its employees to better understand their own and other's processes, committing them to the overall result and speeding up the description of all processes while doing so.

These platforms also facilitate certain aspects of the process to be shared with a wider audience, allowing ongoing feedback and improvement. One way is by listening to social networks to understand consumer sentiment and linking it to the organization's processes. It's now even possible to become *friends* with a process and follow its performance online and in real time.

Business Process Management thus becomes a living, participative, and rewarding activity. It's actually fun to be involved in processes that turn into co-processes.

SILO BUSTERS



Your expert
Lee Beardmore

An end-to-end perspective across applications, departments and even across companies is within reach. Process technologies provide several options to break down the barriers between business and IT silos, without the need to completely reconstruct the silos. After all, silo applications are everywhere, contain years of investment and often keep a business running. We have to work with them, even if it would be more desirable to change them. Through BPM, micro services, and MDM, silos can be connected, delivering lasting IT agility and a better integrated business. Furthermore, robotic process automation (RPA) can alleviate organizations of mechanistic and mundane business processing without massive system changes.

Process on the Fly

In order to deliver an integrated customer experience and highly optimized operations, enterprises need to incrementally *align and refine* many different processes within the organization. This usually requires a frustratingly complex and painful integration approach, as these systems usually remain untouchable outside their original department scope and focus. The key challenge is to *bust these silos* without complicating ongoing process simplicity and flexibility.

First of all, we should realize that silos are not *always* bad. They provide secure and proven transactions and often capture the enterprise's best practices. Silos should be valued on their significant merits, rather than being demonized. Still, despite the benefits (perhaps due to a history of ERP consolidation), IT departments typically tend to be inwardly focused on the *illusion of integration and control* and, consequently, as much as 80% of the modern IT budget is still spent on maintenance and "keeping the lights on". This certainly also involves building all sorts of painful interfaces between the silos, trying to deliver on specific business requirements.

It seems that all those fixed interfaces between silos are not exactly making matters easier or cheaper. This ailment is serious and requires treatment in the form of a concoction of BPM, MDM, and SOA *psychology* that should be administered *liberally* to all disillusioned areas of the IT function. The fact is that trying to replace silos with a new integrated replacement usually creates more silos. An outside-in mindset change is required to protect IT and business agility in the future.

An enterprise should start from a common business outcome, with the IT department ensuring it pulls only the *required* processes, rules, and information from an *interlinked event perspective* and finally, the business-digital divide narrowed by ensuring the solutions remain tangible against a measurable business outcome.

If you're a *silo gate-keeper* spiritually looking for your *technology key master,* here are the five big tools you don't want to miss:

1. BPM simplifies cross-application workflow to minimize repetition of business logic and rules in the applications themselves. *Overrun by complex processes? Think* Pega, Mendix, IBM BPM, *and* Oracle BPM.
2. MDM reduces *interface hell* and translates *data on the fly. No consistent corporate view? Think* Informatica MDM, IBM MDM, and Oracle.
3. SOA eliminates interface overload and ensures adaptable process continuity across IT silos. *Experiencing API Armageddon? Think* Oracle, IBM, Mulesoft, Denodo, *and* Cisco.
4. A Data Lake reduces data movement between silos via a *one-stop shop* for core event data. *Drowning into data silos? Think* Pivotal, Cloudera, Couchbase, *Microsoft and* MarkLogic.
5. RPA reuses existing IT silos by automating tasks via existing applications without integration. *Error-prone IT madness? Think* Blue Prism, UIPath, and Automation Anywhere.

These silo-busting technologies can simplify and automate processes that ensure typically federated events continue to work across business boundaries. It must also be ensured that the *delivery approach* considers smaller business-driven packages of change (or micro processes) that are delivered quickly, frequently, and with obvious business impact. It's about applying the DevOps philosophy to process evolution. So, what then are best practices to keep in mind when busting a silo?

1. Focus on common business pain and scope tightly

Get a C-level sponsor (the CEO works!) to align key stakeholders to prove that silo busting works. Prioritize key areas of inefficiency caused through inter-system and/or inter-departmental processes and pilot the top three. Introduce a shared benefit model to incentivise cross silo working.

Bring the ideals of the emerging sharing economy to your internal departments.

2. Use an outcome-orientated approach with shared benefits

Find real world problems that will resonate with department leaders. For example, where there's a big team manually processing data there's a good chance that team is artificially bridging systems and departments. Scope the project to such examples, understanding the processes, rules, and information that are essential to deliver the business outcomes. Make it real for the business leaders so they recognize the silo busting value of the technology.

Be agile in delivery, with lots of iterations showing value early on in the project. This is key to proving the approach is going to make a difference at speed.

3. Federate to accumulate, but do not integrate

Embrace concepts such as Process is the New App to wrap applications silos within an insulated agility layer of standard data, services, and rules.

Think events rather than systems to keep things in perspective.

Work with the silos. Bust them with process technologies, so that stability and best practices are combined with agility and oversight.

So, next time there's something strange in your IT neighborhood, who you gonna call?

NO PROCESS

Your expert
Maarten Waage

The next-generation of Business Process Management, business rules, event processing and case management platforms can model, execute, monitor and manage entirely new flavors of processes. But they enable us to go even further than that.

Guided by context-sensitive and analytical insights, many fixed and inflexible processes can be replaced by concurrently or asynchronously executed activities, dynamically swarming together with the system deciding the next best action and optimizing available resources. Thus in the end, the ultimate process might well be no process at all.

Process on the Fly

Process models have become the tool to provide consistency, efficiency, and a path to process improvement. But today it's still infuriating to dial into a call-center and be told one thing, only to be told something else, when you call later. The reason: static processes that have two main drawbacks.

First, they are not capturing and guiding behaviors well. Second, process models are rigid and usually deaf and blind to unexpected events, new insights, and new needs.

Static processes don't foster innovation. They're not meant to. They enforce rules and consistency. However, when a customer requirement doesn't quite fit the mold, agents ask themselves, "What can I do? Surely, something like this has happened before." Human nature leads them to seek work-arounds.

TechnoVision Cognito Ergo Sum describes a world where analytical engines process masses of raw data from internal and external sources, to detect patterns based on context. The system can suggest options from history or make best guesses based on situational context. Dynamic case management then creates the alternate options or tasks as parts of the process, which is generated *on the fly*.

The system can manage so many options and micro-processes, that a process of limitless options is finally tantamount to no process at all, ushering us into a new era of cognitive computing and human collaboration. The systems choose the best alternatives, or at least, select a limited set of options based on specific circumstances for a knowledge worker to make the final choice. The challenge then is architecting these solutions such that they know best.

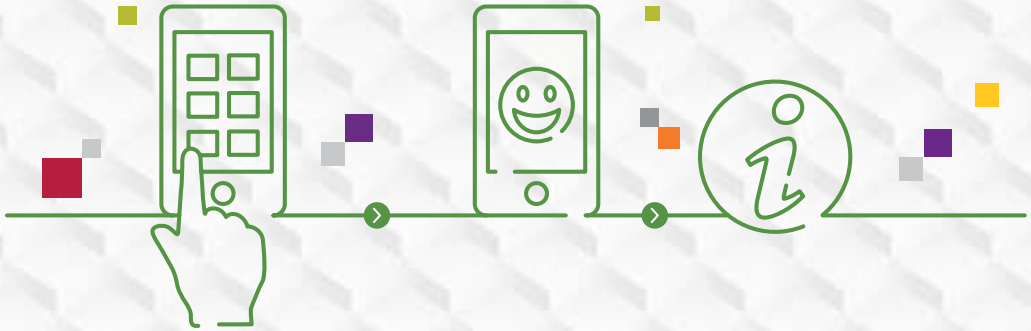
Up to now we craft processes manually, on the base of the options we know and understand. In the *No Process* future, we'll allow systems to define the most appropriate ad hoc process on the basis of thousands, maybe millions, of options, always selecting the next-best action thanks to raw computing power, ever-increasing processing speed, and finally context-based learning algorithms. Artificial Intelligence systems will write specific, *on the fly* processes, based not only on the facts of the case, but also terabytes of historic precedence, using machine-based learning to predict the most likely outcome.

And it all has started already. Decision making on loan applications was among the first implementations of the approach. Technology providers such as Pega bring the agile process platforms to get rid of processes. For medical diagnoses computers increasingly define patient-specific clinical pathways proposing the *next-best action* to medical professionals. One only needs to look at some of the IBM Watson implementations in healthcare to see real examples.

Many of the traditional enterprise processes, will be progressively replaced, leaving us with a *controlled fluidity* that satisfies our ever-evolving demands. It's what *No Process* looks like.

You Experience: The User Experience at Digital Speed

YOU
EXPERIENCE



Your expert
Michiel Boreel

The adoption of mobile devices into our lives and the emergence of systems that go far beyond apps have created an innovation wave that changes the way we engage with organizations. We expect them to be completely in sync with our digital behavior, creating the ultimate seductive user experience: customized, context-specific, task-oriented, elegantly designed, consistent across channels and downright fun to use.

"We shape our technologies and afterwards our technologies shape us."

Paraphrasing the famous words of Winston Churchill, we already saw it coming for some time. Ever since the introduction of the iPhone in 2007, our information behavior has changed at a tremendous pace. On average, we take our mobile device out of our pocket 160 times a day, creating a series individual mobile moments where an organization can either triumph or fail miserably in serving its customer in need. We expect ubiquitous connectivity and immediate answers to any question or demand we have. We use brilliantly designed apps — *true objects of desire* — that are fully optimized for the task we need to accomplish and constantly seduce us to interact. The sensors in the device detect much of our specific context, in addition to geographic location. Furthermore, the device is aware of our identity and will share it with the outside world, when required, for success.

Many organizations think that this wave of mobile devices and apps is similar to the rise of the web a decade earlier. Mobile-commerce is the same as web-commerce, only on a smaller screen, right?

Well, not quite.

Mobile means much more than just an additional channel. It requires a dramatically different organizational mindset to meet the expectations of the digital customer. Processes and data have to be tuned to make an instant response possible, based on real-time insight.

To successfully respond to the empowered consumer, employees must have technology available that at the very least matches their customers'. The focus of organizations must be on creating the ultimate customer experience: a true *You Experience* that is fully customized not only to the individual, but the situation she is in — an experience that creatively builds on the available technology of *"No Keyboard,"* and the digitally augmented Self. It's an experience that is immediate and accomplishes the task precisely, leveraging relevant data, whatever the structure, wherever it comes from.

What's true for the relationship between organizations and their customers, is also true for organizations and their employees. It's not just to stay in sync with the expectations of customers, but also to produce a workforce that works in different ways, places, and times with superior results, a higher motivation, and a much better work-life balance. To be good to your customer is only possible if you are good to your employees.

Welcome to the world of the You Experience. You're in for a fascinating ride.

Your experts
Menno van Doorn
and

Frank Wammes

NO KEYBOARD

The keyboard to a computer is like the steering wheel in a car, or money to a wallet. They're all quickly disappearing. It's for the best too. Reduction of friction between intent, interaction and fulfillment creates new, unheard business opportunities in diverse areas. The interface to computing and the network will be visual, audible, sensitive or in one word: cognitive. We no longer have to learn how computers work and interact with them on their terms. Now we interact naturally through speech, touch and gestures and the computer learns to understand how it can serve us, constantly enhancing its usefulness. Enterprises that know how to take advantage of these new ways of customer interaction could equally reposition their existing business and create disruptive new models. *Contact* has become more relevant than *content*.

Close your eyes and imagine this scenario of the not too distant future. Does your self-driving car still have a steering wheel and does your computer still have a keyboard? The answer probably is no. The impact can hardly be overestimated, since all of our current man-machine interfaces are involved in important processes like paying, transportation, and the production and consumption of information. When all these processes change, humanity as a whole changes in a way as well. From a business perspective, technology reduces or extremely simplifies interfaces, leading to easier contact and a radically different view on interaction and value, while speeding up everything in the process.

By electrifying the keyboard with the invention of the modern telegraph around 1870, we were for the first time able to *teleprint* messages over long distances without the interface of a Morse Code key slowing us down. Digitizing the keyboard created the computer terminal by which man could exercise computing power. “Glassing” the keyboard made the computer mobile and ubiquitous.

The next step will be “gluing” the keyboard to any surface or object, creating new means for interaction based on touch and sense, in effect rendering the keyboard itself useless. The disappearance of the keyboard is part of the ongoing digitization and disappearance of interfaces seen in many other areas, generally speeding up processes as a result.

Amazon’s dash buttons are an excellent example of disappearing interfaces. Stick one to your washing machine and with one click you have ordered replenishment of washing powder, soon to arrive. Connect another dash button to your inventory of favorite soft drinks and you will never run out. No computers or tablets, no apps or complexity and another need met at the press of a button.

If the old paradigm was *text and keyboards,* the new one will be *visual, audible, sensitive, and sensorized*. An appetite for connecting things and sensors expands the boundaries of an enterprise. This direct linkage of conventional information systems with new data sources will create all kinds of interface-less, frictionless business processes with a significant increase of speed as a result. More than that, it will create a new data explosion, business can leverage inside and across the boundaries of the enterprise.

Sure, we all get the potential (or ramifications) by now of Google Glass and Apple’s Watch. But specifically leveraging the variety of data, existing enterprise data combined with sensor or location data will become extremely valuable and potentially disruptive.

Real-time information from wearable devices — such as Microsoft’s Band, just to name one — combined with electronic patient records for instance, enables a new style of healthcare that not only responds to emergencies when things have gone wrong in our bodies but accurately predict events and prevent things from going wrong early on. Predictive and prescriptive analytics in many other sectors will become the dominant way to organize maintenance of all kinds of equipment and installations, spectacularly improving the leverage and availability of assets.

The business focus will be on serving customers and employees in their *mobile moments of need,* removing any friction that would stop them from getting their products and services. Just taking a product in your hands

becomes a new customer touchpoint, creating valuable information through contact. *Contact* becomes the new *content.*

And contact can be anywhere. Remember, it's all about sweating the assets. It may simply involve an iBeacon recognizing a smart phone, enabling a direct approach to a customer in a store, and to offer specific promotions based on their purchase history. It could also recognize somebody lifting a product from the shelf in a supermarket.

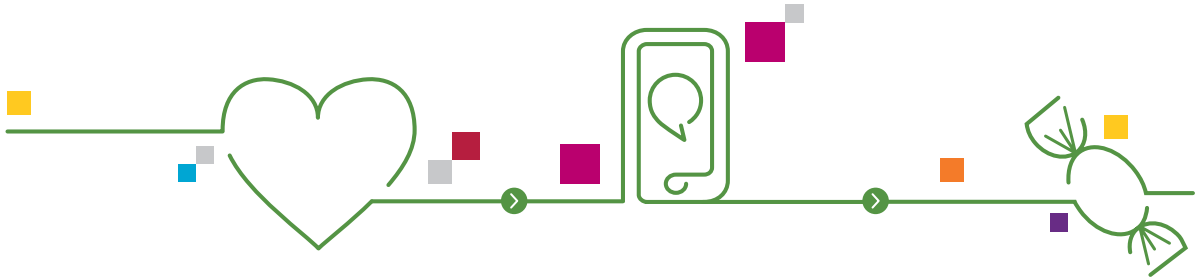
Technology that sends information through the human body to a smart phone after touching an object is already available (using BodyCom technology). The movement of a postal packet for instance, is enough to transfer information about delivery completion. Advanced body- and sense-enabled technologies are making QR-codes obsolete. Printed electronics (smart paper) are paving the path for new direct interaction where the only interface that remains is the touch of a finger to the object of interest.

In a world with fewer keyboards, a computing device no longer takes the center-stage. It redefines the way we interact, with technology silently morphing itself to whatever we need. It creates an ambient style of intelligence that is always there when we need it, yet never gets in the way of what we want to accomplish. Amazon's speech recognizing appliance Echo, with the ever so lovely digital assistant Alexa, always listening and ready to respond to our questions, is a good example of such ambient computing. Apple TV with Siri or Microsoft's Xbox with Cortana are similar attempts to make interfaces disappear and serve our needs through ambient intelligence that understands our language and listens to us.

Enterprises that get this will be superior in earning the attention of their customers, employees, and partners. No keyboard, no interface, no friction.

Do we have contact now?

OBJECT OF DESIRE



Your expert
Andreas Sjöström

Successful online services are beautiful experiences. Digital beauty is expressed in intelligence, context relevance, and visually stunning aesthetics. True user enchantment comes from empowerment brought by both predictable essentials and unexpectedly innovative features. In the era of the connected customer, there are no shortcuts for enchanting the user across all digital touchpoints. We have come to expect digital beauty. When that expectation isn't met, we disengage both in our role as consumers or enterprise workers.

You Experience

Digital touchpoints surround us more intensely today than ever before. Just about everything around us is becoming a digital touchpoint and as such everything can become an object of desire, with the ability to transform users into fans that are the most loyal advocates any organization could wish for.

We rely on a multitude of digital services for business and pleasure, from responsive sites and smartphone apps, to features in connected watches, wearables, cars, office and home interior. Some connected touchpoints don't even have screens. Ordinary everyday things around us get connected, driving our information behavior even further. As connectivity reaches even deeper and wider, so does customer engagement. The importance of innovative amazing user experience increases rapidly.

For all practical purposes, mobile devices and wearables have become the remote controls of life, enabling us to manage everything from relationships to financial transactions. Expectations are extremely high and competition, fierce. If the customers' needs or expectations are not met, they're likely to leave and find other options with a single tap — or more appropriately in the era of No Keyboard, the blink of an eye.

For instance, a recent survey in the insurance industry — typically assumed to having a slow-moving customer base — found that even the majority of deeply engaged customers would consider switching insurers on the basis of an improved online experience.

Significant business opportunities are clearly in reach, as deepened ubiquitous engagement drives revenue and improves customer loyalty. But the danger in this age is that not acting will alienate your customers and will seriously endanger your continuity.

Engaging and inspiring user experience across all channels, physical and digital, give products and services unprecedented attraction and reach. Digital convergence, stunningly crafted, where technology becomes seductive, is a key priority in Digital Transformation agendas. This means designing a coherent *omni-channel* experience around every individual customer, crafting a true You Experience.

User experience and user interface design, driven by Service Design Thinking, is about creating what's relevant and engaging. For a customer moving around in a connected world, context is what drives relevancy. Context is defined by a number of characteristics: location, proximity to places and sensors, preferences, past behavior, interactions in social networks, and so on.

Digital touchpoints need to demonstrate immediate value, prioritize core functionality, and dynamically organize content, so it's relevant to the user's context. In a You Experience, it's all about meeting immediate and personalized needs.

The road to success? Here are ten practices that will help you focus on the characteristics defining innovative digital beauty: intelligence, context relevance, and visually stunning aesthetics:

- Use Service Design Thinking to create relevant personas and customer journey maps to better understand your user. This approach helps you to intelligently facilitate specific tasks in different contexts, while hiding complexity underneath.
- Define what and when is relevant in terms of information and functionality to each user. So-called mobile moments modeling provide

defines features that change appearance depending on context, will enchant users.

- Define and maintain scope and requirements using sketches and mock-ups to ensure consistent aesthetics.
- Apps on any platform, and on any screen size as well as no screen, or responsive sites need to be gorgeously designed. Functionality alone isn't enough. Design consistent style sheets and mood boards used across all digital channels.
- Continuously and actively work with feedback from users that are invited to pilot target groups using prototypes based on "Minimum Viable Product" scope, enabling user validation of intelligence, context relevance, and design.
- Successful intelligent and stunningly designed solutions are more often than not the result of agile design-driven development. Apply iterative development methodology such as Scrum.
- Intelligence and context relevance is often enabled when developing connectivity with other connected things or services in open ecosystems of data. When looking from the objective of the consumer, an experience does not necessarily stop at the boundaries of your organization. This creates ample opportunity for partnering in API based ecosystems to jointly serve the needs of customers.
- To create an edge in a competitive market, be serious about innovation. Digital leaders are superior in creating digital beauty which is highly innovative and radically different from competitors.
- Regardless how beautifully you design a service, if it doesn't work it won't drive any value. Automated omni-channel testing, meaning testing functionality across all platforms everywhere, is critical. Invest appropriately in quality assurance expertise.
- Never stand still. Once you have delivered, prepare to iterate again, even the same day. DevOps practices will help your organization accelerate time to market by bringing stakeholders, developers, and operations much closer.

Regardless of what solution is taken on next, if it's an app, a responsive website, or a connected thing somewhere, following these best practices maximizes the chances of being taken to the user's heart, as an object of desire.

GET A LIFE

Your expert
Fernando Alvarez

As the divide between our personal and work life blurs, consumerization is making us sensitive to exciting and desirable user experiences on the mobile devices of our own choice. Mobile Device Management helps us to stay in control and keep heterogeneous platforms secure, thus satisfying enterprise-level requirements. However, mobile operating systems increasingly support mixing private and business roles, while bringing us the next level of user experience. It's a matter of finding a healthy balance between the perspectives of the consumer and business professional in order to get the most out of the mobile revolution.

You Experience

The explosion of smart phones and tablets has resulted in consumers bringing their own devices and applications into the workplace. It's becoming a firmly accepted business practice simply because employees empower themselves with the best technology to be able to respond to the heightened expectations of the digitally empowered customer. In turn, the need to manage and secure those devices has given rise to sophisticated Mobile Device Management (MDM) tools and security applications. Cloud-based, scalable, and affordable MDM solutions such as AirWatch are now widely available on demand.

But if enterprises are to maintain a truly secure and carefully managed environment, while also providing their employees with a dynamic and exciting consumer experience, there's a strong case for Bring Your Own Device to be transformed into Bring Your *Office* Device, providing company-issued devices that can be used at work and away from the office for consumer applications.

Some organizations decide this approach for their privileged users like top-management with access to the most sensitive data, while enabling a more flexible approach to all other users.

Another evolutionary approach is to go from only securing the device towards securing the asset (e.g., the data) in addition. Especially when users choose to bring not only their own device, but also their own applications, like for example Gmail, Dropbox or Evernote, to the workplace, then the approach to maintaining enterprise grade security needs to change. In addition to educating the user about the risks and the consequences of a security breach, modern tools need to be installed that actively monitor network traffic and user behavior. By comparing traffic and behavior to a baseline pattern, possible issues are identified and mitigated early on.

Operating systems such as Windows 10 (but increasingly also iOS and Android) provide a rich consumer experience as well as powerful and secure business functions, helping organizations and their employees to create a new work-life balance, whatever device they choose to use. Employees are more likely to adhere to company policies for example, if they're able to switch identities easily between business and consumer. It's no coincidence that IBM and Apple embarked on a partnership that aims at enterprise mobile users, marrying the enterprise-grade attributes of IBM's MobileFirst platform with Apple's notorious design qualities.

There are some key practical reasons for companies to issue devices to employees, starting with security. By owning and managing devices, companies can be certain that they're able to lock them and wipe sensitive data remotely in the event of theft or a security breach. As a result, enterprises are more likely to provide employees with access to critical data and applications through a company-owned and company-managed device, often leading to greater productivity. Company-issued handsets also manage and encourage the use of branded enterprise apps and content.

Whether businesses restrict mobile device usage to company-issued products or encourage a Bring Your Own Device strategy, consideration must be given to the apps themselves and how they're secured, managed, and deployed. Apps and data must be secure across all devices. Mobile Application Management (MAM) complements device security by wrapping apps and data individually at the application level. Encryption and other security controls offer data protection and access control while still giving users the mobile experience they want. Increasing attention is given to the discipline of application security testing, both through static code inspection as active application monitoring.

Enterprises need a coherent, end-to-end policy strategy and a flexible content-management system to manage corporate and consumer apps running across different operating systems. And they need data-loss protection controls that restrict the forwarding or accessing of sensitive data.

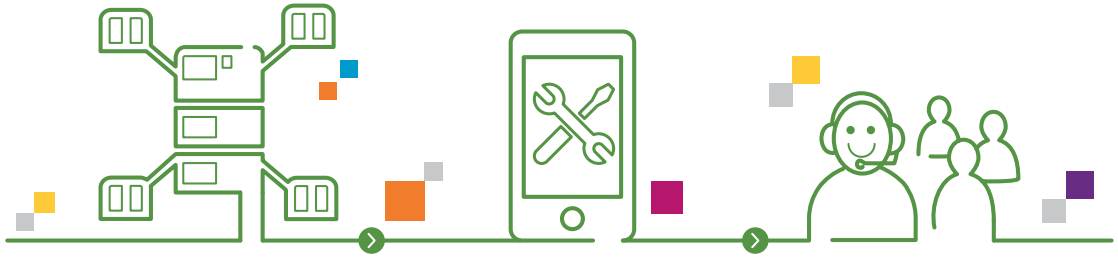
It's time to assess the potential merits of a *Bring Your Office Device* approach. Enterprises could take greater control and use the full capabilities of an increasingly business-oriented mobile OS, issuing a company-standard device that is easier to manage and secure, and by switching to a different identity, also satisfies consumer needs away from the workplace. However, it must be clear that workers choose to use their own devices or apps for work related matters aspiring to do a better job.

In the end however, no matter what approach an enterprise chooses — Bring Your Own Device or Bring Your Office Device — it's key to understand the dynamics of our rapidly intertwining business and work lives and turn it into a proper mobility strategy. This is where the new value is hiding. It certainly brings a new meaning to the "get a life" catchphrase. From now on, it's about minding your own *and* your business.

Your experts
Arthur van den Boom
and

Jacques Mezhrahid

END USER END PRODUCER



So many opportunities for mobile apps, so little time to build. Why not let others do it? The IT department of an organization may need to shift its focus to building a mobile *hub*, instead of building the apps themselves. Such a platform consists of a catalog of secure, enterprise-grade services, tools, and APIs to catapult new apps. They can be built both inside and outside the company by individuals, business units, and external partners alike. Mobilize, enable, and support your mobile end users; they will produce the greatest apps in return.

You Experience

We have arrived in a Mobile First world where apps are here to stay. And it is crystal clear that the app effect will drive the customer facing end-points for years to come, with many new mobile devices and things driving the revolution even further. But there is a completely different way to leverage it. It involves letting go the illusion of control by central IT, mobilizing de-centralized crowd power instead, and creating nothing less than an API Economy, monetizing your organization's assets and exploring new business models.

Organizations have spent a lot of money and effort building apps to engage with their customers and employees. And after the initial launch they are quickly confronted with the need to create new versions and support new devices to meet the rising expectations of the quickly growing community of app users. Many organizations struggle with this turbulence and find it difficult to determine on what needs to focus first. It's a tough job to get the right requirements from the business side anyway — volatile as they are — and budgets are often limited.

The result? Impatience and dissatisfaction at the business side, at the customer base, and at the work floor. In some organizations, often out of frustration, business units choose to take matters into their own hands and develop their own *rogue* apps or new services, potentially creating risks around security, integration, and manageability.

The challenge is to find a way to be flexible and robust at the same time, implying a dynamic style of architecture. Being flexible in creating and delivering new apps and features to the organization quickly, but also being robust by guaranteeing an acceptable level of enterprise-level integrity. The rise of so-called *microservices*, small single purpose applications, is aimed at resilience for high volume usage.

The good news is that there is a way to reconcile the highly digitized and consumerized outside world and the internal world of enterprise systems. This is where *Application Programming Interfaces,* or APIs, come to the rescue, giving access to crucial, in some cases privacy sensitive, data and actions within the corporate systems. It also involves high-productivity frameworks, tools, and services to quickly build powerful, safe, and consistent mobile apps. Above anything else however, it requires the organization to challenge its incumbent mindset.

Making best use of their mobile platforms, established companies must start to think more like a *start-up*, where the mantra is pushing out solutions to customers as quickly as possible and then carefully monitoring the use by and feedback from real people. During the different iterations the vision of what need of the user is served remains the same, but how to serve them can change drastically depending on what works and what doesn't.

You could even consider letting others build your API. Why would you build it yourself when there are companies that deliver best in class features for your customer app — dealing with scalability, outstanding User Experience and are already a best practice — such as Click2map or InvoiceGenerator.

Exposing enterprise APIs outside the IT department (and leveraging external APIs, for that matter) to speed up development will additionally bring opportunities to connect to an external ecosystem of developers: a crowd-sourced development powerhouse that an organization on its own could never match.

One reason why start-ups innovate at such an incredibly high velocity is that they always start to look at what external API's and platforms are already available for reuse. Only when nothing is available, they might develop

services themselves. No *not-invented-here syndrome,* as they know that speed of delivery trumps almost every other concern. They focus their own means exclusively on those areas where they can truly create something new and differentiating and leverage APIs and services for everything else.

This approach is logically tied to an agile way of development and operations, not only of the required IT assets, but more and more of the business processes as well. It changes the classical predictive approach of IT along a fixed roadmap into a more experimental journey of developing the business processes and the technology in concert, constantly adjusting the direction on feedback and data collected from real-world usage.

Consider the (set of) API's as a product or service, and put product management towards it to manage the roadmap and gain business value or even find new sources of revenue.

Companies are using platforms to build ecosystems of partners to explore new consumer-focused business models. Take a look at IBM's Bluemix, which is not only a prime example of a powerful mobile development platform, but also makes IBM's entire product and service portfolio available to leverage (anyone for a few Watson APIs?). And what about Google's Nest Developer program — a complete ecosystem supporting consumers to save energy? Microsoft nowadays is embracing increasingly open ecosystems, supporting many platforms and technologies besides Windows, through their new versions of Visual Studio. Even Apple — not necessarily notorious for sharing its assets in the open — drives new ecosystems, for example with Homekit.

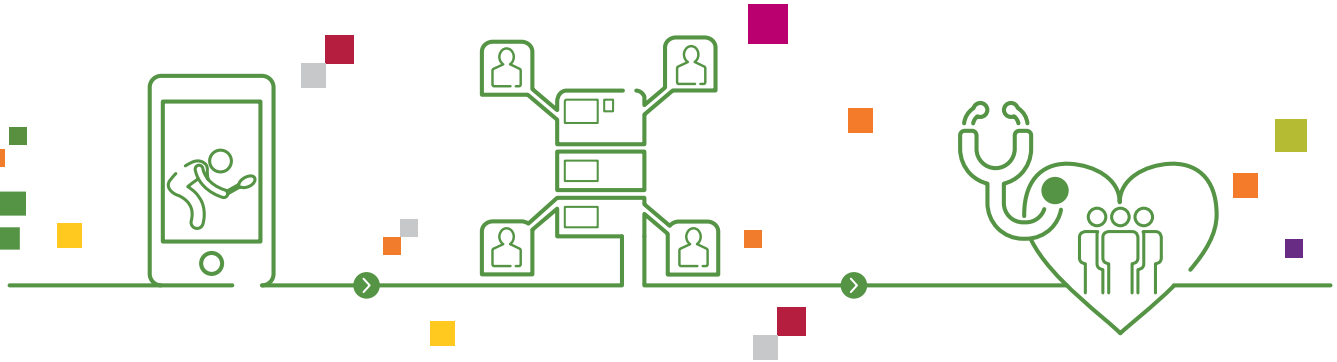
Online retailer and "software-born" company bol.com (find their APIs here) has been actively working on publishing its APIs to the outside world, rather than focusing on building its own mobile apps. The result is a whole series of apps, all incorporating access to the bol.com platform. There is an enthusiastic developer community, actively supported by the organization. Contests or Hackatons are are held, and maybe even better, commissions are earned when an app is being used by customers to buy. There is a strong business case for the public sector as well, at least to keep pace in the digital era and to be part of new services powered by public data, like the digital platform in France. And the start-up unicorns of Silicon Valley, like Uber, are ready to share much of their processes through publicly available API's, realizing that every organization that leverages those connections is adding to the value of their platform.

Users, whether inside or outside, thus may turn out to be the favorite producers of an enterprise. Or to put it differently, the most successful sales people might soon be developers, creating solutions with APIs. Who would have thought?

Your experts
Erik van Ommeren
and

Arnd Brugman

DIGITAL SELF



Man and technology are merging, in fact converging. First, by processing and storing increasingly personal data, then by bringing technology physically closer to our bodies, and finally by creating things that think together with us. From the wearables and the “quantified self”, to the body implants of the trans-humanists, toward the dream of embedded artificial intelligence, the opportunities for business disruption are limitless. Imagine the possibilities when technology starts to augment our human nature and even our very being. What if there were less and less distinction between you and your Digital Self?

You Experience

Continued miniaturization has made it possible to move from standalone computers to portables, to smart phones, smart glasses, smart watches, smart bands, and smart contact lenses. Health and fitness gadgets are measuring the rhythm of our lives, our bodies. They measure to help us be healthy. Where will it stop? Soon, doctors might inject us with a smart chip that continuously measures our blood pressure, chemical contents, oxygen level, and who knows what else, scanning for the very first signs of a disease.

It promises nothing less than a fundamental revolution of the healthcare industry, from responding to emergencies to predicting and possibly even preventing health issues and curing diseases, even before we realize there is something wrong. And equally so, it impacts markets such as Life Insurance.

Whatever ethical discussions are rightfully going on, *if it can be done, it will be done*. Better health, better senses, better physical performance, or better thoughts. Throughout history, we've taken every opportunity to achieve these goals through our food, machines, chemicals, and so on. This will continue as we leverage the latest technology of cyber-physical connections that aim to enhance us. Technology becomes an extension of man and — in a certain way — man becomes an extension of technology. Biology and technology become indistinguishable.

Connecting humans directly to the digital realm makes previously hidden data available. The amount, and especially the type of data is changing. From abstract and almost anonymous data, to storing our likes and dislikes, our social interactions, our sentiment, and now our impulses and — who knows — our inner thoughts. Digital brain-reading — literally capturing thoughts — is already becoming a reality. Many researchers have made great progress in analyzing brain patterns, enabling brain-to-brain communication to directly read visual nerves to measure the moods and thoughts that were, until recently, hidden. At that point the question becomes relevant what distinction remains between us and our digital selves?

Meanwhile, IT is shifting too. We used to build core applications to store and retrieve data. Nowadays, we focus more and more on our interaction with customers, employees, and partners. And now, we're enriching it with *empathic computing*, aiming to create the best interaction, leveraging physical and intellectual context, history, and patterns.

As always, cross-pollination leads to acceleration. For example, better and smaller control systems lead to new applications of robotics that were beyond our reach before. It makes seemingly futuristic things possible: smart replacement limbs for amputees, upright walking robots, and flying drones. We now are starting to see the first truly autonomous robots, swarming around us to clean, deliver packages, or do surveillance.

Replacing a missing hand with a robotic one makes perfect sense. To make it somewhat smart and connect it to nerves or the brain for seamless operation is also logical. To replace an eye and feed visual information into the brain helps people navigate the world. Slowly but surely, we're learning more and more about the inner workings of our nerves and the brain.

On the hard technology side, we're getting better at dealing intelligently with data, finding patterns, establishing correlations, and predicting the future. With cognitive systems like IBM Watson and other learning machines, systems that think (or machine intelligence, if you like) seem within reach.

There will be a time when both ends meet, when the technological advance of machine learning plugs directly into the latest understanding of our brain. Then the computer becomes a prosthetic for our brain, seamlessly taking over those functions that it's better at — augmenting our intelligence. The end goal is not creating smart machines, but making human kind smarter through leverage of machine intelligence.

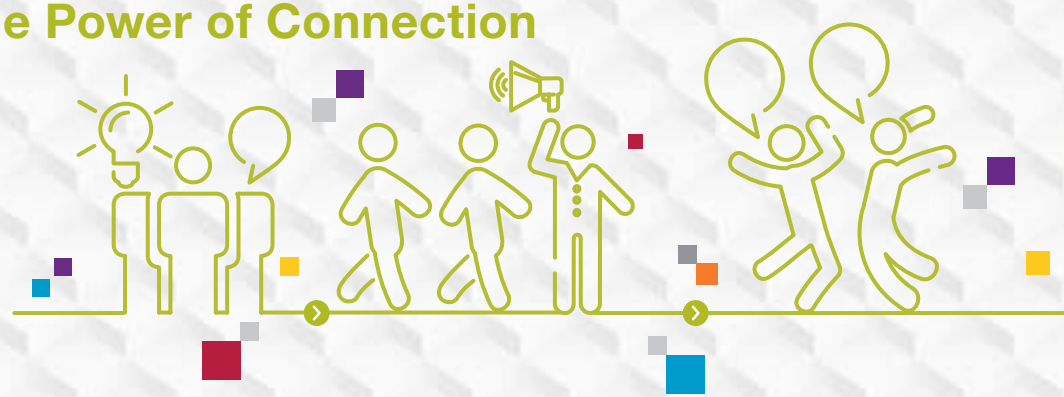
Thinking "things" have long been the realm of science fiction and doomsday movies, but the reality turns out to be much more mundane. Machine intelligence will show up in increasingly accurate decision support, better recommendations, more natural and frictionless interfaces, and more intuitive, emphatic interactions. Thinking computers will help make sense of the overload of data that is bombarding us all the time by only presenting insights that are relevant to make better choices. Enterprises that see the potential of this marriage between man and machine earlier than others, can achieve greater benefits, allowing them to create disruptive business models that, until recently, were beyond imagination. It may happen first in healthcare, insurance, retail, security, and defense.

In the end, there is no way to predict what happens next. When machines really *think* and become one with us, it will change mankind more than the invention of fire did. There are dreams of uploading our brains to the cloud so that we can live forever. There are dreams of globally connected minds living in harmony. There are dreams of globally tuned supply and demand of everything. There are dreams of mankind expanding into the universe. There are dreams of hope and ambition.

There are dreams…

We Collaborate: Delivering the Power of Connection

WE COLLABORATE



Your expert
Andy Heppelle

Social is no longer simply about new ways of collaborating with customers, it's actually the new business as usual. As a logical companion to the drivers of the individualized user experience, it delivers the power of connection to the individual and if permitted, to the entire enterprise. Leveraging the potential of social will not only improve customer experience, it will positively impact the operational processes of an organization. Furthermore, many recent business model breakthroughs have been driven by social innovation; social often equals disruption.

The next level of collaboration has many different faces and social power should therefore be considered in the following ways:

- Enterprises must explore the different dimensions of social, in order to understand where it creates new opportunities. It's literally a search for the *new oil*.
- The aspiring Digital Enterprise has to invent new ways to put knowledge in motion, and to unleash collaboration, making employees social workers who will leverage social platforms within and across organizations.
- The empowered, collaborating individual will obliterate traditional notions of privacy, command, and control. Enterprises need to understand how to create and manage trust in an increasingly complex egosystem.
- Enterprises may want to consider socially integrated business operating models, where certain traditionally internal tasks and roles are outsourced to the crowd. It may mean less work or even no work, but we must not lose the crucial brand touch internally.
- Eventually, being connected reaches the Internet Of Things, with smart devices and sensors potentially becoming part of the social network. To friend a machine may lead to an unexpected, yet highly beneficial relationship.

As individual consumers, we always expect to be connected, to get answers in real time and to be able to collaborate on our own terms. We now need to repeat the same dynamics across the wider enterprise.

The power of *Me* and the power of *We* are here. Will enterprises harness social power or be utterly overwhelmed by it?

SOCIAL IS THE NEW OIL

Your expert
Andy Heppelle

The power of social is here in many obvious and some less obvious ways. Always connected consumers share not only what they think, but also what they actually do. However, getting closer to the needs and actions of customers may just be part of the strategy to leverage the power of the crowd. With opportunities to apply social energy to internal operations, or even to create entirely new, disruptive business models, a real step change is required to determine where the ultimate benefits exist for the Digital Enterprise in the making. In the end, *social oil* could turn out to be the most important business asset of them all.

We Collaborate

Social is no longer simply about new ways of collaborating with customers. It's now business as usual for the best performing Digital Enterprises. It delivers the power of connection to the individual, and if permitted and connected, to the entire enterprise. Leveraging the potential of social not only improves customer experience, it has the potential to change the way everyone inside and outside the defining membrane of the Digital Enterprise connects and feels about what they do and with whom.

At this point we're all but too familiar with hotel chains that don't have any hotels but sell the most rooms, taxi conglomerates that don't have any cars but sell the most rides, merchants that don't have any stores but sell more goods than anyone else, and groups of digitally enabled social citizens that together are bigger than most countries on Earth. Social, digitally connected humans and machines are the new normal.

To get the most value from Social, the top performing Digital Enterprises:

- Continually look for ideas to tap into the value of Social and to regularly apply those new ideas. It's literally building pipelines to allow unknown value to flow across networks of humans and machines.

- Make best possible use of brand, knowledge, people and business relationships to find and share new opportunities.

- Share and learn from everyone it interacts with.

- Use the untapped power of individual knowledge, personal brands, relationships and connections from employees, customers and trading partners to expand the pipeline.

- Adapt the business to the changing notions of privacy, command, and control of information flow.

- Change policies across Legal, Marketing, Risk, Quality, Finance, Sales, Communications, Executive Governance, HR, Recruiting and virtually every other function that needs to adapt.

- Manage trust in an increasingly complex ecosystem.

- Determine the best use of socially integrated business operating models, to tap into Free Agents and to crowdsource, while balancing risk and reward from same.

- Think about the social implications and possibilities of the Internet Of Things with smart devices and sensors potentially becoming part of the social network.

Not all consumers are the same, though. There are those that will connect and those that won't. Both need to be interacted with in different ways. It's not one size or even one channel fits all anymore.

There are those of us that expect to be connected, to get answers in real time and to be able to collaborate on our own terms. We want the right information, at the right time, with the right level of trust, with the right level of security, at the right cost, to be able to do what we want to or need to do at that moment, from where we are. We want to see and control our information ourselves or we want to be delightfully surprised to get the help we need in the right "attentive but not creepy" way that will make us share our delight.

We Collaborate

We want this in our lives as consumers but we also want it as employees, as citizens and friends, fans, followers, monitors, idea sharers, sales people, agents and perhaps even those that say, "I don't do all that social stuff". The power of "Me" and the power of "We" are here, enabled by new ways to digitally connect, share and impact everyone that cares to participate.

PowerStream — the self-proclaimed "Most Social Utility in Canada" — connects with customers and trading partners through multiple social channels, progressively using innovative technology to drive growth, merging with other utilities to form one of the largest utilities in their market. And there are many more excellent examples of brands that are doing an amazing job on social media.

In 2016, and beyond, organizations are tapping into social for new value. With social sentiment a key digital commodity, investment in tweets rather than seats (physical channel-based interaction) should be a core focus for the enterprise. This requires a paradigm shift in perception of the strategic value of social data, followed by a repositioning exercise across the entire customer and employee experience, to truly assess where social can make that decisive difference.

Whatever social assets an enterprise may possess, here are four tips for getting started while being suitably prepared:

1. Create an external social oil refinery to gather brand, product, and market sentiment. Focus on specific customer experience-led outcomes. Start small and prepare a centralized store of clean and irrefutable customer — and possibly machine — event data on which to deliver social media monitoring needs. Think Salesforce, Brandwatch, Crimson Hexagon, GNIP, Google Analytics, Sysomos, and Lithium.

2. Develop a workforce-to-customer interaction network to keep the enterprise in sync with the outside world. Consider sharing platforms, cognitive computing, and robotic process automation to accelerate the capture, interpretation, and refinement of sentiment change across the enterprise's network of influence. This will create the foundation for conversion of insight-to-action on a real-time basis. Think UiPath, Shrebo, IBM's Watson, and Blue Prism.

3. Build an always-on, real-time Business Data Lake for 24/7 social analytics and insight. To ensure that you're constantly responsive, you will need to store everything at speed and analyze anything on demand against a set of actionable metrics across your key points of process interaction. This will require massively parallel fast data capabilities. Acknowledge that the corporate reality is a federated, distributed one and build on agile platforms such as Pivotal, Cloudera, Couchbase and MarkLogic.

4. Build or use an innovation capability such as the Applied Innovation Exchange within the enterprise to bring together top colleagues, clients and trading partners to learn and apply new social ideas at top speed.

EGO SYSTEM

Your expert
Kees Jacobs

The best connected sensor in the world is not a phone, it's not a tablet and it's certainly not a wearable: it is you.

The social economy thrives on individuals that share their personal data with others while connecting value to context. Consumers are starting to realize how much this asset is actually worth, while increasingly being in doubt about privacy and who is monetizing their profile data. Enterprises that look to leverage this complex *egosystem* must balance creativity in finding new ways of engaging customers with creating a mutual feeling of trust, transparency, and benefits.

Always online, always connected, routinely sharing information about themselves: likes, dislikes, buying behavior, sports achievements, political opinions, also their whereabouts and even health status; consumers have now become digitally literate and "quantified". What's more, they're beginning to leverage the tremendous value of the data they provide. They feel that enterprises should think the same way and explore new business models to use this mutual dataset for a better customer experience to sell more, and in the end deliver bottom-line benefits for all.

With profile data as a core asset (the new currency) consumers actually have become the *keystone species* in a complex, connected ecosystem of stakeholders. They rule their own *egosystem.*

Enterprises that aim to leverage the power of egosystems can create a much better customer experience by analyzing and predicting against the profile data of its social network. The latest, visionary future report of the Consumer Goods Forum, Rethinking the Value Chain, stipulates this to a great extent. But who exactly is entitled to make money with these personal assets, and where exactly does customer intimacy end and the *creepy zone* begin?

- Will customers always value being recognized by technology when entering a store?
- Should a bank monetize day-to-day client transactions by selling it to retailers?
- Could TV and radio channels do the same with viewing preferences of its audiences?
- Do customers appreciate targeted ads within the confines of social private conversations?
- Will a credit card reject payment when its owner tries to order junk food for the sixth time this week, and the wearable cholesterol sensors reach alert levels?
- Should a restaurant give menu recommendations based on previous meal preferences — and those of friends — plus other client restaurants visits in the past?

Egosystems of today and tomorrow should be considered as a *trading place* where personal data may be bartered for products or services. It will be a *meritocracy*, in which there should be a healthy balance of give and take. After all, consumers realize that the more value derived from their data, the more the *big brother* collective of enterprises, administrations, and social friends will gain.

If the egosystem is shared, who should benefit from this data?

Should anybody be allowed to extract data and make highly personalized offers, or even worse, influence consumer behavior to let them do things someone wants them to? Think about how Facebook influenced the mood of many recently, just by reorganizing their news feed.

We Collaborate

Clearly, from the consumer's perspective, it's their egosystem, a place where they lead and define the rules, which others have to live by. A healthy thriving egosystem thus requires three simple guiding principles:

1. Each individual owns and controls their egosystem

2. It can be leveraged as long as nobody gets disadvantaged

3. It's there to serve the individual (taking rule 1 and 2 into account)

Traditional business models do not cope well with egosystems. Enterprises will need a radically different approach. To the companies out there, still trying to find "privacy loopholes", in order to continue to manage and own individual data using traditional marketing techniques: they're on borrowed time. The tables are about to turn.

Individuals will only share data if it provides them net personal value. Enterprises therefore have to fundamentally rethink how to propose long-lasting relationships that are mutually beneficial. It means open and collaborative business models are now crucial to create that next level of symbiosis.

In order to help build trust with consumers and shape the way companies, retailers and manufacturers use consumer data, the industry is urged to adopt clear principles for consumer engagement. The Consumer Goods Forum's Consumer Engagement Principles, as developed with representatives of the industry from across the world, address exactly that. Principles such as these will benefit all stakeholders as the industry safeguards consumers' data and nurtures greater consumer trust. It's the one and only way straight to the heart of each and every egosystem.

SOCIAL WORKERS

Your expert
Ron Tolido

The next generation of workers expects business applications to work just like the social media it uses every day. This isn't just a matter of choice — it's a question of productivity. Free information flow and peer-to-peer communication has proven its ability to traverse organizational barriers to information sharing and innovation. Consumer-style interfaces fuelled by gamification, in conjunction with the power of the crowd, are no longer a gimmick. They're imperative. A new era of social communication with the potential to drive tremendous growth for the business is already here, even more when social workers become *employee advocates* to the outside world.

We Collaborate

Enterprise social networks such as Yammer, IBM Connections, Slack or Salesforce1 Chatter as well as established global consumerized web and mobile platforms such as Facebook may be nothing new, but a successful corporate social business case study may well be.

The success stories surrounding these types of social solutions may have a viral following as vendors attempt to generate the necessary hype but, is this destined to become a sustainable trend that will ultimately change company and brand communication forever?

Putting Social at the center

We're now at a point where we have to accelerate cultural change through the effective adoption of social technology. The CIO is well placed to commence this evolution as she not only has the potential to consolidate application and data silos, but will also be able to harness the changing expectations of millennials due to her responsibility for future system usability and agility. Having said that, the COO quickly becomes a natural stakeholder as well, as the social perspective starts to dominate the actual way of reaching out to customers and — thus — running the operational business.

Do not transition business processes to the enterprise social network on a like-by-like basis, however. Take a step back, and with a clear view of the business outcome in mind, redesign business processes to accommodate social in the center, aiming to ensure lasting business benefits.

Social tool excellence within the enterprise revolves around two main pillars: **design** and **openness.**

Design is especially important to the new generation of knowledge workers. They have never seen a traditional ERP or CRM interface and it's safe to say they probably don't want to. Social technology and emerging Cloud APIs can bridge the generation gap between corporate IT and collaborative social networks. It ensures new employees feel more comfortable in their digital workplace. Progressive vendors are starting to merge legacy corporate processes such as absence management into their social product offerings or add gamification techniques into the mix to increase process productivity.

Openness is about ease of access through many-to-many communication across the enterprise. Open Data information flows (via services such as SYNAPP) underpin this approach to incrementally drive fast ideation and feedback cycles, based on insights across retention, employee engagement, and individual social influence scores.

How to help business become less anti-social?

Good products and services originate from the sustained internal excellence that collaborative employees strive for every day. By incorporating *social moments* into an otherwise covert process, enterprises can harness the combined capability of the workforce and its social network of brand evangelists in new and valuable ways.

This doesn't mean that the race to a socially powered business is without its hurdles. To accelerate adoption and usage of social tools enterprises should:

1. Empower socially aware employees to breathe life into the business culture and the market

Allow social tools, processes, and collaboration to gradually improve known customer experience hotspots. Also consider the fast-growing potential of employee advocacy, which brings the power of the social worker inside to the outside world. Providers such as Dynamic Signal lead the way, but LinkedIn also launched Elevate and Hootsuite came with its Amplify platform.

2. Focus on the benefits of open collaboration rather than the threat to existing culture

CIOs and COOs should be the catalyst to collaboration rather than a barrier. Social collaboration by definition will span lines of business, systems, and IT silos. Embrace this approach to ensure the customer remains at the heart of all improvements.

3. Implement a reverse-mentoring process that balances social and corporate benefits

Operating as a *social worker* is as alien to parts of the traditional workforce as cost management and governance may be to the average millennial. Implementing reverse mentoring to ensure collaborating at high pace, but low risk will be critical.

Bear in mind, with over 80% of modern knowledge work now focused on collaboration and sharing, enterprises may need a workforce of social workers by choice.

NO WORK

Your expert
Andrzej Hutniczak

The social network isn't just for socializing anymore. It has grown to become worlds' largest innovation platform and instead of being used only by marketing or public relations teams, it can now be leveraged to *unsource* traditional internal customer-facing tasks. Customers help fellow customers, and customers help the brand they believe in, particularly in areas such as support services, product improvement, and idea generation. Therefore, today's connected customers and brand fans may become tomorrow's part-time employees in network of collective social power, boosting innovation and improving customer experience. *No Work* might well be hard work, but it could turn out to be the most effective growth strategy of all.

We Collaborate

The best way to recognize customers is by making sure the perceived value of products and services is higher than the money they spend on them. When this is the case, the customer is more willing to go that extra mile. Enterprises could even offer incentives in exchange for their customers' services, such as helping to design and test products for the continued benefit of the brand.

No Work is about making people care enough about the company that they're willing to support above and beyond a simple one-off transaction. It's about leveraging customer experience to drive innovation and productivity for mutual benefit. Future business models that are adaptive and that can extend enterprise operations into the burgeoning crowd economy will win, and they will win big.

Increasingly, powerful social platforms and crowdsourcing sites have the potential to cut out the middleman in product and service transactions. They break down the traditional barriers between enterprises and third-party suppliers, employees, and customers.

People need a platform on which to collaborate, interact and share ideas with a brand. The concept of "unsourcing" has changed the dynamics of business models, with social brand fans becoming zero-hour contract employees.

Let's see how it's done.

My Starbucks Idea platform is an excellent example of how crowdsourcing can source innovative ideas, create new products and improve customer experience — so-called "crowd innovation sourcing". It's also extremely engaging. Out of the 190,000 ideas submitted by customers, 300 have actually been implemented by Starbucks, and new ideas are being posted on the platform by the hour.

Another example is eYeka, a collective advertising agency that nurtures a global community of creative individuals to deliver original ideas through participating in crowdsourcing competitions. By combining the creative power of this community with the expertise of an agency, eYeka connects talent with leading brands to imagine new concepts, invent better products and co-create engaging content. To date, eYeka has awarded around 6 million euros in prize money to some of the 100,000 ideas submitted by over 300,000 creatives in 167 countries. And it has used these ideas to design adverts for global brands such as Coca Cola, Unilever, Microsoft and Este Lauder.

Capgemini's Innovators Race addressed to students to create solutions for various worldwide companies is built around the same principle. It gives an opportunity for students and universities to represent their countries on a global innovation platform and engage with industry leaders. It's a platform where technology and business meet sustainability to achieve real life business solutions. Companies solve their challenges and collect innovation ideas for competitive advantage and better customer experience.

Finally, Zooniverse is an example of what can happen when crowdsourcing becomes citizen science. As the world's largest and most popular platform for people-powered research, Zooniverse harnesses the power of over one million volunteers around the world who come together to assist scientists.

Zooniverse's projects convert volunteers' efforts into measurable results and have produced a large number of published research papers. In some cases, Zooniverse volunteers have even made completely unexpected and scientifically significant discoveries.

So how do we embrace the benefits of No Work in today's organization?

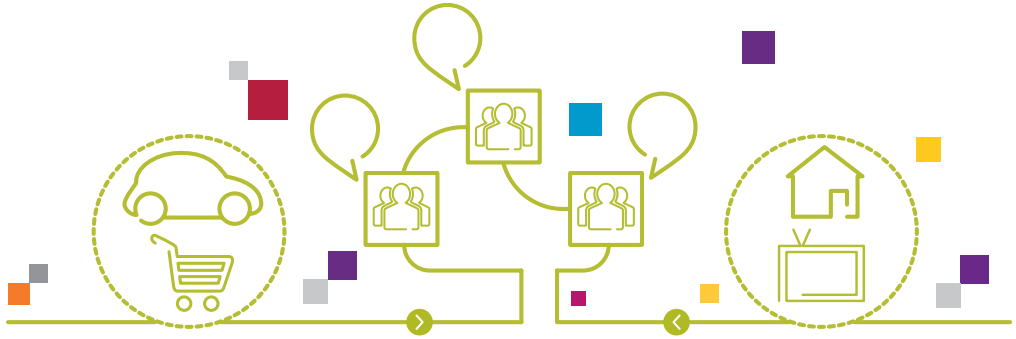
1. Social media platforms — use social media platforms such as Yammer to drive innovation, improve communication and boost productivity within the company. For example, Yammer groups could help launch new products, as well as provide a platform for discussion groups, status updates and the exchange of innovative ideas.

2. Innovation platforms — create an innovation platform to engage your customers to submit ideas and improve customer experience. Tools and platforms may turn out to be pivotal catalysts for valuable ideation. Consider gamification as a way to engage and communicate effectively with the brand community.

3. Co-Innovation Labs or co-creation challenges — work together with your customers to co-create innovative solutions and ideas for their businesses in an accelerated solution environment, powered by technology to boost interactions. Our co-Innovation labs provide an entry point for clients to access our innovation capabilities. One of the tangible outcomes of such an exercise is our Virtual Company concept, that has been recognized by leading market analysts.

Yes, No Work means Hard Work. But what a rewarding journey it is!

FRIEND THAT MACHINE



Your expert
Joakim Lindbom

Operational automation and IT are fusing into a new cyber-physical reality, powered by ever smaller processors and better sensor and network technologies. As IT *gets physical*, we're more and more connected to omnipresent devices and intelligent *things*. The disruptive opportunities are in connected products, with the promise of a direct and proactive route into the hearts and minds of the consumer. It brings a whole new dimension to social networks, as future lists of "friends" may soon need to contain some unexpected guests.

Machines are becoming more intelligent and connected. They can now learn for themselves, adapt to their environment, and then share their experiences. Cars, road sensors, engines, fridges, and even vending machines are becoming equal members in a supply network of value-based interactions.

Soon there will be over 50 billion connected devices, which is roughly about 10 for every inhabitant of our planet. This is no exaggeration; in my family, we've already passed 50 connected devices in our house and very soon, this will be widespread.

Whether we describe it as the Internet of Things or the Internet of Customers, organizations are currently struggling to adjust to the so-called "all-channel experience".

The route to consumer interaction is now academic. The real value lies in the end-point outcome and the enrichment of value for the socially connected participants (whether human or otherwise).

A near future should be anticipated where devices generate most of the global content, meaning that content creation will no longer be a key requirement for white-collar workers by 2020. Looking at recent statistics, this year over 115 petabytes per month will be generated by connected devices. This already exceeds the capacity of our global human population output many times over.

Our vending machine also can be made aware of its surroundings.

Advertisements on the Stockholm Metro interact with train arrivals and departures using commodity technology that is readily available at your local electronics store. Temperature and humidity can easily be read along with anticipation of the general sentiments of the local-based crowd. Increasingly, cognitive machines are becoming environmentally aware and can adapt their manner of interaction with a customer accordingly.

Humans and programmers may not need to apply. We've entered the second industrial revolution, that of socially enabled sensors, with robots that are aware, flexible, and self-learning. This emerging technology can operate at the fraction of a cost of a white-collar annual salary.

From just-in-time to options-before-time, industrial machine intelligence will improve our lives. Our widely connected world will have machines and sensors as equal partners in social networking circles. Data will be generated in enormous quantities meaning current techniques for complex event processing, analytical intelligence, and simple context-specific visualization will need to develop rapidly. We need lightning-fast technology, sensors, and people to deliver perfectly timed social context.

So how to make friends quickly in this new world? To prepare for cyber-friendship, consider the following:

1. Think of any device as a potential sensor

Think about what you want it to learn and what egosystems it can augment.

Can your phone predict or measure an earthquake? Individually maybe not, but connected arrays of phones and sensors can already bring insights via science, not possible in the last decade.

What happens when my network breaks down and needs repair? Existing technology automatically can send messages to maintenance engineers of a jet engine or connected car before it breaks.

How can a machine help me stay healthy or keep me safe? Machines can already interact with your wearable technology to see how you're progressing towards your fitness goals. In the future this ecosystem will monitor and manage your health and safety with enhanced situational awareness.

2. Think about how to make the dialog with the consumer more intelligent

Even if you don't want to be identified by name, a device can recognize your age, gender, fingerprint, or mood with a remarkable level of accuracy. Machines can therefore start a sensible dialog with you from the outset. This interaction can be based on your immediate physical proximity to the machine, or can be digitally driven based on related events.

For example on your car journey home, Toyota Friend can remind you to commence the next overnight battery charge at exactly the right time.

Devices will be made more intelligent, connected, context-aware, talkative, and social in their own highly unique way. It's now the responsibility of humans to up our creativity to match them.

3. Think of the benefits of an intelligent, just-in-time ecosystem across your business

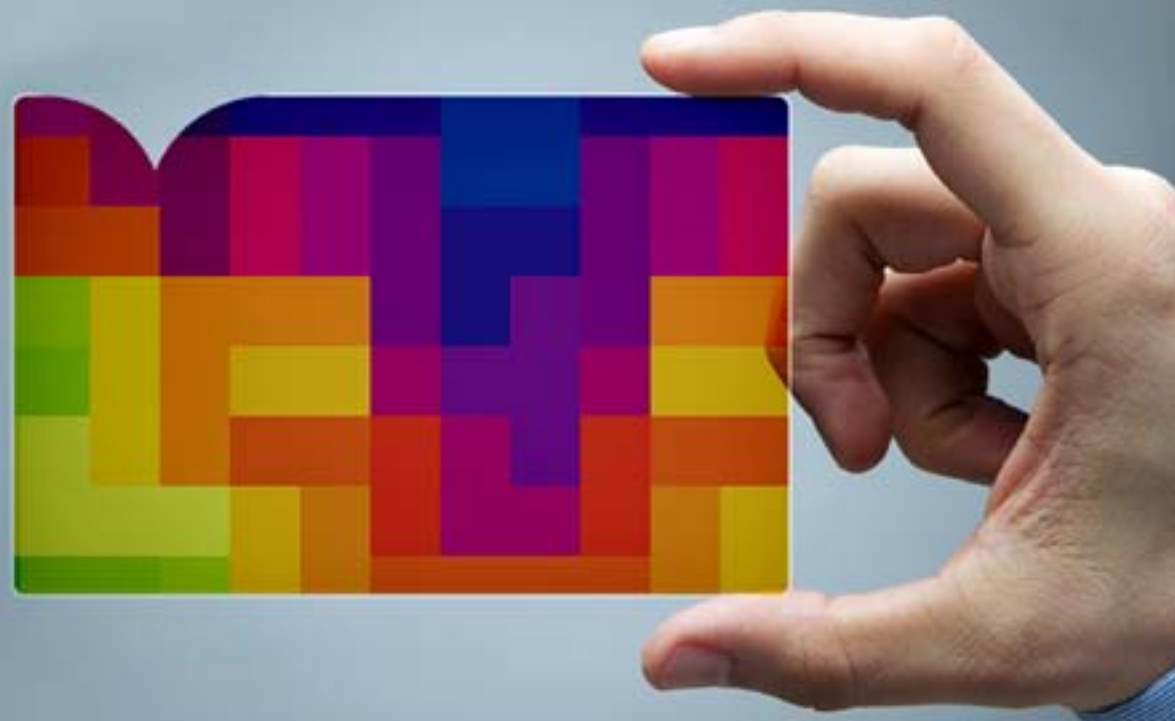
Current planned maintenance work orders the majority of replacement parts too early. If you could wait until just before it breaks, you would save money and protect the environment.

Imagine you're now able to friend daily objects of personal importance to make life easier. The trip to work could be so much easier if you could friend your local smart road so it socially guides your journey avoiding traffic, weather, and pollution hazards simply because it benefits you both.

Future product and service differentiation will require more than just human partnerships to compete. Brand success will be founded on our ability to harness the social power of man, machine, and sensors in new and innovative ways.

Friend these machines. They may not love you like humans do, but they're sure better at giving than in taking.

Now What?
Make TechnoVision YOUR Tool!



Now What? Make **TechnoVision** Your Tool!

This contribution by
Pierre Hessler

So you took the time to read through TechnoVision 2016. Maybe you liked some of the graphics. Some views caught your fancy. Some headlines irked you. Overall, we hope a picture of our present and future technology emerged — an amazing one of radical change.

Now what? Forget it? Go to the next agenda item? Put it aside for a while? Look forward to the 2017 update? Wait for the future to just happen?

Here is our suggestion: Make TechnoVision your tool.

TechnoVision is a multi-purpose tool that you can use for (at least) five different purposes.

1. As a tool to LEARN

Each of the building blocks opens up learning avenues. Each describes a design principle or a trend in a few words — the place and direction to start digging, taking clues from the contributions and the suggested publications and papers. And the clusters provide the structure to organize learning, making it much easier.

2. As a tool to COMMUNICATE

TechnoVision aims at clarity. Use it to discuss technology with your colleagues and partners. Making technology palatable and easy-to-understand to business has always been a major objective of Capgemini's successive TechnoVision releases. Now that technology is an essential component of business thinking, business should be and will be eager to get the best understanding as early as possible — not to appreciate how to translate business into technology, but to grasp how technology creates business opportunities.

3. As a tool to DESIGN

Digital Transformation changes businesses in depth and breadth. Every function, every process, every plan is touched. The opportunities are too numerous to count, and they never stop changing. By way of contrast, standstill could well be fatal. Even more than with classical transformation, the transformers need to know where they're going — what should my Digital Enterprise look like? As TechnoVision gives a broad view of the possibilities, combining immediate impacts with longer-term trends, it will help you design what you want to achieve.

4. As a tool to REPOSITION

Once your design is clear, the transformation task will look ominous. With so much on your plate already, how could you possibly add new endeavors, new projects?

TechnoVision will help you look at your efforts under way, and at your pipeline, and for each of them ask yourself: Is it "Design(ed) for Digital"? Is it at the right technical level? Does it tell the right individual and collective story? How future-proof is it? And maybe, most importantly: does it bring me closer to the Digital Enterprise essentials?

With the answers to these questions, you can then reposition your transformational and technical projects, tune them, adjust them — adding this Big Data dimension, strengthening that aspect of mobility, linking with those touchpoints of the customer experience, giving it the first social dimension, introducing this new flexibility in the reengineered process. As a result, in addition to their original objectives, at little or no additional cost they will move you — in a modest way, in a good way, in a crucial way — towards your digital future.

5. As a tool to TRANSFORM

It will come as no surprise that in Digital Transformation projects, technology plays a significant role, provided technology is well-understood and well-mastered. We hope the TechnoVision tool will help you on both counts, so that your transformation is technologically inspired, technology-driven, and fun. Because don't forget: technology has transformed our ways of living and working, sometimes with a little pain, but typically for our pleasure and enjoyment. Why not aim for the same in the Digital Transformation of our businesses?

As you make TechnoVision 2016 your tool, don't forget one of our crucial building blocks: End User, End Producer, and embrace it as your motto. We count on you to help improve what we have, and produce the next updates!

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About Capgemini

With more than 180,000 people in over 40 countries, Capgemini is one of the world's foremost providers of consulting, technology and outsourcing services. The Group reported 2015 global revenues of EUR 11.915 billion.

Together with its clients, Capgemini creates and delivers business and technology solutions that fit their needs and drive the results they want. A deeply multicultural organization, Capgemini has developed its own way of working, the Collaborative Business Experience™, and draws on Rightshore®, its worldwide delivery model.

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