white paper

Challenges and journeys

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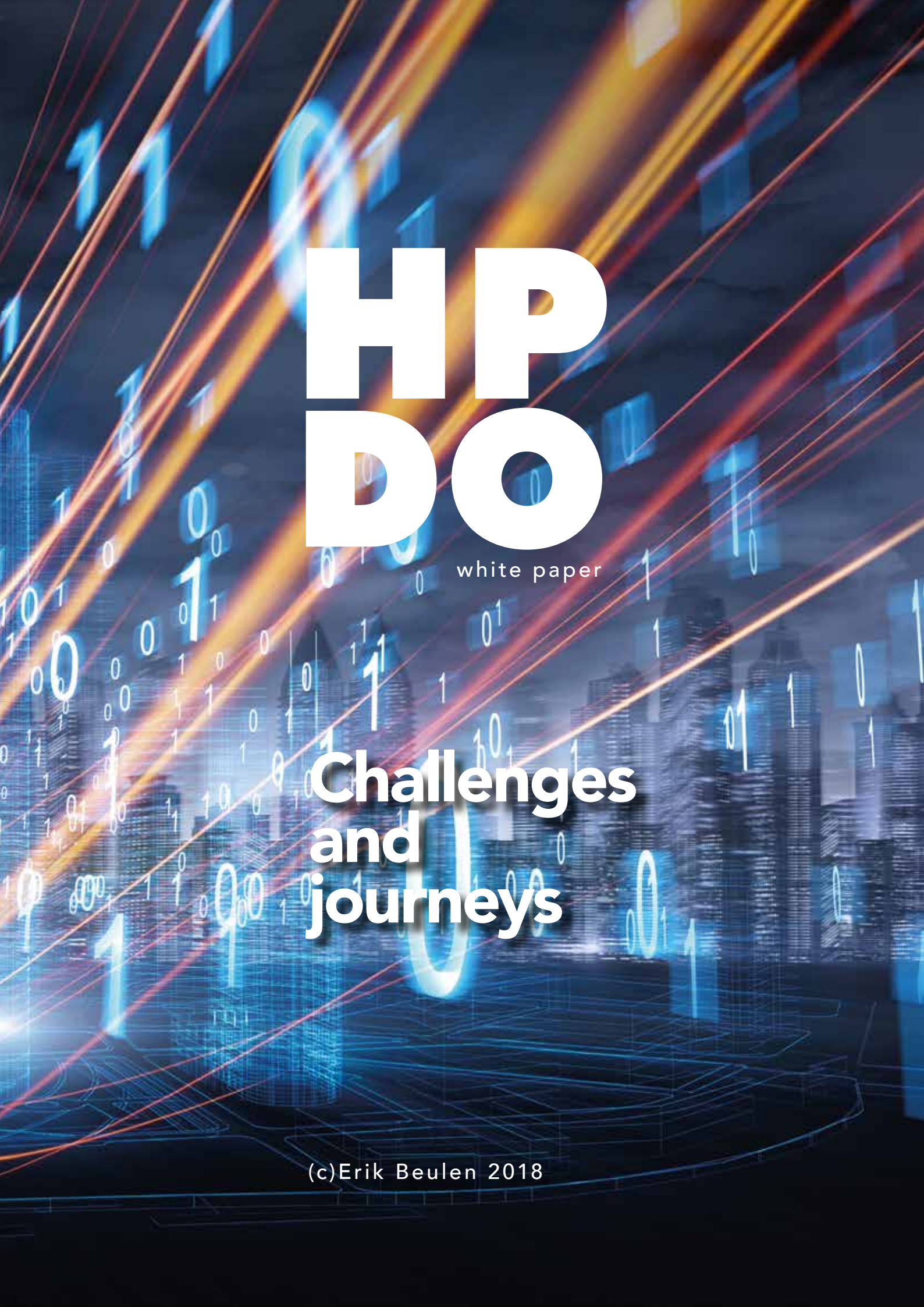

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white paper

Challenges and journeys

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INTRODUCTION

The idea of discussing ways to build the real Adaptive Enterprise with a group of CFOs occurred on a fine day in 2000. At the time, looking ahead was becoming more important than looking back as the starting point for the future.

This led to the 'On the road to Nirvana'-thinking and a translation into the business performance management model of, among others, Hyperion and the high-performance organisation movement by people like André de Waal (Associate Professor of Strategic Management at the Maastricht School of Management and the Maastricht University School of Business and Economics). One of the characteristics of Nirvana at the time was its information-driven culture. Later on (2003-2005), it was skilfully 'scooped out' by the F guild.

In the following years, notably from 2010 till 2013, the CIO community – under the leadership of people like Aloys Kregting, the former CIO at DSM (currently the CIO at AkzoNobel) and René Steenvoorden, the former CIO at Rabobank (currently the CDO at Randstad) – often talked about so-called 'high-performance information' (HPI), including some real 'Maslov models'. Eventually, all comes together in the spirit of our age of 'digital, data and disruption'. Hence the start of the high-performance digital organisation programme (HPDO).

What is it? How do we get there? What does it really take to get there? These are the key questions that need to be answered. A series of round-table discussions, surveys and in-depth contributions by Erik Beulen (Professor at Tilburg University and TIAS Business School) has culminated in this first white paper.

We are not there yet. This is only the beginning. It really has to happen! Why? Because today we are no longer talking about IT & business but about technology & economy (about the operating model). This means we have to focus on the internal discussion with the executive board, the supervisory board, and the key stakeholders – and on external discussions as well.

Disruptive Greetings,
Rob Beijleveld

'Most organisations have embarked on digital journeys. However, in our research we found that only as few as 10% of the organisations consider themselves as digitally mature. Furthermore, we identified large capability gaps for chief digital officers (7.6 out of 10) and chief information officers (7.1 out of 10). How can your organisation become a high-performance digital organisation?'

'High-performance digital organisations have a board of management that lives and breathes digital, and collaborate with start-ups, scale-ups, tech giants and universities. Besides, the adoption of architecture by design and a thorough data strategy contribute to digital success.'

HIGH-PERFORMANCE DIGITAL ORGANISATIONS

Challenges and journeys

A lack of innovative use of information technology decreases the lifespan of organisations. Kodak and Blockbuster are classic examples, but Toys R Us is a more recent one. They struggled with shifting towards online shopping and ended up on the brink of bankruptcy.[1] In fairness, Kodak (Long Blockchain Corp since December 2017) might be reanimated by introducing an encrypted digital ledger of ownership rights for photographers using blockchain.[2]

To stay in business, continuous self-reinvention is key for any organisation. Executing multi-year strategies is no longer adequate to ensure sufficient innovation adoption and adaption to survive. Emerging technologies, such as blockchain, cloud computing, big data, the Internet of Things, or robotics, are the available disruptive building blocks for your services and product innovation. Although information technology is at the heart of digital strategies, a joint commitment from business and information technology is pivotal for innovation adoption.

Now is the time for organisations to shift the focus from developing a digital strategy to integrating digital into the DNA of the organisation. Organisations, processes, and ways of working must be changed radically.

How does your organisation become a high-performance digital organisation that can introduce, embed and maintain these new technologies in conjunction with your legacy information technology? We will address the associated leadership and governance questions in this white paper and present real-life experiences from leading companies, which have participated in the high-performance digital organisation challenge.[3]

We will address these questions by providing a historic overview, followed by sharing the digital focus, maturity, partnering and digital leadership of the participants of this study. The main section of this white paper is about digital leadership of the participants, including the role of the board of management, chief digital officers, chief information officers and implementation. We conclude this white paper with the relevant tactical/operational aspects of high-performance digital organisations – governance, architecture and data strategy. Of course, we have included best practices. The data for this research was collected in workshops with the participants in this challenge and by a survey including responses of 57 of chief digital officers, chief information officers and their direct reports. In addition, we interviewed two of the flag bearers of this challenge, Aloys Kregting, chief information officer at AkzoNobel, and René Steenvoorden, chief digital officer at Randstad, to learn from their experience.

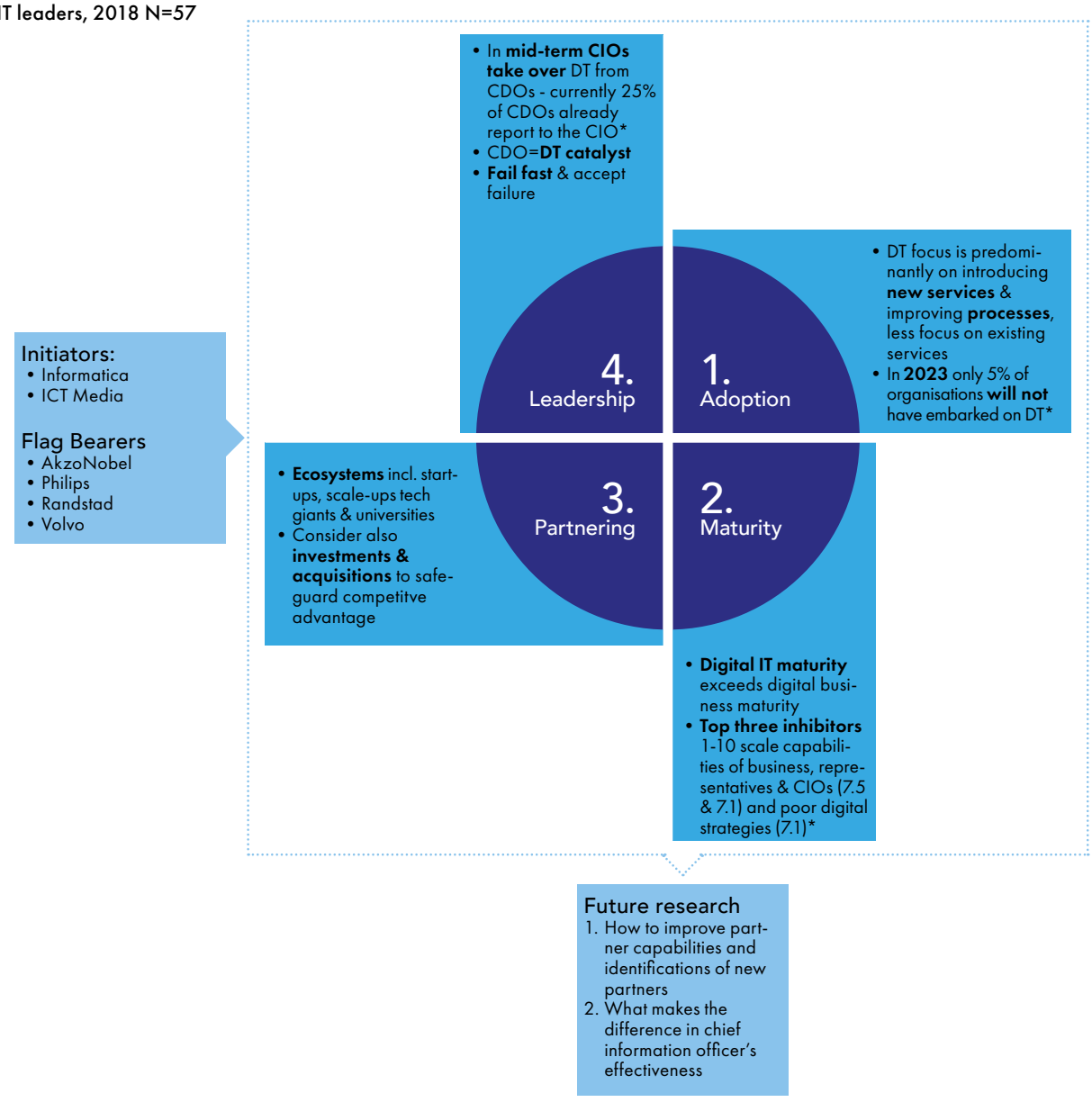
State of affairs

Most organisations understand the importance of digital and have already embarked on digital transformations. Increasing competition and interconnectivity in value chains accelerate the adoption need. Some organisations are more successful than others. A historical information management[4] perspective is helpful to understand success factors better and to ensure your organisation is heading in the right direction.

In the '70s, the focus of information management was initially on supporting the decision-making process and user performance. IT directors and engineers were pioneering in the field of information technology. The involvement of business representatives was non-existent: they had to accept the services provided by the IT department. In the '80s, the service orientation of information management emerged. In the '90s and 2000s, the emphasis shifted towards enhancing performance by the creation of learning organisations. Chief information officers were appointed. Their focus was on fulfilling business demand, and they had no involvement in business processes nor in services or product development. Information technology followed strategy.

In the 2000s and 2010s, integration of value chains emerged. Digital transformations are here to stay and make the technology landscape more complex, because digitisation adds information technology to any product or service. This also requires significant involvement of business representatives. The digital readiness of business representatives in most organisations is not as it should be. They simply are not tech savvy and have difficulty driving changes at the required pace. In response, many organisations have adjusted roles and responsibilities. Some organisations appointed a chief digital officer to drive the digital transformation. Appointing chief digital officers is an understandable response and a pragmatic solution, as most chief information officers do not have sufficient experience to act as a change agent and drive business innovation. This analysis provides a summary of improvement areas, as most organisations have just started their journey to transform their organisation into a high-performance digital organisation.

Figure 1: Digital will be the new norm, are we on track?
*Survey Dutch IT leaders, 2018 N=57



Digital adoption

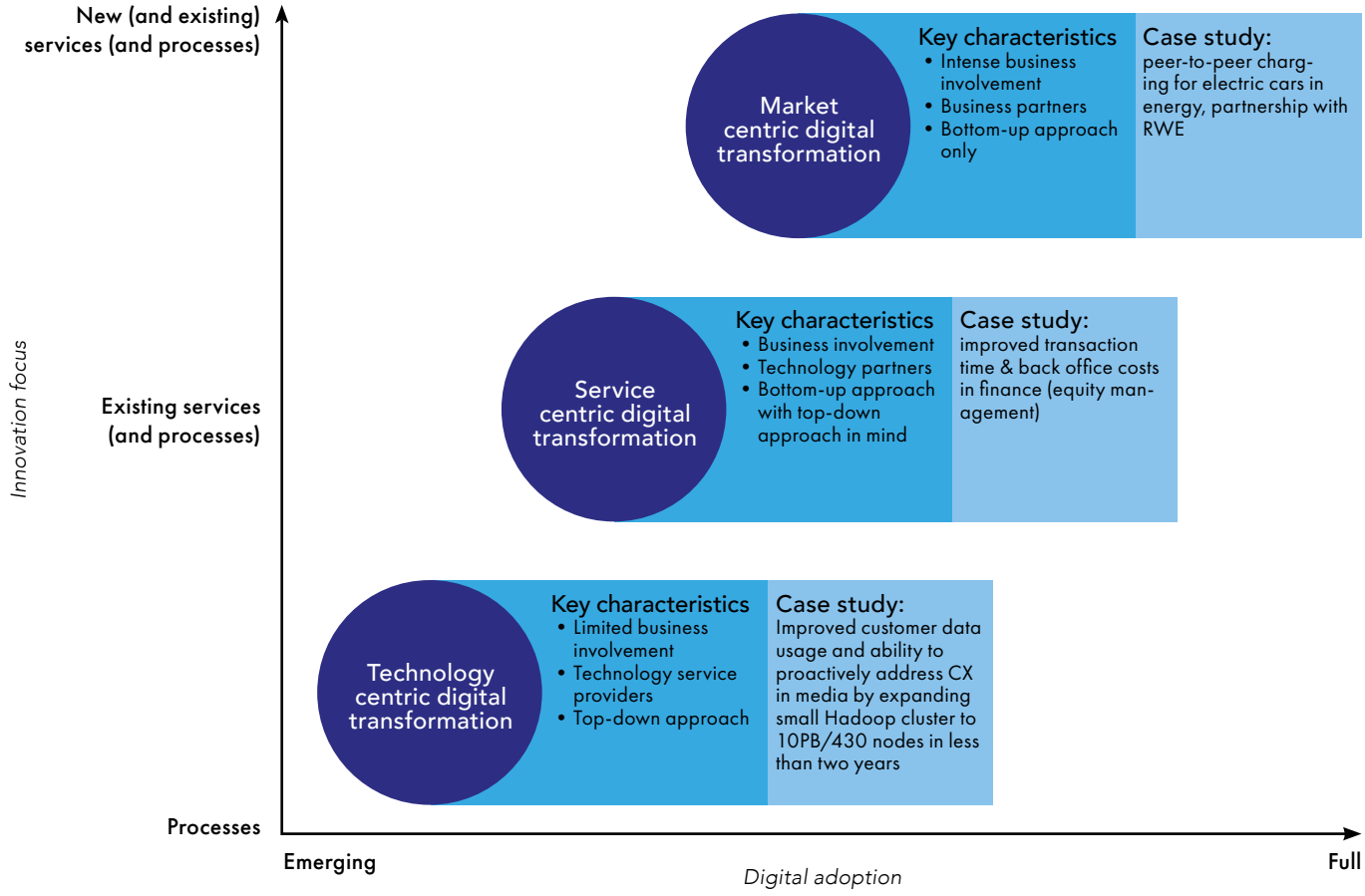
Most organisations adopt digital gradually. Organisations can embark on multiple digital journeys in parallel, as illustrated in Figure 2. In digital transformations, organisations can start optimising their existing processes. Organisations kick off with data-driven initiatives to support management in decision-making, e.g. big data and analytics. Organisations often enter into contractual relationships with technology service providers to make this happen. For example, Comcast's big data initiative has grown from a small Hadoop cluster to over 10 petabytes and over 430 nodes in less than two years, which improved customer usage data and increased their ability to gain a better understanding of how customers are using its many products and provides the ability to address customer experience issues proactively.[5] Proper tooling, data strategy, and architecture by design are prerequisites for these initiatives. The required effort to standardise can be substantial and requires a top-down approach. The business involvement in optimising existing processes is limited to specifying their requirements. Innovating existing services is another digital journey. The collaboration between business and information technology is more intensive in this case, as new technologies are introduced to enhance the functionality of existing services. Additionally, collaboration with technology partners is indispensable in this

journey. An example is the introduction of blockchain technology to decrease required processing time of transactions combined with significant back-office cost reductions, e.g. the Nasdaq Private Market platform to expand and enhance equity management capabilities.[6] This requires a bottom-up initiation and an extensive alignment with related processes to ensure a coherent service offering. Architectural alignment is required for the introduction of new technologies. Typically, security and data privacy concerns must be addressed from the start of the journey. Proofs of concept and pilot projects are a good start; learning can be incorporated prior to large-scale deployment.

The introduction of new services is a third possible digital journey. This is at the heart of digital transformation and requires the most intensive collaboration between business, information technology, and (new) business partners, as this is true innovation, combining new business concepts and new technologies. An example is the use of smart contracts in the energy sector, e.g. RWE and Share&Charges offering peer-to-peer charging for electric cars.[7] This requires creativity and involvement from both business and information technology representatives and business partners. Typically, proofs of concept and pilot projects are launched in isolation, and organisations resolve integration and large-scale deployment later. Proven business success is the priority. High-performance digital organisations foster creativity and innovations, local as well as central, combined with the implementation rigour required for large-scale deployment for the successful initiatives.

If we take a close look at the survey results for digital focus over time (digital adoption 2018 and expected digital adoption 2020 and 2023), we see a typical pattern in the digital focus. The focus of organisations starts by optimising processes related to products and services, then innovating existing services, followed by

Figure 2: Innovation focus and digital adoption



introducing new services (increased from 22% in 2018 to 39% in 2023). The percentage of organisations that have not embarked, declines from 10% in 2018 to 8% in 2020 and 6% in 2023.

For high-performance digital organisations it is important to set priorities for digital adoption considering an innovation focus on processes and on existing and/or new services. Although market-centric digital transformation focusing on new services most likely will have the largest contribution to your top line, it is more difficult to implement successfully. Gaining experience in technology & service-centric digital transformation first will reduce the risk of market-centric digital transformations.

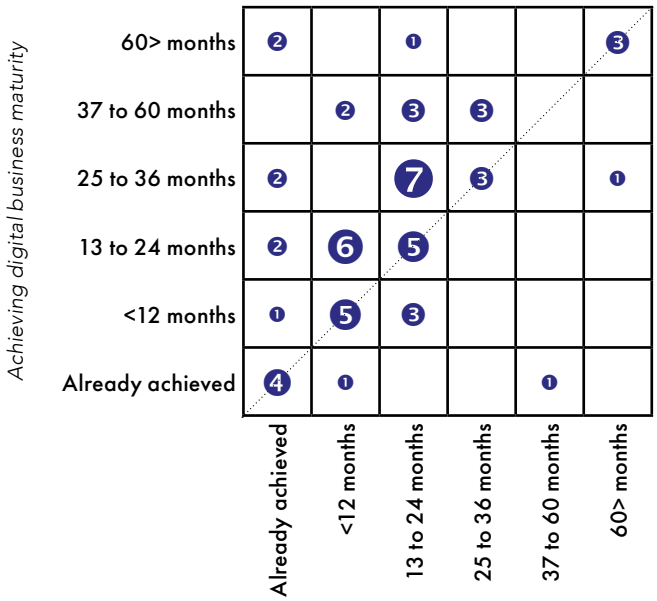
2. Maturity

Digital maturity

The survey also addressed digital maturity, differentiating between digital maturity with respect to business and information technology. We conclude that most organisations do not see themselves as digitally mature yet: only four organisations out of the 55 surveyed consider themselves as digitally mature in business and information technology (see Figure 3).
The other respondents expect they need up to 60 months or more to become digitally mature. According to the survey, technology maturity with respect to digital information is a prerequisite for digital maturity in respect of business. The survey outcome might be impacted by the survey respondents' profiles, predominantly chief digital officers, chief information officers and information managers, but undoubtedly there is room for improving maturity. What capabilities, processes, and tooling are required? This is essential input for the digital strategy and will support organisations in adopting digital in accordance with their digital strategy.

Respondents also assessed the importance of improvement areas (see Figure 4). The capabilities of business representatives (7.6 out of 10) and the chief information officer (7.1 out of 10) together with a poor digital strategy (7.1 out of 10) turn out to be the areas requiring most attention. Respondents also made clear that identifying, maintaining and recruiting qualified staff is important. In addition, the chief digital officer (6.8 out of 10) and change management capabilities (6.7 out of 10) received high scores. The outcome of the survey set a clear agenda for improving digital maturity.

Figure 3: Achieving digital business and information technology maturity over time (N=55[8])



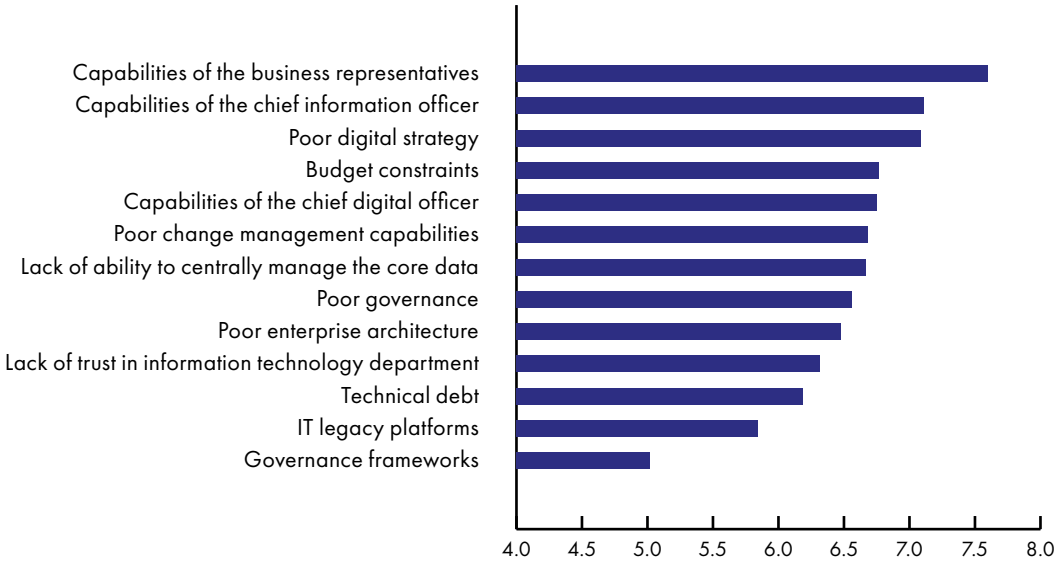
3. Partnering

Partnering

Initiating a digital strategy and implementing digital transformations change value chains and require intensive collaboration with partners. To change their organisation into high-performance digital organisations, collaboration with start-ups, scale-ups, tech giants, and universities is necessary.[9]

There is no simple recipe, but engaging with start-ups and universities fuels innovation, where scale-ups can help your organisation implement and deliver innovation. Collaborating with start-ups also contributes to changing the organisation and building a digital mindset. During the full integration of an innovation in the services and product portfolio, the organisation needs tech giants, such as Amazon, Google, IBM and Microsoft, and their products, to deliver at full scale. We also see a lot of organisations struggling to attract talent. An influx of fresh graduates will build the capabilities and contribute to changing the culture. This is where collaboration with universities will play an important role.

Figure 4: Importance of improvement areas for digital maturity – 10-point scale, 10 is highest importance, and 0 is lowest importance (N=57)



Designing, implementing and fostering ecosystems
We expected differences in the collaboration focus by phase, starting with 'design' and followed by 'implement & foster', due to the difference in digital maturity. We believed start-ups would be more important at the start of the digital journey ('design') than in later phases ('implement & foster') and that scale-ups would be more important in 'implement & foster' than in 'design'. However, in the survey we do not see a distinct difference between collaboration with start-ups and partners in 'design' versus 'implement & foster' (for start-ups 4.6 versus 4.5 out of 7, and for partners both 4.6 out of 7). Understanding effective collaboration with different partners over time requires further investigation.

In regard to engaging with start-ups and scale-ups, organisations need to decide on exclusivity and potential participation followed by an acquisition to maximise the added value of their ecosystem. Organisations typically agree on a high degree of exclusivity prior to engaging with start-ups to protect their commercial interest and enable developing innovations jointly. The size of most start-ups also prevents them from engaging with multiple partners in parallel. As organisations expect economies of scale and delivery rigour from scale-ups, a more limited degree of exclusivity is required for scale-ups. Typically, this exclusivity includes named competitors combined with specific geographical restrictions.

With respect to participation and acquisitions of start-ups, organisations run the risk that this will kill the culture and innovative spirit and result in attrition. This is less of a risk for scale-ups. However, businesses should only participate or acquire, if the capabilities and knowledge embedded in the start-up or scale-up potentially will be at the heart of your future value propositions and will give you a competitive advantage. Otherwise, implement partnership relations and engage at arm's length. Apply the partnership approach as well for engaging with tech giants. However, 'supplier relationships' might be a better label due to the market power of these tech giants.

University and business school collaboration also requires attention. Larger organisations might consider appointing campus recruiters to enlist fresh graduates. Furthermore, sponsoring conferences and study associations, and providing guest lecturers can be effective partnering mechanisms. Consider in-company programmes provided by business schools or universities, to build not only digital capabilities but also teams. Integration of in-company programmes in management development programmes is highly recommended, as this facilitates assimilation of business and information technology staff. Make serving information technology leadership roles mandatory for business leaders. Similarly, information technology leaders need to fulfil business leadership roles to further their careers.
For high-performance digital organisations it is important to understand that digital success can only be achieved by collaborating with start-ups, scale-ups, tech giants and universities.

Digital leadership

High-performance digital organisations are led by a board of management that lives and breathes digital. The board of management appoints and supports digital leaders and orchestrates and facilitates organisational changes required. The digital leaders execute the digital vision of the board of management by implementing their digital strategy. This goes without saying for born digital organisations.

For organisations which are digitally enabled, i.e. using digital to enhance their products and services and optimise processes, and for traditional organisations that are embarking on a digital transformation and that are competing with born digital organisations, this is not a given. Organisations with a less digitally minded board of management will struggle to be successful. Digital leaders and business management need to put forward their digital strategy and have to guide the board of management. This bottom-up approach impacts the effectiveness of digital leaders and the speed of digital adoption of organisations. These organisations must consider a board of management shake-up.

Digital leaders

It is well known that successful digital leaders are business and tech savvy, great communicators, and change agents. This requires a thorough understanding of business processes, products and services, and the current market and future markets, as well as an understanding of technology, including architecture and data strategy, security and compliance, and the ability to access the potential of new technologies, including artificial intelligence and machine learning.

Successful digital leaders unceasingly invest in their relationships with the board of management, regardless of the digital maturity of the board of management. Digital leaders explain their digital strategy and pitch their digital proposition at a board level. In order to be successful, a thorough preparation is required. Digital leaders together with senior business managers need to invest in co-creating digital strategies and propositions. This includes market analyses, marketing strategies, and defining the technology requirements that enable the propositions.

After all the hard work with business management and the information technology department and their partners, digital leaders have to make their strategy and initiatives presentable to the board of management. This is an intensive and time-consuming effort, but worth every hour.

The board of management will challenge digital leaders on the ability to execute. Despite their belief in the need for digital transformation, the experience of board members in information technology is not altogether positive. In addition, their understanding of information technology is sometimes problematic. Digital leaders need to take this context into account. They need to explain, in non-technical terms, how they simplified the information technology landscape and transformed the organisation into the agile organisation.

Furthermore, a deep dive into required capabilities is necessary to understand the profile of a digital leader better. Of course, the capabilities of the core leadership, such as designing and implementing a strategy, motivational relationships and communications, are the foundation. To digital leaders, change management capabilities are important. The change is not limited to processes and the organisational structure but is extended to redefining product and service offerings. This includes breaking down traditional silos, challenging everything that is in place at any level, and introducing agility. Let us explore embedding digital leadership into organisations next. In parallel, adjusting processes and turning around the organisation by onboarding digital natives and reclassification of the current workforce is a challenge. On top of this, digital leaders need to build partnerships, creating and maintaining ecosystems instead of contracting information technology services.

Chief digital officers and chief information officers

Chief digital officers are responsible for defining the digital strategy and implementing digital transformations. Organisations appoint a chief digital officer to create focus on digital, which is important to get things started.[10] The chief digital officer has a change agent profile, has business sense, and is information technology savvy. Finding the right candidate is not easy.

Most of the organisations in the survey have both a chief digital officer and a chief information officer. In these organisations, the chief information officers are responsible for providing information technology services and contributing to digitisation in close cooperation with the chief digital officer and business representatives. The focus of chief information officers is shifting from operations towards added value for the company.

What can be said about the chief digital officer in the organisation? First, the organisations of most respondents have appointed a chief digital officer (88%). The

survey responses regarding reporting by chief digital officers are as expected: most chief digital officers report to the chief executive officer (45%), the chief information officer (24%) and the chief financial officer (12%). Obviously, there is a distinct difference between reporting to the chief executive officer or chief financial officer versus reporting to the chief information officer, which is related to the need for change and the chief information officer's profile. Chief digital officers reporting to the chief information officers are programme managers, as the chief information officers drive the digital strategy. The survey responses regarding the chief information officers' reporting are also as expected. Most chief information officers report to the chief executive officer (40%), the chief financial officer (37%) and the chief operating officers (14%). Most of the respondents suggest that reporting to the chief executive officers is required to achieve digital success.

First and foremost, digital is a company-wide responsibility. Appointing a chief digital officer in addition to a chief information officer does not do justice to this responsibility. However, appointing a chief digital officer may help organisations to embark on a digital journey, to have sufficient focus, and ensures the availability of digital capabilities. In the medium term, responsibility for digital will be transferred to the chief information officer.[11] The respondents of the survey score 3.1 (on a 7-point scale) on average in response to the question 'if the chief digital officer can be made redundant when digital maturity has been achieved.' We expected a higher score. A possible explanation for this survey outcome is the participation of chief digital officers in the survey.

For high-performance digital organisations it is more important to have the right candidates to define the digital strategy and implement digital transformation than to initiate a debate on job titles. The required capabilities will change over time and require continuous attention of the management board.

Implementation
Regardless of the organisational structure, including responsibilities of the chief digital officer and the chief information manager, it is important to act. Mobilising the business and collaborating with information technology, combined with truly embracing the digital strategy, are essential for digital success. Identification of use cases is important: start small and without any constraints.[12] Promote experimentation! A less orthodox suggestion: invite the children of your employees to unlock innovation and to unlock the potential of your employees by creating 'competition'. Challenge employees (parents) to outperform their children.

The potential and success of use cases need to be monitored closely. Proofs of concept and pilot projects that do not meet expectations must be killed earlier rather than later: fail fast[13] and accept failure! Digital leaders must also diversify their portfolio of use cases, including a mix of 'easy initiatives' (low-hanging fruit to prove business value and generate funding for other digital initiatives), 'difficult initiatives' (to prove the added value to criticasters), and 'true impact initiatives' (major contribution to the top line – to be relevant). Managing the portfolio of use cases as a funnel is a prerequisite, and generating sufficient influx is crucial.

Furthermore, successful digital leaders identify business leaders and digital enthusiasts to mature their organisation. This includes recruiting, hackathons, and training, e.g. data analytics boot camps for business executives and online digital training for senior management. It will embed digital in the DNA of an organisation.

Governance

Let us take a closer look at the organisational embedding of digital. Less mature organisations might still have a separate digital unit, where more mature organisations have fully adopted digital and differentiate no longer.

Recalibrating business and information technology roles is required. Digital transformations require an adjusted skillset and experience. A possible implication is that some of the current staff become redundant. Setting up a recruitment engine is important to ensure sufficient influx of digital native staff.

To approve new technologies, digital leaders are co-chairing an innovation committee with the business. IT architects have a strong voice in innovation committees to guard the IT architecture. Mature organisations approve digital transformation budgets at corporate levels and, depending on the coherence of product/service and market overlap, partly at the business unit level. Business representatives and digital leaders need to have a seat at the table.

The funding of digital transformations attracts interest and debate; organisations leverage corporate investment, self-funding and hybrid models. In most organisations, a hybrid of self-funding via IT cost efficiencies and corporate investment are used to initiate digital transformations. It is a combination of the cost consciousness of the IT operation and the technology insight of the digital leaders, as well as business sponsorship. These play a major role in the justification and success of digital transformations.

For high-performance digital organisations it is most important to integrate digital in their organisation as soon as possible instead of having a separate digital unit.

Architecture & data strategy

Chief information officers should be technical innovators and custodians of the IT architecture. Technical innovation includes introducing DevOps, including frameworks such as TOSCA,[14] to increase agility, and cloud computing to provide a foundational technology layer. For cloud computing orchestration tooling, e.g. Microsoft Azure and Kubernetes, and container tools, such as Docker and Puppet, are important. In addition, microservices are in many ways a best-practice approach for realising innovation under a service-oriented architecture.

Technical innovation also includes 'new' technologies, such as big data, blockchain, the Internet of Things, and robotics. Chief information officers need to build up these capabilities in house in combination with teaming up with partners. Sourcing decisions have never been so difficult, as digital is all about competitive advantage. This also gives rise to compliance questions, especially in the context of data privacy, e.g. GDPR. This makes a fit-for-purpose IT architecture even more important. At the heart of the IT architecture, in the context of digitisation, are data strategy[15] and managing technical debt.

A proper data strategy is essential for digital transformation success; access to data is essential. The core data (such as products, services, and client data) must be captured centrally. Most organisations have large central teams for master data management of core data. Well-managed core data are a prerequisite for digital transformation success. The remaining data is captured decentrally and makes the difference in digital transformations, as it stimulates creativity and service innovation. Besides, strict data policies are required to avoid becoming 'data obese,' as too much data negatively impacts the usability of data/insights.[16]

The introduction of agility has increased technical debt risk, as decisions are made in business-driven agile teams. Organisations need to introduce architectural capabilities across agile teams, and advisors need to ensure informed IT-architectural decision-making, and if required, escalate decision-making.

For high-performance digital organisations it is more important to strengthen architectural capabilities and implement architecture by design and a thorough data strategy.

High-performance digital organisations:

1. have a board of management that lives and breathes digital;
2. embed digital in the DNA of their organisation;
3. set priorities for digital adoption considering an innovation focus on processes and on existing and/or new services;
4. experiment with new technologies, including artificial intelligence and machine learning;
5. accomplish seamless cooperation between business representatives and digital leaders;
6. collaborate with start-ups, scale-ups, tech giants and universities;
7. embed digital governance by recalibrating business and information technology roles and by integrating the digital unit in the organisation;
8. implement architecture by design and a thorough data strategy.

CONCLUSIONS

Digital is transforming our way of doing business. Information technology is becoming an integral part of products and services. This has set requirements for organisations, governance and architecture. However, the flag bearers of this challenge, Aloys Kregting, chief information officer at AkzoNobel, and René Steenvoorden, chief digital officer at Randstad, reconfirmed in their interviews the transiency of digital transformations. In the foreseeable future, digital will no longer be a topic of special interest. It will be an integral part of doing business that is fully endorsed by the board of management and implemented by digital leaders.

The board of management creates the conditions for digital leaders to be successful and develops a digital vision. Digital leaders need to spend time with the board of management to implement digital transformations. They need to explain their digital strategy and secure resources and budget. In their pitches, they focus on business value creation and technology enablement, instead of IT architecture challenges, data strategy complications or microservice hurdles. They explain what is possible and how, and accept to be measured on their ability to deliver the presented business value.

Unfortunately, not all organisations are on track. Which action is required to keep up the pace? In the context of the transiency of digital, we need to ensure that we understand required skillsets, partnering capabilities, and strategies better.

Firstly, in this challenge, we learned that building digital capabilities is key. The survey indicated major capability concerns for all three key roles: business representatives, chief information officers, and chief digital officers. What is needed to elevate digital leaders to the next level? Having a digital strategy is not sufficient; it is all about execution. Additionally, draft role descriptions and processes are just the start for creating multidisciplinary teams. It is important to ensure connectedness between employees across your organisation, and this only starts with recruiting digital natives and revamping offices into hip and cool workplaces.

Secondly, the capability to add small-scale (local) business successes to (global) service portfolios to boost revenue is essential for high-performance digital organisations. This requires collaboration with partners. It should be noted that simply reviewing your IT sourcing strategy is not sufficient: revisiting achievements, including additional sales, improved customer intimacy, and reduced costs, is also required. Additionally, monitoring performance is essential for ensuring business continuity, but not just for the purpose of partnership management. This is all about tracking added value. Furthermore, effective governance mechanisms with partners are important; appointing alliance managers is only a start.

Organisations need digital maturity earlier rather than later in order to focus on the next big thing, whether this will be artificial intelligence and machine learning or any other emerging technology that creates business opportunities.

CASE STUDIES

AkzoNobel: "Staying open during our digital transformation is my challenge"
Aloys Kregting is the chief information officer of AkzoNobel. He gained a wealth of experience at Unilever, KPN, Numico and DSM. The digital transformation at AkzoNobel is in full swing and pertains to skills, change management and governance. The focus is on explaining digital, creating digital platforms and unconstrained exploration opportunities.

Two-speed IT, also called 'bi-modal' IT by Gartner, enables organisations to leverage the latest technologies that achieve competitive advantage and innovation (mode 2), combined with traditional technologies, ensuring stability (mode 1). The digital transformation is in addition to the traditional technologies and operates in coexistence. Aloys Kregting: "Our foundational platforms enable our digital transformation." AkzoNobel's API platforms will connect their ERP with their apps. The processes, including information technology processes, have also been improved to support an agile way of working.

In the journey, IT architects and security specialists are essential. Prescriptive and detailed guidelines have to be replaced by principles for the mode 2 activities. "My IT architects and security specialists support our digital transformation by explaining the WHY, instead of raising their concerns and creating obstacles," says Aloys Kregting. AkzoNobel accepts diversity and constantly monitors risk levels, followed by integration of successful experiments in global service offerings. "We are focussing on removing any barriers between mode 1 and mode 2 activities. If you do this well, digital becomes an integral part of the company even more." AkzoNobel has appointed digital leaders in the business as counterparts for the Information Technology department. These digital leaders work closely with business information managers and data scientists. AkzoNobel is in the middle of streamlining the digital portfolio management. "Aligning all of our digital initiatives, setting priorities and sharing lessons learned is important."

AkzoNobel is also building virtual digital leadership in all disciplines. No separate digital organisation, digital has to become part of the DNA of all employees. AkzoNobel is well on its way. Aloys Kregting: "We accept that for most of our employees, digital requires a mind shift. They have been focusing for decades on increasing product sales instead of inventing new services to boost profit and revenue." This may be a challenge for some employees: adopting an agile way of working in parallel with applying design thinking. AkzoNobel accepts small steps and combines training and educating its existing staff with onboarding digital native staff. Aloys Kregting: "For AkzoNobel, it is absolutely necessary to leverage the experience of our existing staff; hence, we are investing heavily in bringing their digital skills at level."

Many partners approach AkzoNobel to explore and implement digital transformations jointly. "Sorry to say, too many service providers would like to get into conversation with us. For me it is a prerequisite to understand how their proposed solution has generated additional sales, improved customer intimacy or reduced costs," says Kregting. Most service providers do not pass this test. AkzoNobel is open to sharing benefits with partners, an interesting thought. For their information technology partners, this requires a mind shift, as their revenues are less related to their information technology delivery effort. This will increase the risk profile for the information technology partners. The closer the services are related to user experience, the more feasible sharing revenues is.

Aloys Kregting's closing remark is on the transiency of digital transformations. In the foreseeable future, digital will no longer be a topic of special interest. It will be an integral part of doing business. He sees the ability to manage value chains as the next differentiating capability effectively: "Connecting the dots in value chains, the ability to orchestrate and collaborate – that is the true art."

Randstad: "Digital is all about business enablement"
The chief digital officer and chief information officer of Randstad, René Steenvoorden, has quite a track record. Previously, he held C-level technology leadership roles at P&G, McKinsey, Essent and Rabobank. His vision on digital is crystal clear: "Digital strategies have to be fully aligned with the business strategy." The perfect starting point for diving into Randstad's digital strategy is 'Tech & Touch'.

Randstad combines technology with the human touch to stay relevant for its clients, candidates, and its own consultants. For decades, Randstad has been, and largely still is, a decentralised organisation, but currently a growing number of processes and services are centralised to improve the top line and achieve economies of scale. This includes information technology. Randstad centralised its data centre services (public cloud) and network. This provided a foundational IT infrastructure required for the implementation of the digital transformation. Furthermore, Randstad has a global master data management strategy. René Steenvoorden: "We standardise sensibly and accept local master data management to continue to stimulate local innovations while capturing scale with global solutions."

The foundational IT infrastructure will also create cost savings to fund Randstad's digital transformation. Different from most other organisations, the required pay-back period is relatively short, as margins in the sector are relatively low, ranging from 4-6%. Any investment needs to have measurable results, like increased revenue, improved customer satisfaction, and reduced costs.

Obviously, Randstad is developing and implementing global business concepts as part of its digital strategy. This includes Randstad SourceRight, which delivers global HR outsourcing services. In addition, tailored solutions for global clients are implemented and maintained centrally. "It is important to combine local and global solutions smoothly for which we apply an agile and lean start-up approach," says Steenvoorden. This is not only necessary to foster innovation but also because of local differences (e.g. legislation and customs). When solutions are working well locally, Randstad scales up globally as quickly as possible via a dedicated team called the Digital Factory. Currently, data-driven sales, workforce scheduling, and video assessment tools are scale-ups in its portfolio.

The true difference with most other companies is the combination of the Digital Factory with the Randstad Innovation Fund (RIF). Over the years, this strategic corporate venture fund that has tracked some 2,500 early-stage to expansion-stage HR technology players and emerging technologies. This keeps Randstad in the lead of trends and potential, new business models. Known examples are the acquisitions of RiseSmart (2014) and Monster (2016). There are many more portfolio companies: Randstad investments include Pymetrics (hiring) and Montage (video interviewing and assessments). "Randstad Innovation Fund is our external catalyst; it enables us to bring the best to our organisation," says Steenvoorden. The RIF's knowledge is invaluable for the organisation and is not only applied at the corporate level. Many local organisations and clients benefit from its wealth of experience. An in-house tech investment fund is the perfect partner for any chief digital officer.

A major challenge for René Steenvoorden is the required internal change for digital. The HR sector is a very human-oriented business, and technology needs to be applied carefully. Consultants are not always very tech savvy, or they fear for their job. The world is changing fast and most of Randstad's candidates and clients expect technology innovations. The fact that consultants are lagging behind emphasises the need for change management. "We work very closely with our consultants not only to ensure that their requirements are met but also to co-create. Digital success and the acceptance of innovations of our consultants go hand in hand."

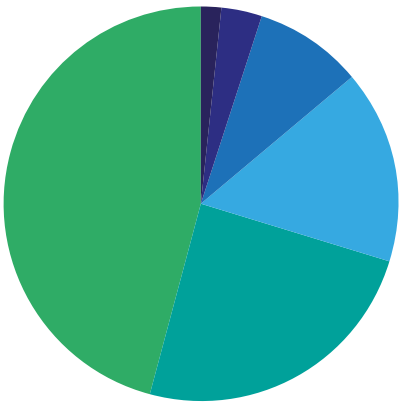
Finally, René Steenvoorden has a strong view on his digital strategy in 2028: "I will not have a digital strategy anymore: digital will be fully integrated. It's a sign of the time, like the focus on mobile was ten years ago." This leaves us with the question of what the focus will be for 2028. René Steenvoorden highlighted that the emerging technologies of artificial intelligence and machine learning combined the privacy challenges that are associated with these technologies. This might well be the next wave to ride.

Survey participant data

Figure 5: Overview of sectors of the survey participants (N=57)

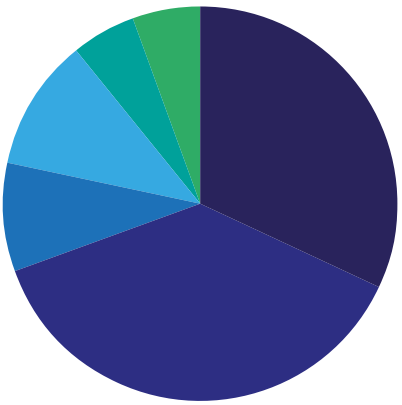
- Others
- Real estate and construction
- Education
- Government
- Utility & telecom
- Financial services
- Manufacturing
- Professional services
- Logistics
- Healthcare
- Media & publishing
- Retail

Figure 6: Overview of revenue in M euros of the organisations of the survey participants (N=57)



- < 10
- 10-25
- 26-100
- 101-250
- 251-1000
- >1000

Figure 7: Overview of positions of survey participants (N=56, one participant did not complete this question)



- Others
- Chief information officer (Including responsibility for digital)
- Senior business management (C-level)
- Chief information officer (in conjunction with chief digital officer)
- Business management (Line of business)
- Chief operations officer

High-performance digital organisation[17] – an industry initiative of ICT Media and Informatica
The high-performance digital organisation challenge is an industry initiative initiated by ICT Media and Informatica, providing guidance on digital strategies and digital transformations to business and IT leaders. Over 68 organisations have actively participated in this challenge, including the flag bearers Aloys Kregting, chief information officer of AkzoNobel, Bart Luijten, chief information officer of Volvo, René Steenvoorden, chief digital officer of Randstad and Maurice Verhagen, global head of Insights & Analytics of Philips.

The participants joined one or more of the four challenger workshops and completed a survey. The outcomes of the challenger workshops are included in this white paper. The survey was also submitted to the members of the chief information officer community of ICT Media, including chief information officers and their direct reports.

Workshops and survey
The data for this research was collected in workshops and by a survey. The workshops took place on 5 October 2017 (Vught), 31 October 2017 (Amsterdam), and 20 November 2017 (Amsterdam). The survey was submitted by ICT Media. The members of this community are chief information officers and their direct reports. The response rate was 1.6% (57 responses, 3,500 invitations). Since the survey was anonymous, it is not possible to establish to what extent the sample (57 responses versus total community of 3,500 members) was representative. However, given the spread over the different sectors and the size of the organisations which the respondents represent, there is no indication that the respondents are not representative for the community, which was also confirmed by ICT Media. The participants completed their response via a portal. The responses were collected from 29 November 2017 till 1 February 2018.

Workshop participants
Aloys Kregting, AkzoNobel
Alphons Schreven, Syntrus Achmea
Anko van der Haar, Ter Steege Holding
Arjan Kampman, Port of Amsterdam
Arjen de Vries, Lefier
Arnold van der Bie, Stedin Netbeheer
Arnold van Hunnik, de Zorgboog
Arnoud Klerkx, Kramp Group
Arthur Govaert, UMC St Radboud
Artie Debidien, NIBC Bank
Bart Luijten, Volvo Cars
Bernadet Miceli, Greenchoice
Bram Mommers, ARCADIS
Charles van Swieten, UMC Groningen
Daan Muizer, Stolt-Nielsen
Danny van Daal, Philips Electronics
Dave Ubachs, Staples
Dick van Weering, GITP
Dimitri Lambrecht, Arseus (Fagron)
Dirk-Jan Langbroek, TBI SSC-ICT Diensten
Edgar Heijmans, Ministerie van Binnenlandse Zaken en Koninkrijksrelaties
Elly An de Boer, KPN
Emiel van Bockel, Centraal Boekhuis
Erik Roet, E.ON Benelux
Erwin Kaal, Beaphar
Evert Romviel, ERIKS
Frank Biegstraaten, Caldic
Frank van Rooij, Malmberg
Gerard Diepman, BD
Gerard Doll, RDW
Gerben Wierda, APG Asset Management
Gerhard van der Bijl, Royal FloraHolland
Gerko Baarslag, Fugro
Hans Geurts, Verder Group
Hans van de Vorst, Wavin
Hein Boersma, Bakkersland B.V.
Henk Coenen, NXP
Henk van Steeg, Thales Nederland
Henk van Tent Becking, Scildon
Henry van de Ven, Nutreco
Herke Douw, de Volksbank
Hessel Dikkers, NS Groep
Hyleco Nauta, UMC Utrecht
Inge de Ruijter, equensWorldline
Jaap van der Welle, Mourik
Jaco van Goudswaard, Kadaster
Jan-Paul Krijgsman, Vergeer Holland
Jan Rubingh, CED
Jan van de Wouw, IHC Merwede
Jan Willem Sewalt, Starbucks Manufacturing EMEA
John van der Plas, Kiwa Carity B.V.
Joop Schoppers, De Woonplaats
Joris van Middelaar, Holland Casino
Kees Jans, Wehkamp
Kees Smaling, AEGON
Koenraad Bruins, Sanquin Bloedvoorziening
Leo Brand, Vopak
Marc Maas, Enexis
Marcel Krom, PostNL
Mario Suykerbuyk, ENECO Groep
Mark Beekman, Graydon
Mark Hankins, ADM Europe (Archer Daniels Midland)
Mark van den Brink, Stedin Netbeheer
Martin Lohmeier, Océ
Maurice Verhagen, Philips Electronics
Michel Hofman, Amsterdam Trade Bank
Michel van Hout, Transavia
Niels Janssen, Rotra Forwarding
Nitesh Saini, Canon Europa
Olivier Kerckhoff, Monuta
Olivier Plaitin, Brussels Airlines
Olli Hyyppä, NXP
Paul Hillman, Technische Universiteit Delft
Paul Prooij, ProBiblio
Peter Mikhail, Easy World
Peter Reus, Zuiderzeemuseum
Pieter Bedert, AGEAS
Pieter Buiten, Nationale Politie
Raimond Voermans, Marel Stork Food Systems
Ran Panday, Interfood
Remon van Riemsdijk, Medux
René Kint, Hoogheemraadschap van Delfland
René Steenvoorden, Randstad
René Truschel, Baywa
Rene van den Berg, ROC van Amsterdam
Ries Bode, Digital Governance Advisory B.V.
Rik Farenhorst, transavia.com
Rik Verhoog, Robidus Adviesgroep B.V.
Robert van Riessen, Teijin Aramid
Roland Jan Appelhof, Synlab
Ronald Hoek, Agro Energy
Ronald Mons, Gemeente Regeling Drechtsteden
Ronald van de Watering, SABIC Innovative Plastics
Santhosh Pillai, ABN AMRO Group
Sjoerd Blüm, Schiphol Group
Sjourd Wijdeveld, SHV Holdings
Toine Raaymakers, CRH Europe Products & Distribution
Ton van Dijk, PON Holdings
Ton van Rhijn, CZ
Vincent te Koppele, Ziekenhuis Gelderse Vallei
Wietske Sikkes, Gemeente Apeldoorn
Willen van Dis, Wageningen UR
Wolter van Haersma Buma, Schiphol Group
Wouter Baas, Vreugdenhil
Wouter Engbers, Wessanen
Yvonne Kubbinga, Holland Casino

Prof Dr Erik Beulen – white paper author, interviewer and workshop moderator
Erik Beulen (1969) is a professor at Tilburg University, the academic director of the executive MSc Information Management programme at TIAS School for Business and Society at Tilburg University and lectures on Disruptive Technologies at Manchester Business School. Furthermore, Erik is a director at Alvarez & Marsal and a board member of Platform Outsourcing Nederland.

Erik obtained his Ph.D. from Tilburg University in 2000. As an endowed professor he held the KPMG Global Sourcing Chair at Tilburg University from 2008 to 2015. His research concentrates on information management, disruptive technologies, outsourcing and governance. His academic work has been published in *Journal of Information Technology, European Management Journal, Information Technology & People, Strategic Outsourcing, Journal for Information Technology for Development and Communications Association for Information Systems. He is the leading author of the book Managing IT Outsourcing*, published by Routledge, UK (2006, 2011, and an upcoming revised edition in 2018). He is also the co-editor of an upcoming Routledge book on managing digital outsourcing (2018).

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Foto: Robin Utrecht

ICT Media
More than just a publisher and more than merely a conference organiser, ICT Media is the host of various communities for executives in ICT, digital, and management boards. ICT Media facilitates these communities in a number of ways, by publishing magazines and by organising events and executive round-table sessions. ICT Media initiates surveys amongst the communities together with leading universities in the Netherlands.

ICT Media is the publisher of *BAAS* (Boardroom as a Service), *CIO Magazine, CDO Magazine, BoardroomIT* and IT-Executive.nl.

ICT Media organises annual conferences, like CIODAY, the biggest IT industry event in the Netherlands, CDODAY and TechonomyDay.

ICT Media is the initiator of the following awards:

- TIMMIES: The Most Innovative Manager Award
- TOMMIES: The Outsource Manager Award
- CIO of the Year Award

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We invite you to explore how to unleash the power of data to drive your next intelligent disruption.

Interesting reads:

- *The CIO's Guide to Develop a Data-Driven Culture*, https://www.informatica.com/lp/five-imperatives-for-the-chief-data-officer.html
- *Five Imperatives for the Chief Data Officer,* https://www.informatica.com/lp/five-imperatives-for-the-chief-data-officer.html
- *Intelligent Disruptors: How Five Data Experts Transform Customer Engagement,* https://www.informatica.com/lp/meet-the-experts-behind-customer-360-initiatives_3295.html

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Footnotes

1 https://www.ft.com/content/96cee6f6-9cc3-11e7-8cd4-932067fbf946
2 https://www.ft.com/content/8c650b4c-f564-11e7-8715-e94187b3017e
3 The high-performance digital organisation challenge is an industry initiative of ICT Media and Informatica, providing guidance on digital strategies and digital transformations to business and IT leaders.
4 The management of a network of processes that acquire, create, organise, distribute and use information; Choo, C.W. (2002). Information Management for the Intelligent Organization: The Art of Scanning the Environment (3rd ed.). Medford, NJ: Information Today, Inc.
5 https://www.informatica.com/about-us/customers/customer-success-stories/comcast.html#fbid=PBULZXTiCkQ
6 https://www.nasdaqprivatemarket.com/; see for more blockchain use cases: Profiles in Innovation: Blockchain – Putting Theory into Practice, The Goldman Sachs Group, Inc. (May 24, 2016).
7 https://shareandcharge.com/en/
8 Two incomplete responses.
9 The workshop participants in this study were consentient about the need to collaborate with scale-ups and tech giants in addition to start-ups, as the ability to process large volumes is required; only large volumes create business value. Additionally, the need for collaboration with universities to facilitate change was highlighted by workshop participants.
10 As an observation, born digital companies, e.g. Google, do not have a chief digital officer. Digital is already an embedded part of their business.
11 Forrester, Predictions 2018: CIOs Make the Chief Digital Officer Obsolete, November 6, 2017 - Pascal Matzke and Matthew Guarini.
12 (Biz)DevOps is a prerequisite for successful agile development and supports small and unconstrained development.
13 Consider timelines ranging from two to four months.
14 Topology and Orchestration Specification for Cloud Applications (TOSCA), in addition to frameworks such as LESS (https://less.works/) and SAFE (http://www.scaledagileframework.com/whats-new-in-safe-45/).
15 Some larger organisations have appointed chief data officers to ensure a proper data strategy. Typically, chief data officers report to chief information officers.
16 In the future, machine learning will overcome 'data obesity'.
17 Earlier versions of some sections in this paper were published in Beulen, E. (2018) Information management leads top-line information technology initiatives and contributes to bottom-line targets, inaugural speech, Tilburg University.

white paper

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