PATRICK NAEF

The future of IT

PATRICK NAEF

PATRICK NAEF IS MANAGING PARTNER AT BOYDEN EXECUTIVE SEARCH AND NON-EXECUTIVE DIRECTOR ON THE BOARD OF FRANKE GROUP, A USD 2BN GLOBALLY ACTING MANUFACTURING COMPANY HEADQUARTERED IN SWITZERLAND.

He is also founder and CEO of ITvisor GmbH, a boutique consulting firm specialized on advising organizations in their digitalization journey and on coaching of IT executives.

He is a member of the board of directors of several start-ups and sits on advisory boards of technology companies and venture capital firms based in Silicon Valley.

From 2006 to June 2018, he was CIO at Emirates Airline & Group in Dubai and, at the same time, a non-executive director on the board of SITA, a global telecommunications and IT services company owned by airlines. Patrick Naef was also CEO of mercator, a subsidiary of Emirates Group, from 2006 to 2014.

Other professional positions include CIO at SIG and Swissair as well as senior positions at Zurich Insurance, HP and Bank Julius Baer.

Patrick Naef holds a Master's Degree in Computer Science from the Swiss Federal Institute of Technology (ETH) Zurich, Switzerland, and an Executive MBA from the University of St. Gallen, Switzerland.

INTRODUCTION 01

IN RECENT YEARS, DIGITALISATION AND DIGITAL TRANSFORMATION HAVE BECOME KEY TOPICS THAT EVERY BUSINESS NEEDS TO THINK ABOUT.

I use digitalisation in this context to mean companies employing state-of-the-art technology to automate their established business processes within their established business models and markets, while digital transformation involves a company using technology to explore new business models or markets, redesign its core processes based on technology and/or develop new products and services using information technology.

While I don't want to go into more detail about the difference between the two terms (which have now largely become buzzwords) I would like to discuss a few aspects that are impacting on the role of the CIO of companies going through digitalisation and/or digital transformation.

With technology - and IT in particular – becoming an inherent core component of the business, it can no longer be treated as a support function delegated to a CIO and mostly focussed on running the back office; it has now evolved into a key strategic component of the business.

Therefore, the person in charge of IT within the company - let us assume this is still the CIO - will have a different and much more strategic role to play. Some of the "traditional" ways of managing IT within a company will have to drastically change. What worked well in the past might not be the right thing anymore when it comes to future developments.

FACTORS IMPACTING THE ROLE OF THE CIO

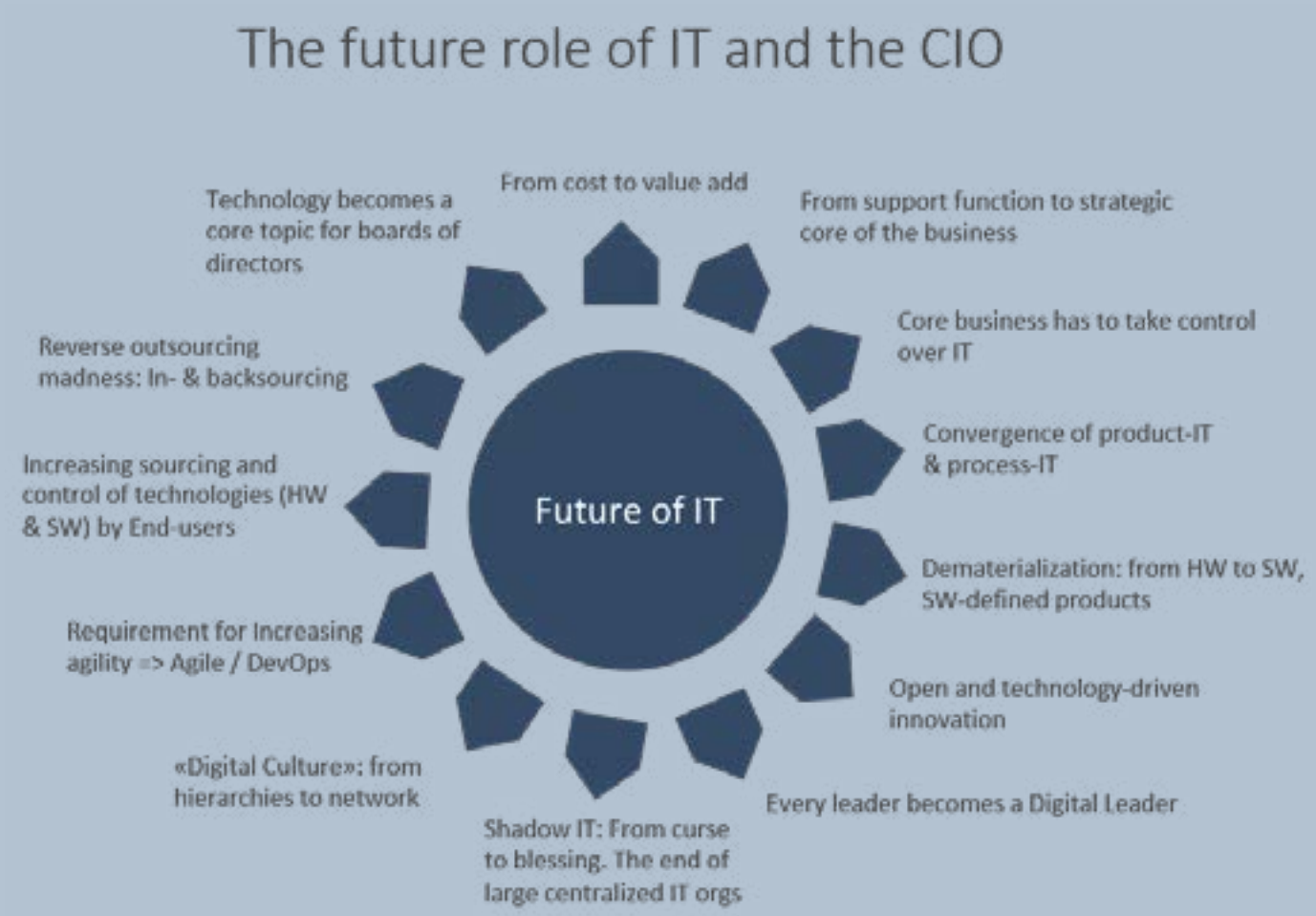
I have identified a number of trends that I believe will heavily influence the future role of CIOs (I make no claims that this list is conclusive):

- IT no longer is just a support function but becomes a strategic asset and core of the business: from cost to value add
- Convergence of process - and product IT
- Dematerialisation: from hardware to software, SW-defined products
- Open innovation using technology as a core resource
- Every leader needs to become a digital leader or "who needs a CDO?"

- The times of the centralised IT organisations are over or “shadow IT, what’s wrong with it?”
- Digital natives enter the workforce: networks instead of hierarchies
- Shorter time-to-market cycles: everything becomes agile
- Control over IT procurement moves to the users
- Reverse the outsourcing madness => back-sourcing
- Technology becomes a topic for boards of directors
- Increasing cyber threats

The impact of the outlined trends will result in a number of changes that “traditional” CIOs will have to carefully think about if they want to stay relevant within their companies. In my view, the only way for established CIOs to survive in their roles is to drastically disrupt and re-invent themselves.

The changes discussed in the following chapters are in no way conclusive, but it has already become apparent that they are significant enough to call into question the traditional role of the CIO.



TECHNOLOGY – AND IT IN PARTICULAR – HAS BECOME AN INHERENT CORE COMPONENT OF THE BUSINESS.

– PATRICK NAEF

02

FROM SUPPORT FUNCTION TO CORE OF THE BUSINESS

The opportunities that technological changes have brought have always been huge. Technology has not only enabled the increase in productivity in literally every industry but has also helped to create completely new industries and to disrupt established ones. For innovative people and companies, one of the biggest sources of inspiration and innovation has always been the adoption of technological inventions and exploring ways to apply these to a business and to commercialise them. Very often, the true potential and value of a new technology is only discovered decades after its invention.

When the transistor was invented in 1947 at the Bell Laboratories in Murray Hill, New Jersey, nobody thought then that it would form the core of smartphones that each of would carry in our pocket 70 years later, revolutionising our whole society. When the Wright brothers made the first motorised flight – well it was more of a hop of 37 metres lasting only 12 seconds – in December 1903, nobody would have imagined that the first commercial airline to transport passengers would emerge 10 years later and with it the birth of a whole new industry.

TECHNOLOGY IS PART OF THE PRODUCT

Innovative companies constantly scan and scout the market for technologies that could help improve or create new products or services, make processes more efficient or eliminate them completely. Interestingly information technology (IT) was for a long time mainly used in established businesses to drive efficiencies, automate processes and optimise supply chains, rather than as a part of their core products and services. To stay with the aviation industry as an example, American Airlines introduced the first electronic booking system in the early 1950s to optimise their internal processes. However, it took more than 50 years before systems were in place that allow passengers to seamlessly access relevant travel-related information through electronic means and even today this

is still not a given. For many travellers the mobile app has become as much part of the "product" or the travel experience as the seat or the food served on board the aircraft.

Similarly, for an owner of a modern electric car the digital interaction, upgrade capability etc. of the vehicle, are as much part of the product as the seats and the physical chassis of the car. As more of the features and attributes of a physical product move into software and thus become virtualised, and additional digital services are offered around the product to enhance its functionality and so IT becomes a core part of the product itself.

This conversion of core product/ services with digital components has resulted in a situation in which IT can no longer be regarded and treated merely as a support unit or a back-office function looking after the ERP system and managing PCs and networks. IT is becoming a core element of every business, and much more of a strategic component than a support unit or a commodity. This also means that IT can no longer be regarded as a cost factor – on the contrary, it now contributes to the core value creation of the products and services.

COST FACTOR VS. STRATEGIC ASSETT

While IT in the past was mainly measured by cost and a good CIO was considered one who could reduce the costs of IT, CIOs in the future will have to concentrate on how IT can add value to the business, meaning to the core products and services, generating revenue and adding value to the customer experience. CIOs will therefore be judged by the value that IT adds and no longer purely by the cost of IT.

This in its turn requires CIOs to think more strategically and business focussed. A modern CIO needs to be more entrepreneurial and less operational, meaning less risk- or cost-focussed. CIOs who don't manage this transition will run the risk of becoming irrelevant and will end up administrating legacy IT systems, basically becoming Chief Legacy Officers.

03

PRODUCT TECHNOLOGY VS. PROCESS TECHNOLOGY

In most companies the responsibility for Product Technology and Process IT are still strictly separated. Product Technology (or Operational Technology OT) is the technology that forms part of the products and services produced and offered by the company. Process IT in turn is the technology used to automate and optimise internal and external processes, i.e., an ERP, sales or supply-chain system etc. Typically, the CIO is in charge of Process IT and someone else (Product Development, CTO etc.) is in charge of Product Technology.

With the Product Technology becoming more and more digitalised (i.e., IoT embedded in products, software defined products etc.), it is becoming difficult if not impossible to separate the two. The close interaction and alignment of the two are essential. Methods and patterns well established in Process IT need to be adapted to Product Technology, such as cybersecurity or the ability to interact with and update products way beyond the delivery of the products to the customers. A good example is the car manufacturer Tesla, who realised that their vehicles are not “finished” products when they leave the assembly line but need to be constantly updated and therefore also constantly connected to the product life cycle management system (PLM) of the back-end ERP system. The shift from hardware into software (software defined products) amplifies this effect. A new model for Tesla is often just a software upgrade and customers can buy additional performance and features (i.e., additional battery capacity) on-line and get the additional functionality provisioned to their vehicle instantly and on-line, without having to take the car to a service station or garage.

This shows that the times of the separation of Product and Process IT are over. With the digitalisation of products, the two disciplines converge and become an inseparable unit. Therefore, the traditional separation of the role of the CIO as the person in charge for Process IT only, while a CTO is in charge of Product technology will disappear. Either the future CIO

manages to position him/herself as the person who also drives product innovation through technology, or she/he will become irrelevant, looking after some parts of the infrastructure and legacy back-end systems.

With a business-minded CIO that also drives the digital agenda of his/her company including the innovation and digitalisation of products and services, the CIO role moves out of the back-office and into the core of the products and services. Focusing more on strategic topics of technology as an enabler for new business models, products and services, driving innovation through technology (including product innovation) is one of the key priorities of the future CIO.

This however also requires that the CIO is capable of working and thinking in networks, rather than just the traditional hierarchical thinking. Not reporting lines but the impact one can make on the business is relevant in networked structures.

04

VIRTUALISATION OF “THINGS”

Looking at all the physical objects we were still using only a decade ago, we will realise that many of them have literally disappeared in their physical form but now “live” as data or services in the cloud or as an app on our smartphone or tablet. This trend of virtualisation or dematerialisation of physical objects will have a fundamental impact on most businesses. While some industries have already experienced this impact, such as the music and photo industry, many other businesses have yet to get confronted with it. Only a decade ago most of the music was still sold based on physical sound storage media such as CDs, tapes, vinyl records etc., today the vast majority of the music is sold on-line, streamed or downloaded. The physical sound storage medium has almost disappeared.

20 years ago, photos were mostly delivered to customers in physical form, printed on paper. Today a whole photo printing and distribution has literally disappeared, as Photos are primarily delivered electronically.

With the virtualisation of objects, the marginal cost of these objects dropped to zero and even the replication, cloning and distribution of these objects without any time-lag has become reality. This is truly a major shift from physical to virtual. An alarm clock on the smartphone comes for free, a VCR as a physical to virtual. An alarm clock on the smartphone comes for free, a VCR as a physical device has been virtualised and comes as a free service in the cloud as part of your streaming subscription, music in mp3 format can technically be copied and distributed without limits (if we ignore the copyright issues for

a moment), storage space for digital photos is available in vast volumes on our devices and is almost free, free maps on our smartphone or tablet has long replaced physical maps on paper etc.

Digitalisation leads to the situation that every object that acquires/ collects information (i.e. camera, microphone etc.), stores information (books, film roles, music tapes, CDs etc.), manipulates information (calculator, language translator etc.) or displays information (watch, ticket, any type of identification device such as keys, passport, IDs, credit cards etc.) has the potential to be dematerialised or virtualised into an app or a service in the cloud or our smartphone.

When companies are trying to digitalise their businesses or business processes, it is very short-sighted to just automate a current process, that is still aligned to the physical objects. If companies want to truly redesign or re-invent their processes, they need to think beyond the physical objects and about a situation where all these objects will be virtualised.

As an example, if airlines replace check-in counters with self-service kiosks, this is not thought through, as in a digitised world, a boarding pass and with it the check-in process itself is not required anymore. Banks replacing tellers with ATMs is only a first interim step to reduce cost, as the real breakthrough for bank customers will be, when all money is virtualised, and paper money is not required at all.

CIOs who want to add sustainable and significant value to their companies should not just go after the low-hanging fruits and simply drive automation of established processes to achieve short-term cost saving, but they should go for the long shot and focus on technology-driven innovation. CIOs should work closely with their business peers to exploit the potential of dematerialising physical objects that make their processes slow, cumbersome and expensive.

05

INNOVATION NEEDS TO BE OPEN

With the fast pace of change of new technologies coming to market, the traditional approach of innovating only from within the company, seems become more and more difficult. Company internal regulations, processes, governance frameworks and organisational structures slow down innovation and paralyse the organisation. Real innovation requires “out-of-the-box” thinking that employees with day-to-day operational jobs often can’t apply to the extent required.

Tapping into the ecosystem of start-ups, the Open-Source community, universities, venture capital firms etc. can be an effective way to broaden the pool of innovative ideas, way beyond what typically employees within the company can come up with. Mostly employees in operational roles consider incremental improvements and “more of the same” ideas as innovative. There is a famous quote (somewhat dubiously) attributed to Henry Ford: “If I had asked people what they wanted, they would have said faster horses.”

With more products and services being digitalised, technology becomes the pacemaker for innovation and with it the required speed to market for new product innovation. Having potentially the whole world contributing to driving innovation is a very attractive proposition difficult to beat.

I believe that most companies will not be able to innovate fast enough if they continue to rely on internal resources only. In particular innovation through technology requires a different approach from the traditional company-internal innovation funnel of own ideas.

Open Innovation requires that the company opens up its products and services, publishes APIs, open-sources their software codes etc. and encourages the Open-Source community to co-develop additional features and functions to complement the company’s core products and services. This is pretty much what Google and Apple did with their smartphone ecosystems. Not the phone itself or the operating system represents the key value of the device, but the apps developed by independent developers, that every user can install and configure on their smartphone. With this approach Apple and Google can tap

into thousands of top-class developers, that by developing their own apps, enhance the functionality of the device and contribute to the value of the ecosystem and with it the device.

Corporate VCs have long discovered, that by investing in start-ups outside of their company, they have the far greater reach and potential to drive real innovation and not being constrained by company-internal processes, governance and limitations.

Working closely with the innovation ecosystem in technology hot-spots such as the silicon valley, London's silicon roundabout, the berlin tech scene etc. immensely increases the potential for true innovative ideas. This also includes collaboration efforts with independent VC firms, incubators and universities. Running hackathons together with these partners from the ecosystem and regularly participating in tech start-up "speed-dating" sessions, joining VC firm's advisory boards, sponsoring research projects at leading universities etc. are key focal activities for the future CIO who wants to be seen as someone driving innovation through technology.

06

EVERY LEADER NEEDS TO BECOME A DIGITAL LEADER OR "WHO NEEDS A CDO?"

With Digitalisation and Digital Transformation having become hype topics several years ago, many companies who didn't know how to deal with the subject or had CIOs that were overwhelmed with the Digitalisation challenge, simply appointed a Chief Digital Officer (CDO) and hopped that this CDO would solve their Digitalisation problems.

As technology is transforming and redefining the future of every business, technology has become one of the core strategic assets of every company, just as human capital and financial resources are. While it is undisputedly expected from every leader that he/she knows how to deal with people and financial resources, it is still widely accepted, that when it comes to technology, this can be delegated to a separate instance or person, because many leaders are still ignorant or overwhelmed with the technology topic. Whether it is delegated to a CTO, a CIO or a CDO does not make a materiel difference, it is still the same pattern: technology is not regarded to be a strategic asset and still not seen as a central and key component of the business, therefore it can be delegated to someone else. With the growing requirement for Digitalisation many companies try to fill the void by hiring a CDO.

CDOs are hired to drive the digital agenda of a company but then often these CDOs want to build their own "empire", as most of these "experienced leaders" are still traditional hierarchical managers and not the networked leaders that would be required for such a role in the digital and networked economy. They often start to build a digital business unit, offering their own digital products and services to the market separate from the established business and with this, start to compete with the traditional business. This creates tensions and internal friction that rather paralyses

he company with massive internal politics, than to improve the company's competitive positioning in the market.

I believe that with the growing acceptance that IT has become a key strategic component of every business and the undisputed need for Digitalisation to remain competitive, the times of CDOs are over!

Most companies move away from the concept of a CDO, as they have realised that Digitalisation cannot be established as a separate discipline with a separate organisation, often competing with the traditional business.

While a well-established and business-driven CIO can act as an enabler of the Digitalisation and as a catalyst to help his/her business colleagues to become more digital, ultimately every leader needs to become a digital leader herself/himself. Technology is so strategic to every business, that ownership over technology can no longer be delegated to a CIO or CDO.

Over the recent years, one could read so many articles about new CxO roles having been invented and introduced, when the "x" topic has become so important and strategic to the business. The German car manufacturer VW introduced a Chief Software Officer early 2019, because they realised, that with the virtualisation of physical objects, more hardware is moving into SW and therefore SW is becoming extremely important to their business. Others introduce a Chief IoT Officer because nobody deals with the Digitalisation of their products, a Chief Transformation Officer, a Chief Innovation Officer, a Chief Data Officer, a Chief Cybersecurity Officer etc., etc.

It looks like whenever someone in the company didn't do her/his job properly or got stuck in the past, the company simply creates a new CxO role, to deal with the void, instead of questioning, if the existing C-level leaders are still focussing on the most important topics for the company. They risk ending up with whole plethora of such C-IDIOT-Os instead of reshaping what they expect from their existing leaders.

If a business-minded CIO is successful in driving the Digital agenda, driving innovation by technology, enabling the business to become digital and to build up the required digital competence as a core element of the business, helping the business colleagues to adapt Digital Leadership and how to lead in network structures, then there is no need for a CDO. I tend to say that if a company hires a CDO, the CIO didn't do his job properly; at least not the job that is expected from a modern and future-minded CIO.

However, the CIO role needs to change as well, if CIOs don't want to become obsolete - as just happened with CDOs - when the business units become more digital themselves.

07

SHADOW IT: WHAT IS WRONG WITH IT?

For decades CIOs have been fighting shadow IT organisations across their companies. The widely accepted view was, that everything related to IT needed to be controlled centrally by the CIO and his/her IT organisation. This was justified by risk mitigation, cost optimisation, avoiding duplications and chaos, standardisation etc.

While cost might have been optimised by centralising all of IT, the downside was that speed, innovation power and closeness to the business suffered from such an approach. Shadow IT teams in turn are typically much closer to the business – in fact fully imbedded -, understand the business better than central shared IT organisations and are much faster and nimble due to their small size and limited overhead.

Maybe shadow IT teams should be seen more as a blessing than as curse, if CIOs are open to collaborating with them. The fact that business leaders support and defend Shadow IT teams, shows that they care about IT and see it as an essential and strategic component of their business, and this is not a bad thing at all.

I believe that the times of the large and centralised IT organisations are over, that control all of IT across the company. With companies and their products/services becoming more digital, ownership over IT must move (back) into the business, as a strategic part of the business. Innovation through technology should happen at all levels and as close to the business as possible. Therefore, Shadow IT teams are best placed to innovate through technology, as they sit at the heart of the business.

However, simply federating IT teams back into the business units in the traditional hierarchical structures and accepting duplication, inefficiencies and incompatibilities, can't be the answer. Moving away from traditional hierarchical structures and creating a networked structure of IT professionals across the organisation, that work together towards common goals and driven by a common purpose, rather than focussing on reporting lines, is what we need in the network age. This is comparable to the way Agile squads are organised and effectively work together. These teams are put together from different organisational units (in the traditional hierarchical sense), are driven by a common purpose, are working towards common goals, are mostly managing themselves and don't worry about reporting lines and hierarchical company structures.

However, the role of the CIO needs to fundamentally change from controlling IT as an operational unit to becoming a catalyst and network leader, enabling the business to become digital. The CIO also needs to actively move away from traditional hierarchical thinking and be a role model for a network organisation. Not the size of the IT organisation or the amount of the IT budget defines the importance of IT and the CIO, but the added value and impact the CIO can make on the company's stakeholders, e.g., the business, employees, customers, environment etc.

CIOs need to be abler to join forces, leverage and collaborate with shadow IT teams across the company, to benefit from their closeness to and understanding of the business, benefit from their agility and innovation power, while not compromising cost or security and not drifting into ungoverned chaos.

The role of the CIO needs to fundamentally change from controlling IT as an operational unit to becoming a catalyst and network leader, enabling the business to become digital.

08

NETWORKS INSTEAD OF HIERARCHIES

Most of the current CIOs of larger companies are probably between 40 and 60 years old, as growing through the ranks of hierarchical organisations to become a C-level executive doesn't happen overnight. Therefore, these CIOs were born in the 60ies or 70ies, went to school mostly during the 70ies and 80ies, where teaching material was used from the 50ies and were taught by teachers probably born in the 40ies.

Our school time has an immense effect on our views, beliefs and values and is shaping us for the rest of our live. The study years of these CIOs were still in the last millennium and similar to the school years, heavily influenced by the methods and beliefs of the industrial age.

During the industrial age, the dominating organisational pattern was the hierarchical structure, adopted from military organisations, with the underlying principle where the "thinking" and the "doing" was separated. The individual tasks assigned to workers were clearly separated one from another, so that every worker knew exactly what to do and how their performance would be measured.
Information is only shared on a "need to know" basis, so most employees had very little information about what was going on in other parts of the company, and managers kept information for themselves, as "knowledge is power". The higher you grew in the company, the more information you had access to, but you had to keep it secret. This was also one of the key principles of Taylorism with its focus on separation of tasks, extreme specialisation and measurability. In essence, hierarchical structures were introduced to separate people.

With our education having mostly been dominated by the paradigms of the industrial age and the then widely accepted Taylorism, our generation has been conditioned accordingly.

The younger generation, however, grew up in the digital age. When I observe my daughter doing homework, I realise, that this is completely different from the time when I went to school.

During my school time (remember the 70ies and 80ies?), we did our homework on our own, kept it hidden from others, as we wanted to be better than our classmates. This was a competitive environment as the dominating paradigm was "the more I know and keep to myself, the better I am compared to my peers, so I can beat them: "knowledge is power". When my daughter does homework, she works on a topic, produces a first draft (an MVP so to say) and then publishes it to her classmates on Instagram, their WhatsApp group, or some other social media tool. Within a few hours half of her classmates enhanced or improved the MVP in several iterations and again share it using the social media tool, until they have reached a level of maturity and quality, that none of them individually would ever have been able to achieve in such a short period of time.

The younger generation do homework by crowd-sourcing, something we had never heard of, when I went to school. This generation grows up in a world of sharing economy, crowdsourcing and crowdfunding, of Wikipedia, OpenSource etc. with the mindset that "the more I share, the more my network benefits and with it all of us, including myself".

What a different paradigm and mindset that is, from the "knowledge is power" paradigm that I, and probably most of you grew up with.

Now, let's guess what the dominating paradigm and mindset prevails in large enterprises, where most of the senior executives went through their education during the industrial age. Digital Transformation is about exploring new business models and therefore cuts across our well-established hierarchical organisational silos, that still dominate most of today's large companies. This is one of the main reasons, why Digital Transformation initiatives fail, as managers at the top of the company want to preserve their silos, power and influence, they have built up and fortified for so many years. Digitalisation and virtualisation of physical products within the current business models and processes also cut across the organisational silos and questions many established roles, jobs and organisational units.

The digital age, however, calls for a different way of structuring and organising companies and for different rules on how we work together. Not primarily hierarchical structures, reporting lines, size of the budget, number of FTEs you manage etc. are essential, but the impact and added value one can make, regardless of "whose" resources in the company contribute to achieving it. Not the individual targets are relevant, but the contribution to the company's purpose and goal, which often is not only a financial one, but increasingly a combined "triple bottom line", consisting of financial, social and environmental contributions.

If companies want to be successful in the digital age, they have become networks themselves and move away from the purely hierarchical structures.

If they want to attract and retain the talents of the younger generation, they have to offer them a purpose, environment and company culture that matches their values, and this is probably more the sharing paradigm of networks, than the hierarchical structures and paradigms of the Taylorism and the industrial age.

As I had shown in the previous chapter, the IT expertise is increasingly spread across the companies and no longer concentrated in one centralised IT organisation. CIOs can lead the way to a new paradigm for their companies, as in IT such a way of working is already well established with Agile methods, DevOps, iterative product development, crowdsourcing, OpenSource etc. This is a huge opportunity for a CIO to help the company move into the digital age.

THE MINDSET OF THE YOUNGER GENERATION IS: "THE MORE I SHARE, THE MORE MY NETWORK BENEFITS AND WITH IT ALL OF US, INCLUDING MYSELF".

– PATRICK NAEF

09

SHORTER TIME-TO-MARKET CYCLES: EVERYTHING BECOMES AGILE

Agile has become one of the most misused buzzwords in recent years. Everything seems to become agile and everyone claims to be agile. Have you ever heard someone say, "No, we are not agile"? But what do we actually mean when talking about agility?

The Wikipedia article on agile software development defines agile practices as follows:

"In software development, agile practices approach discovering requirements and developing solutions through the collaborative effort of self-organising and cross-functional teams and their customer(s)/end user(s). It advocates adaptive planning, evolutionary development, early delivery, and continual improvement, and it encourages flexible responses to change. It was popularised by the Manifesto for Agile Software Development. The values and principles espoused in this manifesto were derived from and underpin a broad range of software development frameworks, including Scrum and Kanban."

The underlying principles of agile software development were already published in 2001 as part of the "Manifesto for Agile Software Development".

It is an iterative approach to project management and software development that helps teams deliver value to their customers faster and with fewer headaches. Instead of betting everything on a "big bang" launch, an agile team delivers work in small, but consumable, increments. Requirements, plans, and results are evaluated continuously so teams have a natural mechanism for responding to changes quickly. Short iterative cycles (sprints) and reducing overhead and bureaucracy to a minimum and therefore delivering small parts of usable code with a true business value very quickly, is the essence of agile.

Speed is of the essence to be competitive in today's business environment and that's one of the main reasons why agile methods have become so popular. However, often agile is misunderstood by business managers and mostly seen purely as an "IT thing". They often believe that with their IT teams adopting agile methods, projects are simply delivered faster and cheaper with the same scope. However, this is an illusion.

My personal experience going through an agile transformation as a CIO has taught me that to be able to reap the true benefits of agile methods, the whole company needs to become agile – and this requires far more than just transforming IT. It is not enough to simply implement Scrum in IT, run a few projects the agile way, and believe that the company will then gain speed to market.

After we had used rapid prototyping methods for years and had co-located our IT teams with the business units, we started to introduce agile methods back in 2013. We experienced some benefits very quickly; by being able to deliver smaller chunks of ready-to-use software much faster than when employing the traditional waterfall methods. However, when trying to put the code into production, we got stuck with our own IT-internal ITIL-based processes. Our IT operations colleagues, who were rightfully charged to guard the "holy grail" of stable and secure operation, only allowed code to be promoted based on stringent processes and acceptance criteria at predefined points in time, e.g., when the monthly, or sometimes quarterly release cycles were due. We realised that we would only be able to overcome this bottleneck by including IT operations people in the agile teams (squads) and by making them and their processes part of the agile transformation. This was the advent of DevOps in the organisation.

While I see many companies stopping their agile transformation at this stage, as they consider agile to be an IT methodology, we wanted to take it further because we noticed that some other parts of the company were still slowing us down, inhibiting us from reaping the true benefits of agile methods.
Let me give a few examples of such "agile-inhibitors" in traditional, hierarchically organised companies. Any resemblance with actual people or organisation units of any company I worked for are purely coincidental:

- The marketing department refuses to get the new features of the mobile app put into production because a marketing campaign for promoting a set of new app features is only scheduled to take place in a few months.
- Finance refuses to release more funds because the budget for the year is already consumed and they insist that we put everything on hold until fresh funds would be approved as part of the regular yearly budgeting process.
- HR refuses to have the team recognised with an award for their excellent work and contribution after a key sprint because the regular yearly nomination process for the company's "Chairman

Award" just closed two months ago and the team should therefore be nominated for next year's cycle.

I could probably go on with such examples of units and functions within the traditional hierarchical silos, but I guess you got the point by now: You cannot limit agile to IT if you want to benefit from the increased speed to market that agile ways of working offer. Instead, you need to drive the transformation all the way through the company.

Traditional planning and project management methodologies served us well in the past but are today as much of a legacy as the hierarchical structures that serve the bureaucratic processes and group functions of most enterprises. These hierarchical structures with their rigid planning and financial processes originating from the industrial age of the last century (Taylorism) are not suited for – nor are they compatible with – the new agile paradigm.

I observed that in traditionally run projects (waterfall method), teams spend a lot of time waiting for others to do something. In many project review meetings, when questioning why the project was behind schedule, one frequent explanation was "We are waiting for unit A to deliver X". This can be bound to business units to sign off specifications or test cases, to run UATs, etc., or due to IT internal bureaucracy such as Enterprise Architecture to sign off the solution architecture, Cybersecurity to sign off the risks, IT operations to stage a server, etc., but also due to external factors, like a supplier of an outsourced component not delivering on time.

Why are we spending so much time waiting for others involved in the project? Simply put, because of the clear task and role separation of the industrialisation approach, leading to multiple handovers and overhead. A fellow CIO of a European bank and one of the strong promoters of agile ways of working told me a few years ago: "Agile is all about removing handovers. Handovers slow down processes and are the source of mistakes."

In the novel "The Phoenix Project", agile is accurately described as being about focussing on simplicity, the art of maximizing the amount of work not done. Similar to lean methods in manufacturing, it is about minimising "work in progress" and avoiding bottlenecks.

In his book "The Delicate Art of Bureaucracy", Mark Schwartz describes how important it is to remove unnecessary bureaucracy to enhance agility.

In my view, agile is less about diligently following yet another methodology (Scrum, Kanban, SAFe, Holocracy, etc.) and again introducing bureaucracy as about a mindset, focussing on a few principles across the company and not only in IT:

- Reduce handovers, hierarchies and bureaucracy => focus on integrated and self-organising teams that can decide on their own with lean governance

- People positive attitude => trust people to get the job done, get out of the way, no micro-management or overengineered governance and processes
- Reduce the size of work packages and "work in progress" and therefore cycle times
- Constant on-going improvements vs. clearly defined projects and iterative adjustments vs. long drawn plans

As agile methods already have some tradition in IT, the CIO is well placed to drive the agile transformation across the company and to help the business colleagues become agile, by adopting these principles and by helping them to change the mindset within their organisations. This is an important part of the role of modern CIOs, who wants to add value to their companies and make a positive impact. Today's CIOs are expected to get out of the back office, relinquish the traditional role of IT as a support unit and to move into the driver's seat of the agile transformation across the business.

10

CONSUMERISATION OF IT AND BYOX: CONTROL OVER IT PROCUREMENT MOVES TO USERS

Only a decade ago, the technology we used at work in our companies was far more advanced than what we could afford to use at home. Reasonable computing power, storage and connectivity were so expensive that only companies were able to afford to use them extensively. Today the situation is reversed, and we probably all use technology and tools at home that are much more sophisticated than what companies offer at the workplace. Furthermore, technology has become easy for consumers to use, thanks to a simple "plug and play" approach and the fast adaptation of ever evolving technologies, which is far outpacing what companies are capable of. Companies are lagging behind, often paralysed by legacy technology that they cannot easily replace, and this is inhibiting a faster pace of adoption of the latest tools and technologies.

At work, however, end users today expect the same simplicity and leading-edge technology that they are used to at home, and they are increasingly bringing their own technologies to the office. Restricting this and prescribing what technology, devices, tools, etc. may be used at work is becoming an ever more impossible task for CIOs. The younger generation want to use the technology and tools that help them to be efficient, and they do not care much about company standards and rules in this respect. They want to bring their own technology to work, connect their devices, access corporate systems and and information as well as public internet at the same time with these devices and use the apps and software packages they are familiar with.

I remember having discussed the same topic back in 2014 with fellow

CIOs, and at the time, the majority of them were convinced that their companies would never allow employees to connect personal devices to the corporate network. I wonder if this view has since changed, because back then I was already convinced that companies and in particular CIOs needed to rethink their policies if they wanted to be seen as a modern place to work and attract talent from the younger generation.

Companies will have to open their systems and networks to employees and allow them to connect their personal devices, tools and applications. The paradigm that companies provide their employees with all IT equipment needed for work is antiquated and no longer viable. The younger generation want to bring their own devices to work, such as smartphones, tablets, laptops, etc., and this trend will only increase. Whereas a few years ago, we were merely talking about "bring your own device" (BYOD), we are now confronted with "bring your own anything" (BYOx). With IoT spreading and all kinds of day-to-day objects becoming equipped with sensors and being connected, we will soon be seeing connected glasses, connected hearing aids, smart watches, connected shoes and clothing, etc. walk into our corporate offices. It is naive to think that CIOs will be able to stop these things from connecting to the corporate network. Moreover, as with the virtualisation of objects, more objects that we were using in physical form just a few years ago have been or will be dematerialised. They now "live" in the cloud and will need to be accessed together with corporate systems and apps that are also increasingly deployed to the cloud. Maybe corporate networks themselves will soon become obsolete or virtualised.

CIOs will have to accept that a significant part of the IT equipment and software will be procured by users and will no longer be manageable by a central IT organisation that is under the CIO's control. On the other hand, CIOs will have to open up access to corporate IT resources, apps, systems, data etc. by user-controlled technology for collaboration purposes, while still ensuring the security of the corporate assets.

11

REVERSING THE OUTSOURCING MADNESS: BACK-SOURCING, OR "HOW MUCH IT TO KEEP IN-HOUSE?"

We currently see two diverging trends with respect to keeping technology competence inside the companies versus outsourcing or using IT as a service from a cloud provider. Nearly 20 years ago, in his article "IT doesn't matter", Nicholas Carr claimed that IT was merely a commodity with no strategic value to the business and that a third party specialised on providing IT services (including software development) would do it better and cheaper than in-house IT professionals.

In the meantime, things have changed significantly and with digitalisation having become a strategic topic, companies were confronted with the fact that information technology is defining the future of their businesses and therefore IT has become a key strategic asset. However, many companies who had followed the outsourcing trend today realise that they went too far, outsourced too much of their technology competence to third parties and with it, lost their IT skills and knowledge. Consequently, today they lack the much-needed technical competence and rely heavily on their IT and software development suppliers. As a result, many large companies today are working hard to rebuild these IT competencies in-house, as the alleged "commodity" has now become a strategic asset to their business.

This is one side of the story. On the other hand, more services can easily be consumed as cloud services, making a large part of the physical infrastructure and bespoke software development obsolete. Today it is very easy for a start-up company to purchase and combine all kinds of services from the cloud without much investment and in a very short time, without ever having to own a

physical server or writing a single line of code. Only two decades ago this was completely unthinkable.

The question whether to own or outsource the hardware and data centres is becoming almost obsolete. For most services and applications, this has become irrelevant as the services can simply be consumed from the cloud. The traditional horizontal layering of technology stacks (hardware, storage, operating system, middleware, application, etc.) has been replaced by vertical siloes of fully integrated services, where the underlying technology is mostly invisible to the consumer of the service. However, to be able to fully leverage the technical capabilities of such services, one still needs to understand the different underlying technologies.

Virtualisation (dematerialisation) of "things" leads to the situation that physical objects are being replaced by software. For most companies and industries, a significant part of their future products and services has or will become "software defined".

Software has become such an essential part of the business offerings and products and thus has become one of the most strategic components of every business. Therefore the "make or buy" question on software is very much back on the table.

An often-used example is Tesla, which considers itself to be more of a technology company than a car maker. A large part of the features of a Tesla vehicle is defined and controlled by software. A new Tesla model is often "just" a software upgrade and customers can buy new features or enhancements (i.e., better performance) by simply downloading and installing a software upgrade on their vehicle, "over the air", without having to take it to a service centre or a garage.

Since the customer's vehicles need to be constantly connected to Tesla's product lifecycle management (PLM) system and linking it to the production planning and ERP system, Tesla realised that these systems would be the core of their business and therefore would be developed and managed in-house. Tesla defined its ERP and PLM systems as key strategic assets: they are key components to constantly update their products (the cars) with new functionalities and therefore directly represent a competitive advantage.

Companies like Tesla realised that IT is strategic and needs to be kept in-house. To effectively use technology as a strategic asset, companies will bring outsourced components back in-house as these are used to achieve competitive advantages such as agility and speed-to-market, product innovation and a personalised service offering for their customers.

Modern CIOs will have to carefully rethink the strategic value of IT before blindly following the cost-driven outsourcing path and ensure they have the necessary technology competences and skills in-house to drive the strategic digital agenda for their companies.

12

TECHNOLOGY AS A TOPIC FOR THE BOARD OF DIRECTORS

In 2003 Nicholas Carr wrote that "IT doesn't matter" and encouraged companies to treat IT as a commodity, to outsource it and consider it a pure cost factor with zero strategic value and irrelevant to innovation.

A lot has changed since and over the past decade, the digitalisation wave made most companies realise that Information Technology is far more than just a commodity or a simple business support tool. IT has long since become a key strategic asset that is defining the future of every business and that drives a large part of all innovations. Technology – and IT in particular – has become one of the core strategic components of literally every business.

Now that IT is a key strategic factor, it might be expected that this would also be reflected in the composition of the boards of directors of companies. However, we still see only very few companies having elevated IT and digital to a topic worth establishing and discussing in depth at the board of director level, despite its strategic nature. Not many of the larger companies – except perhaps for technology companies – have appointed non-exec directors to their boards who can truly contribute sound knowledge and experience in IT and digitalisation to the company's top-level strategic body.

According to Constellation Research, a leading Silicon Valley tech research and advisory firm, "about only 11% of the Fortune 500 have experienced tech experts on their boards" in 2019.

As technology defines how products and services are shaped and composed, produced and delivered to the market, how companies interact with their customers, suppliers and partners and the way

they collaborate internally, companies who want to be successful in the networked economy will need to have people on their boards of directors that are experienced in IT, understand how digitalisation can change their business models, products and services and the way their company can operate efficiently in the digital age. These developments call for non-exec directors who have gained personal hands-on experience in driving the digital agenda and its impact on the culture, processes, and the organisational structure of established companies.

A study conducted by MIT Sloan Management Review in early 2019 shows that board members who understand the impact of emerging technologies on business success are helping companies outperform competitors. Furthermore, it states that "being a digitally savvy director is often a consequence of time spent in a high-clock-speed industry where business models change quickly, such as software or telecom, or having experience in an executive role with a strong technology component."

Looking at the composition of boards of directors of most established companies, still predominantly present are sales, financial and legal experts and those with extensive experience in the traditional core business of the company; in other words, people who know how the business was conducted successfully in the past.

This needs to change if these companies want to ensure they remain relevant and competitive in the future. By failing to take advantage of IT as a strategic asset, to digitalise their business processes and products and to exploit new business models driven by technology, these companies run the risk of becoming marginalised. "Digital Darwinism is unkind to those who wait," said Ray Wang, founder and CEO of Constellation Research, and this is also underpinned by figures: for example, more than 50% of the companies that were part of the Fortune 500 list in the year 2000 have since disappeared, most of them because they failed to leverage technology in a strategic way to reinvent their businesses.

Having more IT/digitalisation experts as members of boards of directors will also tilt the strategic discussion towards technology in these boards. IT will become a key strategic topic. CIOs in turn will need to get more involved and get more board exposure, become more strategic in their thinking, learn how to communicate at the board level and how to contribute to the strategic agenda of their companies.

For many successful CIOs with experience in digital transformation, this may also open new career opportunities – such as assuming a role as non-exec director on a board. It would be a good development and learning exercise for each CIO to start acquiring the necessary strategy skills by joining a board as non-exec director.

CONTACT

Patrick Naef

powered by

UPGREAT AG
Allmendstrasse 19
8320 Fehraltorf

www.upgreat.ch