Smart Humanity

Wouter Bronsgeest

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Smart Humanity

Onder redactie van

Wouter Bronsgeest
Sandra de Waart

Met bijdragen van

Deskundigen uit de
theorie en praktijk

Smart Humanity

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Edited by

Wouter Bronsgeest
Sandra de Waart

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Experts from theory
and practice

KNVI

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Foreword

by Stephen Ibaraki [1]

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This book uniquely introduces the reader to the world of smart, technology-driven innovation and the transformative and social impact it will have on our lives - now and in the future. It is mandatory reading for anyone interested in this topic, because KNVI is a leader when it comes to Smart Humanity and the innovation revolution it will bring about.

It is an honour to lead more than one global 300 Smart Humanity initiatives, influencing more than a 100 billion dollars in investments to achieve the United Nations Sustainable Development Goals (SDGs). I put my vision into action every day around the world: as a chairman, founder, serial entrepreneur or venture capitalist and through my involvement in business, tech-security, computer science, several think tanks, many conferences and various innovation initiatives from the United Nations. This multi- and interdisciplinary background reinforces my belief in the KNVI's Smart Humanity initiative and this book.

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1. See page 258 for full biography of Stephen Ibaraki.

As is amply explained in this book, we are at a turning point in world history, caused by Smart Humanity. It is an unprecedented time of economic, cultural and social change, thanks to four developments that I refer to by the acronym ACCC (A triple C):

1. **Automation.** With 40 billions of IoT devices, embedded nanosensors and artificial intelligence becoming increasingly commonplace.

2. **Compression (time).** The pace of innovation increases almost daily.

3. **Convergence.** The merging of physical, digital and biological manifestations.

4. **Connectivity (anytime, anywhere).** Thanks to unlimited computing power, universal accessibility, cognitive enhancements and new paradigms.

The underlying catalyst for ACCC is Smart Humanity - an overarching and universally integrated technology network that acts as a global nervous system and results in the so-called Innovation of Everything (IoE). The ubiquitous presence of this network provides an exponential increase in value for all sec- tors and all aspects of our lives. $1 + + 1 + 1$ is1 not an addition that equals but4, a multiplier that results in eleven hundred and eleven (1.11 1).

However, we must also be aware of the unintended consequences and dangers to our existence. Indeed, we need to look beyond new products and services and consider new business models, governance systems, organisational structures, operating models and social and cultural changes. Moreover, we need to think about issues such as liability, accountability, transparency, fairness, bias, accountability, ownership, ethics and contestability.

Smart Humanity in 2030:
Meet Anna and ASA

"Anna, wake up! I measure your body functions and biochemistry - and adjust the levels to healthy values," says ASA. ASA is Anna's Smart Agent - a personal digital assistant that is fully implanted in Anna's body as a wireless nano network. This technology was developed by Neuralink, which was co-founded in 2016 by Elon Musk.

ASA continued: "I am actively monitoring a 3,52 trillion data points, including 310.102 reliable news sources, satellite sensors, virtual feeds from social platforms and a million 22,4 local smart city sensors. When you're ready, thinkstart the summary and I'll make sure it's 100% tailored to your interests. The feedback I received from you yesterday has raised ethical issues that will influence future career and professional decisions. I will give you recommendations based on the personal and professional 360° analysis I have made of you. "

Anna responds to ASA in her thoughts: "I remember very well that this ground-breaking innovation was launched in 2024 and then developed very rapidly, so you now know me, my motivations and my future better than I do. Ok, I get up and put on my new eco-friendly and sensor-equipped outfit. They say it's 80% better than last year's, so I'm excited!

When Anna walks into her smart kitchen, coffee is brewing and her breakfast is ready: the perfect combination of synthetic proteins, vitamins and essential nutrients for optimal health. Anna is ready for work and enters her virtual, ever-active 3D workplace, projected onto her brain. She communicates with a worldwide network through thought.

Anna asks (in her mind): "How do the financial markets react to the CO_2 emissions from the arctic wildfires and the local tempe-

ratures above °C 40 that contribute to this (and are the rule rather than the exception)?" She gets an immediate answer: "There will be a 5% drop at 14:00am UTC". Markets are monitored using AI, modelling and simulations. Forecasting power is greatly enhanced by a smart network of Exascale supercomputers (each of which performs over a trillion 500 floating point calculations per second). This network contains neuromorphic arrays (neurons simulated by computer chips) with billions of connections. Super-Turing, analogue computing that exceeds the possibilities of human cognition and digital computing. Further improvement with quantum computers - replicated and proven quantum support is achieved in 2021-2022 (computing that is exponentially much faster than digital computing) and in 2030 practical applications become widely available. The first Exascale computers appear in 2020Japan, China and the US and the performance of quantum computers improves greatly: a quantum volume of more than 100 qubits in and 2021 even 500k in 2030. The first next-generation chip architectures are widely 2020 adopted and use photonic technologies, new materials, neuromorphic arrays, high-density 3D stacking, chip memory with speeds of mere nanoseconds and millions of connections to the CPU. Chip development is fully 2020AI-driven, reducing design time and component placement to hours rather than months or years.

ASA injects this thought into Anna's brain: "I've done a self-upgrade, which now gives me a 1200more detailed, holistic view of your life and has improved my service. A lot of progress has been made since Open AI's GPT3 technology in 2020 was pioneered with over a 170 billion parameters. And to think that there are now over a trillion of them. "

Anna nods virtually in agreement and stares out of her imaginary window at a computer-generated Martian landscape that lies like a blanket over the fully sensor-equipped and self-sufficient physical smart city. The application of 'extended reality' has grown significantly since the pandemic of 2020. Extended reality is a combination of mixed

reality (augmented reality that interacts with the physical environment) and virtual reality (first glasses, then contact lenses and finally brain implants).

ASA continues, "I am constantly making micro adjustments to your investment portfolio of carbon technology stocks to prioritise companies that are focused on reducing atmospheric CO_2, that use bioreactors to make proteins and nutrients, and that convert CO_2 with electricity and water into fuels and chemicals. Shares of companies applying AI for predictable protein folding to develop new treatment methods are recommended. There is a 10% increase in the use of CRISPR 5.0 and the prices of synthetic bio companies are going up - a buy recommendation. "ASA continues, "I allocate your savings through a micro-auction to the five best investment vehicles for the highest return on value (ROV). ROV is measured using various criteria, including the positive impact on society. ROV has replaced ROI (Return on Investment) as a better measure of investment after the pandemic in 2020. "

Anna suddenly realises that she had forgotten to book a flight for her nephew's birthday party in February, which this time will not be virtual but physical. But ASA had already noticed this and responded, "Don't worry about missing Tim's party. I have consulted your diary and booked a flight for February 20. I have negotiated a 20% discount and reserved the safest seat for you. "

Anna responds in thought, "Thank you!"

ASA continues, "Because there are over a million 2viruses that people can become infected with through other life forms, the probability of a micro outbreak is 82.3%. For Amsterdam, the probability is 22.3% that there is an epidemic when you arrive - the course of the illness is similar to that of the regular flu. I have already given you a micro-injection with a preventive medicine and taken out additional health insurance for the 10 days you are at risk. "

Anna replies, "That's clever. I had annual insurance and I paid in 2020 way too much. "

ASA adds, "I have also reserved a self-driving car and a hotel room for you."

Anna replies, "Perfect."

And so the day goes on. Anna and ASA are inseparable and know each other through and through.

Fact or fiction? Read the book to get into estimate how realistic this story is!

Are you prepared for the digital and innovation tsunami that will engulf all sectors worldwide?

All groups in society, such as consumers and employees, are online in large numbers. Companies are adopting digital platforms that are leading to changes in business models, and COVID-19 is causing cultural shifts. This historic acceleration of digitisation is causing lasting changes in government, industry, business, science, media, the economy, education, healthcare, infrastructure, logistics, non-profit organisations, culture and society. And this transformation is already taking place in the coming years.

Signs of this transformation already appeared in 2016, thanks to exponential changes in three pillars: physical, digital and biological - also called the 4th Industrial Revolution by the World Economic Forum. The broad-based ambition to develop a new, 'smart' society and economy was a key topic at the 2019 G20 summit, hosted in Japan, which it referred to at the time as Society 5.0.

These revolutionary changes, first referred to by the term Smart Humanity by the KNVI, resulted in 2018 in a KNVI congress on the subject. Central themes were: Smart GLAM (about galleries, libraries, archives and museums), Smart Me & Ethics, Smart Mobility, Smart Industries and Smart Cities.

KNVI's pioneering role in this area continued with the Smart Humanity conference in 2019, where I was a keynote speaker, and now with this book. This book brings together the insights of numerous experts and thinkers who were invited by KNVI to write a contribution about recent technological and innovative developments in the field of Smart Humanity.

I work on more than 100 worldwide programmes and am therefore close to the fire of the latest insights and developments. At the moment, we are witnessing an enormous acceleration of the 4th Industrial Revolution resulting in Smart Humanity.

Smart Humanity has several components: Smart Users, Smart Citizens, Smart Data, Smart Professionals and Smart Ethics. For example, the changes in healthcare that were predicted for 2030 have already become reality in 2020. COVID19 has accelerated that process and driven adoption. The Internet, smart technologies and connectivity serve as the basis for AI-supported counselling systems, rapid digital implementation of 5G (6G is already on the agenda, 1000 times faster than 4G) and personal telemedicine for diagnosis and treatment support. But also for equipment delivery, safety advice and disinfection robots for the protection of people working in the front line, digitally enhanced platforms for material shipment, vaccine development, mobile-controlled tracking and modelling, the cloud, massive computing clusters (providing supercomputing computing power based on big data) and AI.

The World Economic Forum published in their 2018Future of Jobs Re- port, based on research into the adoption of technology in 12 sectors between 2018 and 2022 . To further underline the speed of change, and using the figures in this report as a starting point, the following are some of the most important examples of how technology is changing.

Below are my predictions regarding the global adoption of technology after the corona crisis for the main technologies identified by the World Economic Forum (WEF). I limit myself here to the financial services and healthcare sectors because of the enormous impact Smart Humanity will have here.

Financial services: market size $150 trillion:

	I	WEF
Big data	95%	86%
Machine learning	88%	73%
IoT	78%	65%
Cloud	78%	65%
AR/VR	76%	59%
Blockchain	75%	73%
Encryption	70%	73%
Portable electronics	59%	49%
Quantum computing	47%	43%
Humanoid robots	42%	35%
3D printing	19%	19%

Healthcare: market size $15 trillion:

	I	WEF
Big data	96%	87%
Biotech	96%	87%
Machine learning	89%	80%
Cloud	80%	73%
Portable electronics	80%	73%
IoT	77%	67%
AR/VR	74%	67%
Encryption	70%	67%
Blockchain	69%	67%
New materials	66%	60%
3D printing	58%	53%
Fixed robots	52%	47%
Quantum computing	40%	33%

Source: *Future of Jobs Report 2018,*
World Economic Forum

The future is fascinating and intimidating at the same time. What are the implications for us and our children? What consequences will it have for the various sectors? In this book, a clear vision is outlined by thought leaders at KNVI who have launched Smart Humanity.

SMART reading material for a SMART audience, indeed!

Stephen Ibaraki, November 2020

Introduction

by Sandra de Waart and Wouter Bronsgeest

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Smart Humanity, a theme that many people immediately have an image or association with when they hear or read about it. The Royal Dutch Association of Information Professionals (KNVI) has introduced the concept and organised[1] two large and successful events about it. The theme has been used to give direction to the many professionals who make up the professional group of information management, information provision and information technology.

Trends

Within that broad field, various specialisms are at work, with individual interest groups, communities and forums. Overarching that field, a number of trends are visible that affect all these professionals. Trends in content and a more general trend of continuing and accelerated awareness. Awareness of the fact that professionals not only have a role within the field, but also from within the field after the fact.

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1. Go to www.knvi.nl for more information.

They have an explicit responsibility for their environment, for society. Attention to the interaction that occurs, attention to the effects and the impact that new applications and technology have on the environment has become an essential subject. In training, in work, in intervision and during large and small meetings. The central question is: do we get the best out of ourselves and our products, services and inventions for the benefit of mankind?

Publish insights and findings

Smart Humanity has come at just the right time. The agreement within KNVI had already been made that we would publish the findings after three years of discussions within and outside the association with scientists, policy makers, professionals, students and users. We could not have foreseen that the discussions about the use of technology, available information, ethics, behaviour, legality and the rule of law would be so topical as a result of a vision. Smart Humanity would primarily be a guiding theme for policy plans, training plans and publications. The successor to major KNVI themes such as Digital Transformation and Information Professional 3.0.

At the publication of this book, however, we see that we are accelerating our efforts to participate even more intensively in the social discussion - and the scientific discourse - about fundamental changes in society. There is not only a virus that is going around the world at breakneck speed, more visibly than any other (biological and technical!) viruses of the past. There is also an increased speed of information passing through the world [Hinssen, 2017]. This concerns both the supply of and the need for information. And there is an increased need to take care of our world, because we are using up ever faster what nature - under the present circumstances and with our present means of production - can provide us with [UN, 2019; WEF, 2019; see also
https://sustainabledevelopment.un.org].

Five underlying themes

In order to deepen the theme of Smart Humanity, five underlying themes were identified. These have been tested and deepened during many sessions and events since2017. The themes are not about technologies, but about subjects that affect us as professionals and as people. Technology comes and goes. However, when technology catches on, trickles through into everyday life or into production processes, it has an effect. And that is precisely what we want to put on the agenda.

- **Smart Professional** is about keeping up with the profession. Lifelong development: a nice aim [Hoff, 2014; Kodden, 2018 Kodden, 2020]. But the question is how to do that, in a society that is developing rapidly, and asks more and more of professionals, and often sooner. Our brain seems flexible enough, right [Swaab, 2016]? How do you stay strong as a professional, in terms of content and process, as a knowledge worker and as a human being? And how do you not only stay upright, but also in balance [*see also*: Dijksterhuis, 2016]? Learning facts is not enough, it is also about knowledge and skills, about continuing to develop competences [Op de Coul, 2018]. And it's not only about your own familiar competences: the boundaries of the work field of IT professionals and the 'traditional' information professionals, such as archivists, librarians and documentary information specialists, are blurring [De Vries et al., 2014].

- **Smart Designer & User** is about the contribution of information professionals to the creation of facilities. We call it "the production process": a chain of activities that ensure that an idea, a wish or a law is analysed and implemented. This usually involves technology. New technology, a modification of existing technology or a combination of both. Plus a process adjustment in the way an organisation works. And often a change in management and control as well. An information professional can no longer do this alone. And neither can a 'user'. It has to be done together [Visser, 2016]. Consumers become producers and others [Bronsgeest et al., 2017; Hinssen, 2014]. What to do?

We have not yet made up our minds. It can be done agile, with multidisciplinary teams. It requires different architectures. It is clear that there is still a lot of room for improvement in the creation of information services.

- **Smart Citizen** is about the role of citizens. Because within the boundaries of organisations, all sorts of things can go right and all sorts of things can go wrong. But the actual impact of what organisations do (profit and nonprofit), we all notice. We as citizens, we as society. The question is therefore: are citizens sufficiently involved in the choices that are made for them? Not only in politics, but also in the implementation of political decisions and the following of (new) laws by that same government, public administration and business. Is the citizen allowed to co-decide on the information facilities that are made for her or him and can citizens bridge the 'digital gap' [Van Dijk, 2017; Rathenau, 2020]? Is there any question of inclusiveness, is there any question of access to information and can citizens assume that administrators and politicians are making the right choices [Kranendonk et al., 2019; Winter, 2017]?

- **Smart Data** is about everything we do and can do with data. Is data insightful, and how is it converted into useful information and by (and for) whom? What does the other party know about you, especially if 'the other party' is a company that is all too happy to combine all sorts of data to make its own profits [Brockman, 2016; Mayer-Schönberger & Cukier,2016]. But also: how do we organise ourselves as a society [Pentland, 2014]? Does the government protect us, and if so, how? Or does the government centralise all that data - so that future generations of (elected) government officials can benefit from it? And is that to the detriment of or to the benefit of society [Gleick, 2011]?

- **Smart Ethics** is the thread that connects all contributions. Ethics does not exist in a vacuum. Ethics and ethical standards change over time. As the world changes, our world view changes [Geertz, 2000]. What did not fit within a norm before, now fits. Ethics is alive, and the discussion about it is more important than the

solidified knowledge (or even "rules" and "frameworks") on a given moment in time [*for inspiration*: Februari, 2017]. For the professional, ethics are essential: the use of an information system and access to information is often a binary matter. An ICT system is like a hammer. What you do with it, or what you can do with it, that is what the conversation should be about.

Answers?

Does a book on Smart Humanity provide some answers? Very possibly, but perhaps not. The themes flow into each other in terms of their effect - that is obvious. For example, it is not possible to separate professionals who are developing from ethical questions they have to answer as individuals. Elements of various themes are visible in many contributions. This makes this book an anthology of contributions from writers who have explored the theme of Smart Humanity on the basis of their knowledge and expertise. It provides articles worth reading with eye-openers, warnings and food for thought.

Each contribution concludes with a number of key messages. These offer perspectives for action. Sources are also mentioned for each contribution, inviting the reader to do his or her own research, deepening and reflection. To encourage such reflection, the contributions are interspersed with columns by various writers from various KNVI journals. This is not just an appeal to look at a theme from a different angle. We are also trying to arouse interest in these journals (the *Od/Overheidsdocumentatie*, the *IP/ Informationprofessional* and the *AG Connect*) that are available to KNVI members.

We are proud that, as KNVI, we have access to experts who have been willing to contribute to this book. The present KNVI 'is standing on the shoulders of giants', for almost a 110 years now. That is also how we experienced it when compiling this book. All new contributions have been written especially for *Smart Humanity*, and we are honoured to be able to introduce them here. We wish all readers much inspiration.

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Smart Humanity: the core

In our professional association, a new theme has emerged from the themes of Information Professional 3.0 and Digital Transformation: *Smart Humanity*. This is an umbrella theme that reflects the many developments in society and the professional group with each other. It also redefines the information professional's profession: not only is the focus on creating, managing and using information facilities important, but also the interaction with society and the impact on society have become an explicit topic of discussion.

Smart Humanity as a theme has a number of pillars on the basis of which KNVI has entered into dialogue with the professional group. This generated many conversations with many professionals during the two major events in 2018 and 2019. To introduce Smart Humanity, it is important to know more about the significance of the digital transformation, the need to redefine the profession, the need for acceleration and also the way information professionals go about their daily work. Do we shuffle digital stacks of paper from left to right or do we also change the way we work from within? In other words, to improve the world we have to start with ourselves. 'Full circle'. And so this part is the prelude to all the other contributions in this book. Hence part 0.

On the meaning of
digital transformation

by Rik Maes

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Digital transformation is still hot, but everyone seems to mean something different by it. The interpretation spectrum is evidently very broad. At one end, people associate digital transformation with the disruptive change of entire branches of industry, and at the other end the term is used for what used to be called simply "automation".

Within this range of interpretations, I try to give a brief interpretation of what I consider to be the essence of digital transformation. I also go into the deeper consequences for the information profession. Digital transformation makes a lot possible, but also sets preconditions: not least leadership by the information professional. In times of profound transformation, it requires empathy and personal commitment.

Frame of reference

I have previously published my frame of reference [Maes, 2017]. In a nutshell: organisations have long been in a phase of *more* (organisational growth, more information systems, continuous reorganisations, etc.).

At the moment, organisations are mainly in a phase of *better* (more streamlined, cleaning up information systems, process optimisation, etc.), while around the corner, something else is beckoning (a *different* mindset, working in complex and changing networks, radical innovations, etc.). This "different" is given an extra dimension by the coronal crisis.

In the world of "more", the organisation primarily produces products and services that customers are obliged (by the government) or encouraged (by advertising) to buy. In the world of "better", an organisation rediscovers that the customer is its final reason for existence, if it has not already lost contact with this customer to information-based intermediaries such as Booking.com or the customer himself to newcomers such as Uber or Airbnb. The concept of 'customer' is, for that matter, an organisation-centric concept in which people are reduced to what they, as homo economico, can mean to the organisation (the 'company'). In the case of a citizen, patient or student, the concept also undermines the true nature of the relationship. "The citizen is not a customer, the citizen is a human being" (Herman Tjeenk Willink). To summarise: the world before 'otherwise' is dominated by the concept pair of company/customer.

Digital (?) transformation

In essence, I associate digital transformation with the transition to "something else". What it is about is the change from a world in which the organisation is central, to a much more multiform world of actors who connect with each other in changing compositions and of which the own organisation is just one. The boundaries of the latter fade in the context of interwoven networks. It is no longer the potential benefit for and from the customer that is decisive, but the varied value system of the participating human being. The central pair of concepts becomes man/ecosystem. To put it clearly: apart from the fact that they are 'digital native' organisations and therefore not transforming in the real sense of the word, Uber and the like are not examples of digital transformation, but of copying or extrapolating the existing by means of Internet-based services.

platforms. They are an expression of 'more', at best of 'better', but not of 'different'.

For an organisation, digital transformation as just described means essentially dealing differently with both the external and internal environment, which are increasingly merging into one another. (Semi-) public authorities are just as subject to it as companies. Above all, it raises a number of specific challenges of an organisational cultural nature: it requires a fundamentally different mindset from every individual in the organisation, including an innovative use of information. Digital transformation is a misleading term in this respect. It means, first of all, the inevitable task of mental transformation.

From organisation to ecosystem

Functioning as a component of one or more ecosystems, Ashby's law teaches us, is necessary to survive in the increasing variety of the environment [Ashby, 1955]. But this means that also the organisation itself should operate much more as an internal ecosystem: ignoring or even opposing silos is out of the question, even if this means clearing away a lot of old wounds. For many organisations, this is a first step towards the world of 'different'! However, this is not enough: in this latter world, work is primarily based on synergy, regardless of organisational boundaries. In a number of cases, this leads to the emergence of small, goal-oriented and flexible organisations, as evidenced by the many such initiatives in healthcare and elsewhere. The future of hospitals, but also of energy companies, universities and the like is 'smaller', not necessarily 'bigger'.

In order to function in an ecosystem context, many organisations realise that their information facilities are inadequate. Getting the basics right' is a slogan that is often heard and, in my opinion, is too easy to hear. Of course, in many cases these facilities must be made more resilient, but focusing excessively on this means approaching the issue 'differently' with one's back turned and one's gaze fixed on the past.

If we do not consistently share and elaborate a vision of our own position in the world of 'otherness', it is all too easy for 'getting the basics right' to become an alibi for not doing anything fundamental about 'otherness'. One consolation: the basis will never be in order, the excuse will remain valid forever.

From customer to person

Moving away from an organisation-centric view of the customer means recognising the latter as a full, active member of the ecosystem. It offers numerous opportunities, provided the organisation can take the necessary mental steps. For example, a division into target groups, characteristic of a marketing-like customer approach, is at odds with the individualistic approach of the world of 'different'. This also applies to working with averages, approaching customers by means of standard procedures and protocols, ignoring small-scale, 'bottom-up' citizens' initiatives, working with 'customer journeys' (which only map out a customer's history of experience with one's own organisation) and so on. In this world, every individual wants to be heard and taken seriously. Functioning here as an organisation means taking account of (sometimes contradictory) value systems. In addition to the functional, there is also an ethical component. Which organisation can say that it is ready for this?

This people-oriented approach is not limited to the outside world: the employee also wants to be involved in the organisation in a different way. A good example of an attempt to respond to this is the CEO initiative at T-Mobile: the Customer Experience Officer. Employees who excel in listening to and dealing with customers acquire credits that they can use to make family and friends a better than standard offer. The notions of inside and outside world are fading fast, by the way. The Dutch Police, for example, is experimenting with various forms of citizen participation, including the launch of an app that allows citizens to conduct their own investigation if they have become the victim of a crime. In this way, an ecosystem is being shaped along the human axis.

From vision to realisation

The actual implementation of both transitions, also and especially in the ICT sphere, is no sinecure. It presupposes a great deal of mental flexibility and decisiveness, among other things with regard to making interdisciplinary cooperation the norm, structurally anchoring innovation instead of pilots that invariably die in beauty, protecting innovation even in times of restraint, reassessing the often-inserted position of the ICT department, weighing up the pros and cons of strict process and system standardisation, promoting and utilising diversity, and so on.

Working together in an ecosystem also means an intensive exchange of information. Traditionally, attention is paid to standardisation of interfaces, but that is not enough if it is not preceded by meticulous harmonisation of the semantics of the data. A striking example of this is the use of the BRP (Personal Records Database) by a very large number of parties. The BRP uses 'address' as the criterion for inclusion, which, for example, gives rise to serious discrepancies when compiling the electoral lists (legally entitled voters without an address - 'non-residents' - are left out of the equation) [Widlak & Peeters, 2018].

All information is based on interpretation and interpretation is based on a certain context: information is contextual. Simply taking over old data from the "more" and "better" spheres will inevitably lead to interpretation problems. In the phase of "different", an organisation knows too little rather than too much: a lot of information is not the same as relevant information.

Information leadership

In the world of 'other', appropriate information about the different actors in the ecosystem becomes crucial, diverse and vulnerable. Classic customer information is no longer sufficient, but needs to be supplemented with a much wider range of information from all kinds of external sources. Mutual trust between the partners in the ecosystem is a great asset here.

Information is also becoming more diverse in format, including videos, cameo- ray images, sensor output, AI-generated information and so on. Only those who know how things work can catch them. But it is precisely here that an organisation not only comes up against increasingly strict privacy rules, but also becomes a competitor to and dependent on the giants in this field such as Google, Facebook and so on. Conversely, every organisation runs the risk of becoming a hare: a single tweet from an individual can trigger a cascade of reactions. This much is clear: operating in this information eco-world requires totally new capacities from the organisation and its information professionals.

The mental transformation required for all of this, more than the techno- logical transition, is a work of simultaneous longevity and urgency - it demands leadership. It is both a process and a mindset. As a process, attention should be paid to the visionary imagining of the future (the 'different'), building the capacity not only to want this future but also to be able to cope with it, making the existing resilient towards this future and clearing the mental burden of the past. As a mindset, mental transformation addresses the internalisation by everyone in the organisation of thinking and acting in terms of "different" and the joint creation of a trustworthy organisational culture that supports this mental and digital transformation. It requires first and foremost empathy and commitment (see the article "The information manager: a sheep with five legs" on page 55). Leadership has never been so challenging, information professionals grab your chance!

- Digital transformation is mental transformation.
- People are the measure of digital transformation.
- The basics are never in order.

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Professional association re-profiles the profession of the information professional

by Rian van Heur

. . . .

Digitalisation changes society, but it also changes the role of people. The visions of the future differ, but according to the professional association for information professionals, people remain central. The KNVI expects that mankind will become ever smarter and thinks that the next ten years will be the time of Smart Humanity.

The visions of how the role and place of mankind will change as a result of digital technology vary widely. Some expect robots and algorithms to take over the world, while others see a fusion of humans and cybernetics. There is also a group that sees mankind using ICT to bring the polluted earth back to a biologically correct balance. "Whatever the case may be, man is central to our information society and should remain so, also in all current and future changes," responds Wouter Bronsgeest, KNVI co-chairman.

The KNVI has put down the concept of 'Information professional 3.0' and the 'Digital transformation' and elaborated on it in various policy plans and publications. "The core of the disruptive waves of change is having an unprecedented impact on professionals and on the organisations in which they are

professionals. A great responsibility rests on the shoulders of the information professional 3.0," says Bronsgeest.

Smart Humanity

According to Bronsgeest, everyone will have to be aware of the issues raised by new technology, new business models and new ways of communicating. He believes that we are moving into the decennium of Smart Humanity. "Smart Humanity stands for people who know how to apply digital developments and deal with this technology in an ethical way. For a society that knows how to bring the earth and the use of its raw materials back into balance. A society that uses technology to turn around the pollution and depletion of the earth. And a society that uses innovations to counteract injustice and give every individual - no one excepted - a chance to live in dignity.

Task force set up

KNVI plays a crucial role in putting knowledge and education on the agenda and is professionally involved in implementation - both at macro and micro level. The professional association actively contributes to informing and educating professionals, partly on the basis of a constantly updated classification of digital functions and professions. To this end, a task force will be set up, which will work within and outside the professional association.

Other approach

According to Bronsgeest, from this perspective there is no shortage of ICT people in our country. "There is a shortage of training to keep people in meaningful and valuable work. Nor is there a shortage of jobs and opportunities - there is a shortage of organisations that dare to take the step towards new business models." There is also a shortage of educators who look ahead and prepare pupils and

students for their task in the new society, and of well-informed and educated politicians and policy makers. "There is a lack of knowledge among politicians and educators about already existing competence frameworks and the European and global developments."

The KNVI says it is doing all it can to help these omissions by organising knowledge sharing, offering a platform where experts from the field, knowledge institutions and policy makers can meet, and reinforcing the recognition of professionals. Bronsgeest: "As the KNVI, we are increasingly involved in the social debates on ICT and the role of information provision in society. To this end, we are strengthening our ties with science, for example through our scientific representatives in IFIP, the international umbrella organisation for ICT professional organisations." In addition, the professional association is increasingly taking part in discussions on the subject, for example at the Rathenau Institute, the SER, The Hague Legal Delta, the Dutch Digital Delta and iPoort.

"The new KNVI explicitly establishes the connection between creating, managing and using information. For example, we are also closely involved in developments within the IFLA, the International Federation of Library Associations, the leading international institute representing libraries and information services and their users."

Source

Smart Humanity, short and long

Wouter Bronsgeest

This question recurs regularly: what is Smart Humanity? Various press releases and articles have already been published about this. It is KNVI's deepest conviction that mankind owes it to itself to make the most of its own inventions for the benefit of humanity.

In other words, information professionals make technology and help implement it. They are creators as well as users and educators. They facilitate other people and organisations in accessing information. People are therefore central to the professional organisation: they must remain standing in the successive disruptive waves in society, and their social consequences and ethical impact.

   A possible short answer to the question is simply to refer to a Sing to the BBC dramatised film about the Brexit. If you see it (or are about to), you will know how our information society works at the moment. And what role we as information professionals have in it.

   There are also longer answers. Take the example inspired by Alex Pentland, the MIT professor who focuses on the application of big data. One of the big tasks he sees for society is to learn to understand communities. This is becoming increasingly possible with the help of the many data that we as humans leave behind everywhere. In his vision, market mechanisms no longer work, economic paradigms are outdated and we must move towards a new world in which we describe and implement new patterns on the basis of social physics. Patterns which are statistical regularities describe society, and can therefore be implemented in that society.

   Pentland can map out people's streams of ideas and help shape them. We can do this because we measure and know so much more, and so we can

identify good ideas much more quickly. And these ideas can then be implemented collectively. Data becomes our nervous system, together we end up in a living 'lab': society as a large network. Where many

When people come together, for example in cities, these networks can develop quickly.

These are images that also recur in reports by the Council for Public Administration (ROB). In their studies, they state that the house of Thorbecke is crumbling, and that a networked society is emerging in its place.

Governments become equal to each other and work together with citizen initiatives or Public Private Partnerships. The legislator is no longer asked for more rules or to work out political compromises in impracticable legal texts. The legislator is asked to facilitate cooperation, to tax objects in a sharing economy and to establish a basic income. The big question is, of course, whether networks can also guarantee harmony and human dignity.

Especially if we let data analyses guide our choices - even if the patterns we show through our data turn out to be statistically the best for mankind. I tell you: the information professional is needed more than many people still think!

Source

Companies have to deal with with a digital tsunami

Rian van Heur in conversation with Stephen Ibaraki

. . . .

"What is happening in the world now is unprecedented," says futurologist Stephen Ibaraki. He calls the developments - digital, social and biological - a digital tsunami. "It is more than just technology. We've never had a period where hyper-automation meets hyper-innovation. It is an impressive time of change."

Using three Cs, he explains why he thinks the period is now a digital tsunami. The first C is of compression. "Almost every day you receive announcements of wonderful innovations. Innovation now takes place on a weekly basis, instead of monthly or yearly. " We also have to deal with convergence. "Digital developments, such as Internet of Things, are coming together with biological developments, such as synthetic life, genetic editing or cloning. And it reinforces each other. "The last C is of connectivity. "We are dealing with hyperconnectivity due to the availability of ever-increasing computing power. In 2021, there will be a computer on the market that has the computing power of 160 super computers. Not to mention the quantum computers that manufacturers such as Google, Microsoft or IBM are working on. "

Ibaraki says he sits at the table of many leading parties. "I was invited to give advice to a hundred US CEOs of the world's largest financial institutions. The companies they were affiliated with collectively managed 92,7 billion-dollar assets. They asked me in 2015 to look into the future over ten years so they could make the right decisions for their organisations. So I started an advisory board, almost a think tank, for them. And I helped them set up the Fintech Ideas Festival, so that innovative ideas and new business models get the extra attention they deserve. "

Spirit for innovation

Ibaraki's love of technology was instilled early on. "I built my first computer from scratch. I was 10 years old at the time. An analogue computer, but it had some artificial intelligence. You could make it play a game. Then I made digital circuits, I played with semiconductor tubes and transistors and built my own digital computers. That evolved into building one of the first microcomputers that was connected to a mainframe. And then to stand-alone microcomputers that were connected to each other to form the first networks and communication systems."

He has now been working in IT for a long time and has seen almost every aspect of it. "Think of artificial intelligence, communication systems, operating systems or databases." He has worked as a teacher, an information analyst and a writer. Now he is an investor, entrepreneur, trend watcher and speaker. He started several initiatives such as AI for Good of the United Nations and the Global Industry Council of IFIP.

Knowing what is going on is important

Topics he discussed with these leaders include artificial intelligence, quantum computing and blockchain. Knowing what is going on is important, says Ibaraki. "As a CEO, you have to know what is coming at you. And you have to pay attention to it. If you

don't, your organisation won't survive." The same goes for IT professionals. "Visit conferences, read books. And not only nationally or regionally, but also internationally. It is necessary, because change is happening fast. Do it to support your organisation and to keep it decisive." After all, it is not only important how your business is affected, but customers are also changing. "They are also becoming much more sophisticated through technology, know more. There's an app that monitors someone's activities and then diagrams them based on time and location. As a company, you need to be aware of major developments, so that you can anticipate."

AI has the biggest impact

He attributes the greatest impact to artificial intelligence. "That's what I talk about the most. It is actually already everywhere. Think of your phone, it's in there, for example through face recognition. Thanks to that intelligence, a product can do more and more. Artificial intelligence is now in every aspect of your life. "That is why, he says, every company is working on it. "Google and Microsoft, for example, are also AI companies. All major countries are working on comprehensive AI initiatives. Artificial intelligence is expected to add billions203016 to the gross national product. There is no other technology with such an impact. "

"And don't forget that it also comes together with other developments, such as biological manipulation or genetic modifications." As an example, he mentions finding black holes and objects in the universe. Deep learning is now being used for that. "People are now seeing things they didn't see before, because humans simply can't do that. It is used to make a model of the universe. And calculations can be made with this. For example, to see what has happened in the past or what will happen in the future. This is really about millions of years. Thanks to these models, we are now discovering objects that we had never thought of before."

Completely different

Because these developments are happening so fast, Ibaraki expects the world to look completely different in ten years. "The world we live in now will be so different that we can't even imagine it now. It will be the biggest transformation ever. "All these changes will affect culture, education, government and industry. The future of our children will look completely different from the life we have now, says the futurologist. He cites the example of transgenic humans: "In China, there are already the first transgenic monkeys in which genes have been implemented to give them a more human-like brain. It's about the gene that makes our brains the way they are. You're probably thinking of *Planet of the Apes* right now, but these monkeys are possible in the future. "Another example is Facebook's research into communication through thoughts alone.

"These are developments that are already taking place. People don't always like it. Or they don't understand it. But it will have a huge impact on our future world."

Source

Information professionals in times of crisis

Wouter Bronsgeest
and Sandra de Waart

COVID-1984. No, you are not reading a conspiracy theory here. But we do have a question. Do you believe everything you read about the pledge? Do you understand all the figures and facts that you read?

We'll let you in on a secret: we don't. There are a number of simple reasons for this. There is so much news that we don't have time to check all the sources and read the scientific studies. There is simply too much information. This was true before the corona crisis and it is still true today. The difference, however, is that now 90 per cent of the news is all about corona. Even the most obscure social media pages start with 'the pandemic'. It appeals to our insecurity, the desire to know more, the rush of sensation and the fear of getting sick - or worse - dying.

And what a lot of work all those fellow workers do in, for example, healthcare, logistics and government - respect! We couldn't do it ourselves and actually we prefer to watch the weather forecast. The weather has been remarkably nice these past weeks - but we are not sure (yet) whether that is due to the Gulf Stream or the lack of unnecessary air travel.

So, what to do after the summer. Plant a vegetable garden? Gather supplies? Learn a trade that is not dependent on technology and electricity and become self-sufficient? Ploughing alone or working together with the neighbourhood? I'm sure you've thought about it too. In any case, the fact is that you are now thinking more than usual about your profession, your job, your family and your place and contribution to society. A fact of a different category: our Prime Minister is trying to find a balance in all the advice that is given to the Cabinet and to himself - knowing that, in the end, everyone is responsible to him.
will be held accountable for the consequences of whatever choice the government makes.

Rightly or wrongly. Rightly or wrongly informed. What a lonely job in this day and age! And what's more, there are so many possible solutions. We don't know which of them leads to the right solution. Because what is the definition of right?

What we see, and also hope a little, is that we are indeed all becoming a little more aware of the way in which we shape our society. This is necessary: the annual 'Earth Days' show that every year we consume more than the earth can cope with. That we cut down more trees than will grow. That the bio power stations pollute more than the old power stations they replace, and that solar cells, wind turbines and electric cars have a larger carbon footprint than they can ever compensate for during their working lives.

And finally, should we share more or less information? We

Start with an app for everyone. Well-intentioned. Maybe even safely programmed. After the app comes a call or (emergency) law with mandatory use of the app. In fact, the app should always be on. And no, you don't leave home without your phone with you. For those who are less well-off, we can easily subsidise a phone or another mobile device. And after the app, we think it could be done with a chip. A chip can easily be inserted under the skin. Incidentally, these chips are already being produced. The tech companies are helping us through the 'corona winter'. On to the next pandemic - we are ready for it. COVID-1984? We hope not. Information professionals, stay critical, audible and visible and help our society in this debate!

Source

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Beyond the dogma of the document - the knowledge worker

by Martijn Aslander

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The knowledge worker of 2020 is trapped in a dogma. And, as Johan Cruijff used to say: "You only see it when you realise it". Without realising it, we use software every day that is based on analogies and metaphors of the '70s office environment.

That is at best a pity and actually just a bit stupid, if we look at the current state of technology. Within organisations, information still generally travels from A to B in the form of A4 documents in portrait or landscape format. Standing, they are usually called a Word document or a PDF and lying, they are called a PowerPoint or a spreadsheet. For years, many economists have wondered how it is that we have come so far in terms of automation and technology, but that labour productivity has hardly risen at all. I suspect that I have found part of the cause (and the solution): most people use their computer like a modern typewriter. Often with two fingers, because they never learned to type blind. That's a bit like using an aeroplane to drive on the motorway. It's fine, it has wheels. But the wings are there for a reason. Just like those enormous engines. And that is exactly what is happening now in the daily life of the knowledge worker.

How then?

In the three KNVI documentaries in which I participated, we explored respectively the information society, the network society and the nature of knowledge work. The aim of the documentaries was to initiate discussions on these themes. What the documentaries deliberately did not address was the question: "But how should it be done? Mainly because many answers are possible and it is all a matter of guesswork, especially given the speed of developments in the field of technology. What is starting to become clear is that the vast majority of the millions of knowledge workers in the Netherlands are not digitally fit. And without digital fitness, for the average knowledge worker it will irrevocably lead to reduced mental fitness. And with it, damage to physical fitness. I am convinced that these three themes are inextricably linked.

No digitalisation or digital transformation without digital awareness

You wouldn't want to know the organisations that are running projects in the area of digitalisation or are even trying to bring about a complete digital transformation. In the past ten years, as founder of lifehacking.nl and author of books such as *Easycratie* and *Nooit af*, I have been on many stages. And almost always I checked in the audience who was busy maintaining or learning digital skills. With a few exceptions, almost no organisation in the Netherlands has taken this point seriously. It's amazing that works councils and HR departments haven't picked up on this. Especially in an era when work-related stress is becoming public enemy number one. And it is even more surprising that boards and management teams are still paying so little attention to this, because there is so much to be gained in terms of power and innovation. What few decision-makers want to face is that the dynamics of the network and information society are changing the rules of the game in organisations. And the game with society. And even the dynamics of power are changing, as Moisés Naím aptly put it in his book *The End of Power*.

As long as you keep on whittling away at themes and projects such as AI, big data and blockchain without making digital awareness and skills the order of the day, all attempts are futile.

Digitally fit

Darwin's views on "survival of the fittest" have been explained for years as "the strongest wins". But Darwin meant to say that the species that can best adapt to the changing circumstances have the greatest chance of survival. According to the Dutch dictionary Van Dale, 'fit' in our language means 'in good shape'. While employers have realised for years that it is a good idea to stimulate the physical fitness of their employees for many reasons (and certainly also financial ones), the importance of mental fitness is now also starting to make itself felt. After all, sleep, attention, focus and concentration are under great pressure in our current work reality. In addition, we now know that sitting is the new smoking. Sitting behind a desk all day is not exactly conducive to our health. These are all aspects of the physical and human conditions under which we do our work.

But we will only really win if digital fitness is also given a place in new policy. This has everything to do with the most recent insights from brain science regarding the coveted concentration and thought. Moreover, since a pioneering article in the New York Times last year, it appears that psychological safety on the shop floor is rather decisive when it comes to people's procrastination behaviour. So in my opinion, mental fitness, physical fitness and digital fitness clearly go hand in hand. And in this day and age, you first need to develop digital awareness, otherwise you're building on the wrong foundation.

It's crazy, really, that we don't give the biggest cost in almost any organisation, namely people, the attention it deserves with the help of today's insights. An example: 20% of all people are at their best in the evening. Seen from the cost side, you are therefore using 20% of your biggest expense (personnel) at the time when it is least useful. And this new way of working, which has been hijacked by a few

large market players, has mainly led to open plan offices which are disastrous for concentration. I think it is no wonder that so many people suffer from burn-out. If you are distracted all day by stimuli, meetings and managers, you don't get anywhere.

So the big question is: how do you adapt to all the changing circumstances?

Learning to filter and handle your tools

The amount of information coming at us daily keeps increasing. But information overload does not have to be a problem, as Clay Shirky argues in his story about filter failure. But then you have to learn to filter. We don't learn that at school, but also not in organisations. If being a knowledge worker is a craft, then few have mastered it. Most people just do something. If you zoom out to a slightly higher level than everyday reality, knowledge workers are mainly busy collecting, processing, analysing, synthesising, storing and sharing information and knowledge. But a lot goes wrong in this process. This is partly due to the tools used, partly to a lack of insight and strategy and sometimes simply to a lack of training. We usually don't take a close look at our digital work tools. For example, most Outlook users do not know that you can set rules for e-mail and turn off notifications, and most Apple users have no idea that you can create handy macros for text replacement that save you a lot of time.

Together with Arjan Broere and Mark Meinema, I wrote a doctrine for information tools for the yet to be published book *De nieuwe werk-werkelijkheid [The new working reality]*. If you look at our work tools through the lens of that doctrine, most tools fall by the wayside. As far as we are concerned, information should be storable, searchable, sortable, orderable, re-orderable, meta-datable and sharable. In seconds instead of minutes, and preferably on a smartphone. Because tools that are too slow for what they are supposed to do, end up being used less or not at all. The success factor is ease of use and therefore speed.

Micronotes

Most of the information that flies around us every day in articles, pod casts, magazines, blogs, emails, newspapers and at the coffee machine, we hardly ever store. And if we do save it, it usually gets lost in the big jumble of notes and we rarely look at it or we simply lose it. And yet this collection of small notes and observations is the real gold of organisations. But then you have to be able to reach it. Where and how do we store the valuable pieces of information that consist of a minimum of two words and a maximum of three sentences? Usually, it is too little to create a separate document for it. So most people e‑mail it to themselves or put it in a task list or note‑taking app. I call these chunks *micro notes*. If we manage to store and interconnect these notes easily and quickly, we can build a digital exoskeleton, a kind of second brain.

Second brain

Technology has recently enabled us not to store all that information in our heads, but to process it in a second, digital brain. Tens of thousands of people around the world are already doing this, with people like Tiago Forte at the forefront. They are building on age‑old traditions such as commonplace books and the more recent 'zettelkasten'‑principle, but with the enormous leverage of the computer and smartphone as an added superpower.

There is a good chance that the real reason why knowledge management projects generally fail is that it was 'imposed' top‑down, without the employees seeing any personal benefit in it. In contrast, the reverse path, employees who have their own knowledge in order, keep it and share it, seems a very promising one. There is a whole text renaissance going on, with tools like Workflowy, Roam Re‑ search, Notion and Obsidian making all this possible and easy.

The new working reality

The permanent job as a certainty is increasingly proving to be an illusion, which will force many workers to continue their development in order to remain permanently deployable. After all, those who are and remain physically, mentally and digitally fit will be better able to adapt to changing circumstances in the world of work. But if employees and employers also start building a second brain in which knowledge, information and insights can be found quickly, they will be able to compete with the classic bureaucratic environment that is limited to A4 pages.

In the near future, the speed and ease with which you can be of value to others will largely determine your personal success. In addition to generating income and pleasure, work should therefore above all be an engine for personal development and growth. It's time we involved technology much better in this. Not from within the organisation, but from within ourselves.

- With a few exceptions, almost no organisation in the Netherlands has taken the maintenance or teaching of digital skills seriously.

- The importance of mental fitness is now starting to sink in, where employers have realised for years that it is a good idea to stimulate the physical fitness of employees.

- Knowledge workers are primarily engaged in gathering, processing, analysing, synthesising, storing and sharing information and knowledge. But a lot goes wrong in this process.

- The speed and ease with which you can be of value to others will largely determine your personal success in the near future.

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1
Smart
Professional

In this section, the authors explore the ways in which the information professionals' profession is changing, and the new demands and wishes that these professionals are having to deal with. Changes that you can and must anticipate. If you don't, you price yourself out of the market. This inevitably creates dilemmas. Because the expectations of the environment are getting higher, and with them the demands on you as a person are getting higher.

How do you deal with the demand for 'the sheep with the five legs', and how do you take the next step? Whether you lead or are led, you make an essential contribution to society from your expertise. In any case, self-reflection, lifelong development and adaptability are important keys to this.

The information manager:
a sheep with five legs?

by Rik Maes

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Many information managers and, more generally, information professionals find it difficult to put their strategic contribution, position and expertise clearly in the limelight: "Help, I'm going to be an information manager! First of all, we position (strategic) information management on the basis of the Amsterdam framework for information management.

The focus of this article is on the professional expertise that may be expected from an information manager (or team of managers). To this end, we extend a well-known model of Bolman and Deal from organisation theory and then apply it to the information function. Successful information managers show information leadership - they therefore possess a balanced mix of structural, social, political, symbolic and ethical expertise, but above all the ability to switch smoothly between these perspectives. The information manager: a sheep with five legs? Rather, it is a plea for organisation-wide information management, with the information manager as a flexible driving force.

The issue

Information management seems to have acquired its place in organisations, and yet ... "At parties I just tell people I'm from ICT," is a statement that is still often heard from information managers. No wonder that such an attitude leads to a lack of clarity in many organisations and the information managers become either a jack-of-all-trades or a homeopathic form of hairdressing oil: they don't help, they don't hurt. There is also something contradictory in this situation. On the one hand, we talk about the information society and information as the umpteenth organisational resource, but those who deal with it specifically often have difficulty explaining their added value. Time for change!

"Information management is no longer what it never was. "Under this cryptic title, I have spent some time telling stories about the misperception of information management in the past on the one hand and its changing character in the future on the other. In times when "better" is no longer enough and "different" is the message, information and therefore the information manager play a crucial role [Maes, 2018]. This role is versatile and not devoid of ambiguity. We like to mention that it is strategic in nature, but what exactly do we mean by it? What requirements must an information professional meet to be able to fulfil this strategic role? Can he or she fulfil it at all or is strategic information management a mirage? I would like to offer the beginnings of an answer to such questions.

Strategic information management

The Amsterdam framework for information management (the "nine-square", in figure 1) is a much used and unfortunately too often abused model for information management [Maes,2003 ; Maes, 2007]. In short, and perhaps unnecessarily, a few comments:
- The framework is an aspect model, in which the factors of information and ICT are highlighted. It is emphatically not an organisational model:

It cannot be used to justify the existence of the information management function. It is pre-eminently suitable to start the discussion with the various parties involved: "What are we doing as an organisation (section) about these nine factors and their mutual connections?".

▫ ICT ("technology") is linked to the activities of an organisation ("business") by the "information/communication" factor. In some organisations, this middle factor is still too much governed by the technological interpretation rather than by its contribution to the business. If technology is the syntax and business is the pragmatics, then the middle column represents the semantics, the giving of meaning.

▫ Strategy/policy ('aiming') is linked to operations ('directing') by means of a design layer - this layer is often set up unilaterally according to the vision of the policymakers, supported by a technological interpretation that assumes an ideal organisation and not the reality.

In practice, many organisations today tend to work according to the dominant logic plotted in the figure on the nine-square.
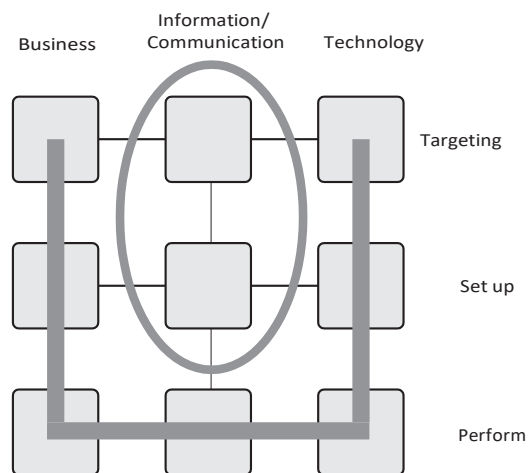
Figure 1: The nine-square and the dominant logic in many organisations

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According to this logic (the U-curve in figure 1), business and ICT organise themselves relatively independently of each other. Typical bad consequences of this are systems that do not sufficiently meet the legitimate but neglected wishes of the users and irresponsible outsourcing of ICT ("outsource the mess and ditto worries to get rid of them"). Both logics then meet at the operational level, with the functional managers, who, without clear frameworks, must try to reconcile the two worlds. The result is often a permanent work with ad hoc solutions without any prospect of structural improvements, let alone a real business-ICT dialogue (just try to create support like that!) and under-utilisation of the ICT facilities.

We define (strategic) information management as the activities that take place within the area surrounded by an oval in figure 1. These 1.are necessary components of a business-oriented information provision: without these activities in relation to the other components of the nine-square-area, there can be no question of an effective, information-driven organisation. Information-driven work without a clear formation position (and ditto information management) is a utopia. It would be going too far to describe the components of strategic information management in detail here, but in general terms I'm thinking of things like:

- A vision of the importance of information for the organisation, now and in the future

- An unambiguous and organisation-wide shared information policy aligned with the organisation's policy

- Setting frameworks for the organisation of the information component, e.g. for information ownership, information sharing, information security, required quality of information, etc.

- Ditto in the context of cooperative relationships in ecosystems

- The overall set-up of information flows for the business processes

- Framework for the management of information facilities

Information leadership

What is clear is that if a strategically operating information manager (including the CIO) wants to fulfil his or her role fully, then she or he will have to display actual information leadership. To find out what this entails in terms of expertise and profile, we start from the leader model of Bolman & Deal [Bolman & Deal, 2017]. They state that a leader must know how to use four different "frames" to look at the challenges of his organisation. Crucial in their vision is that sticking to one or a limited number of lenses leads to inadequate leadership and consequently ineffectiveness. They distinguish the following four frames:

▫ **Structural frame**
The most formal, task-oriented frame with activities such as: setting policy and translating it into measurable goals, making tasks, responsibilities and reporting lines clear, setting up systems and procedures, ...

▫ **Social frame** (what they call "HR frame")
This frame emphasises the social needs: empowering employees with attention to mutual contact, personal growth and job satisfaction, ...

▫ **Political frame**
Central to this frame are: the ability to deal with conflicting interests, to understand and influence the game in the "upper world", to form coalitions, to form a power base, ...

▫ **Symbolic frame**
This frame addresses the need for supportive organisational culture and its associated symbols - it focuses on inspiring, creating common belief, sharing stories, maintaining meaningful rituals, ...

In the light of the present time and of the concentration on the in- formation component, I would like to add a fifth frame:

▫ **Ethical frame**
It is becoming increasingly clear that the value system of an organisation is of prime importance, but is often neglected: the incalculation of social effects, the use of an ethical compass, compliance with sustainability requirements, the creation of trust, ... and that reliable and safe information use is an essential part of this.

According to this vision on leadership, an information manager who transcends the operational level will have to approach information issues from these five frames. Depending on the concrete situation, this will mean that he or she will have to be able to combine a number of these perspectives or to switch easily between them.

The strategic information manager

In table 1, I have translated the preceding extensive leadership model to the role of and instruments for the information manager. After the vision on the information factor according to the different frames, the following four rows of this table mainly refer to the role and positioning, the others to broader intervention possibilities available to the information manager. The concrete application of the table is situationally determined. Here are a few examples:

▪ If the information manager is confronted with a situation in which there is a lack of clarity about priorities and responsibilities, she or he will benefit from applying a structural or political frame.

▪ If, on the other hand, a lack of motivation and commitment is the order of the day, an approach based on the social or symbolic frame will be appropriate.

	Structural	Social	Political	Symbolic	Ethical
Information	Image	Binding agent	Power	Inspiration	Beacon, footing
Role	Information planner Architect	Connector Translator	Director Negotiator	Explorer Disruptor	Information Security Officer
Intstuments	Content knowledge	Relationship network Empathy	Authority	Inspiration	Ethical compass, ethics/privacy by design
Purpose of information policy/planning	Alignment with company policies	Keeping or making employees involved	Balancing and secure interests	Shared values development	Information, enlarge reliability
Process of information planning	Rational, step-by-step	Open, focus on commitment	Opportunity to exercise power	Ritual to (re-)assess values	Possibility of reassessment information usage
Motivate	Financial incentives	Growth, self-development	Manipulation, Secuction	Symbols, celebration	Value System, trust
Meetings/ communications	Formal, focused on implementation of decisions	Informal, sharing opinions and feeling	Competitive: Scoring. Need for management	Opportunity to calibrate or change values & culture	Value driven reflection on information cycle
Source of resistance	Uncertainty	Fear, uncertainty, no longer belonging	Diminishing responsibility, belong to losing group.	Decrease of meaning, holding on to the past	Efficiency thinking, technology dominance
Change strategy	New policys, clear communication	Support in in acquisition new skills	Providing space for new coalitions	Rituals of transition, mourning the past, celebrate the future	Broadening horizon, personal reflection
At conflict	Escalating	Speaking out, poldering	Negotiation, Authority	Finding shared Business values	Finding shared values

. . . .

Table 1: Translation to role and instruments of information manager

- In situations of intense transformation, a successful information manager may fall back on the symbolic and ethical frame.

In practice, information managers, especially in rather bureaucratic organisations, appear to have primarily acquired knowledge and skills in the structural frame, which is closest to substantive knowledge, with the social frame coming in a close second. For many, the political frame is something they would rather not have to deal with, however inevitable that may be.

In practice, the symbolic frame is often a far cry from a recurring desire to really get better at it. The ethical frame has only recently come into play.

A sheep with five legs?

If a strategic information manager wants to have an impact, he or she will probably have to supplement the arsenal of expertise. But even then, it remains a real task to adequately combine the five frames. The following plays a role here:

▫ Information managers (too) often focus only on content (the structural frame) and get stuck in being right without getting it.

▫ Perhaps most importantly, an information manager should have a sense and an eye for a situational reality and be able to make a well-founded assessment of the required expertise and the mutual importance of the five frames.

▫ Usually, an information manager works in a team. Table 1 is then an excellent tool to form a team or to test its composition in a given situation.

▫ Information management is not an exclusive task of the information manager, but an organisation-wide task. Expertise can also be brought together across the whole organisation.

▫ Real digital transformation takes place beyond the borders of organisations in an ecosystem context. It is precisely there that it is important to use the various dimensions of the frames.

The role of information manager is at once complex and challenging - the five frames can help him or her to evaluate personal strengths and weaknesses. The premise of this approach is that a broadly oriented, flexibly shifting information manager is preferable to one who has developed unilaterally in (substantive) depth.

In an age of digital transformation, mental transformation is crucial. For an information manager and, in a broader sense, an information professional, this means thinking and acting in terms of the strategic, potentially disruptive application of information. She or he can be a 1pioneer in this in the various roles of table, but she or he is not alone: information management is a matter for everyone in the organisation. Whether she or he succeeds depends not only on her or his authority in the organisation, but also on acceptance by the organisation. To continue the metaphor: no matter how many legs a sheep has, if it falls on its back it is dependent on the help of third parties.

- Working without information is a utopia.
- A content-rich information manager is often right, a many-sided information manager gets it.

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Digital leadership

by Dion Kotteman

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Leadership has been in the spotlight since time immemorial. For example, the Biblical Moses was mentioned early on as an important leader. In our days, there is interest in the subject: pre-corona and also post-corona. This gets an extra dimension when we look at digital leadership. But is that different from classical leadership?

In this article, we look at the distinguishing characteristics of digital leadership. Three aspects are important here: direction, transformation and digitalisation. For each aspect, we mention things that are characteristic of digital leadership. Is it directive or not? What is the importance of vision, of innovation, of experimentation? And: what is new there? Ask yourself the question: did Moses have a smartphone?

Introduction

Good leadership is scarce in literature. Much has been written about it and from very different angles. There are schools with extreme differences from one another: for example, there is a school which proclaims that a leader does not actually lead - he (and she, of course) stimulates, unites and coordinates, gives space to staff, makes the most of differences, is aware of his or her own blind spots, is culturally, sociologically and emotionally intelligent, a real collaborator. He is a servant.

At the other end of the spectrum, we see a more directive style of management, there is hierarchy, leadership is accepted, preferably combined with a clear vision.

These schools have, of course, been at loggerheads from time to time and this has led to a compromise: situational leadership. This means that you can apply all kinds of leadership styles, depending on the circumstances. This requires high school gymnastics and a high level of maturity from the leader. As André Wierdsma used to say: "Management is a question of damping and strengthening" [Swieringa & Wierdsma, 1990]. The big question is, of course, when do you mute and when do you reinforce? You can muffle the crisis sounds around corona, but then you may have underestimated it. You can amplify the 5G uprising, but then you also run the risk of missing the mark.

There is less literature on digital leadership than on classical leadership; it is therefore a younger term. Moses did not have a smart-phone, but only texts chiselled in stone.

We can break down digital leadership a bit, for example, into three aspects. The first part is about giving direction, focused on a digital world. What then are characteristic matters? The second part is about change and transformation, the predictable third part about digitalisation.

The first part: Giving direction

What immediately stands out here as a distinguishing point is speed. Leadership in a digital world is based on speed: lead times are short, changes are intense and they follow each other in rapid succession. That means short-cycle management, fast interactions and steering. The world is VUCA (Volatile, Uncertain, Complex, Ambiguous) and digital leadership enables you to respond to this. Whether this is successful depends strongly on the environment.

In government, we see that experimentation does not fit well with the nature of the organisation. Government organisations strive for reliability, predictability, transparency and soundness.

Making mistakes stands not in a good light; the government primarily rewards the prevention of mistakes! And this while much literature teaches that making mistakes can actually help: "Failure is not the opposite of success: it is a part of success." Of course, you shouldn't make the same mistake over and over again, but the idea is: if you analyse it properly, you can learn from it. Moreover, it allows you to experiment, which is appropriate in a fast-paced environment. Is it not working? Throw it away!

It is clear that agile working methods fit in nicely here. After all, it is about achieving results in a short period of time, based on empiricism. That result can then be the basis for adjustment. It is iterative and short-cycle. A special point is the leadership: the teams are generally self-organising and do not have a team leader. You could say that there is self-management at the team level. This does not alter the fact that there must be leadership at the level of the organisation as a whole, or of the project as a whole. In other words, it is not true that the existence of agile teams means that there is self-management throughout the organisation. That mistake is sometimes made, resulting in chaos.

Now all this seems a bit ad hoc. But here comes the second point: to steer this turbulence in the right direction, vision is needed. The long term must be clear: WHERE are we going? HOW we get there, we will see. The 'how' is more experimental.

This brings us to the third point: decisiveness. This applies strongly to digital leaders: the clock speed of the environment has increased. Change happens faster than before and you have to keep up if you don't want to end up like a mammoth in the tropical rainforest [Kotte-man, 2015]. Google did a study on the pillars for a Top Team [Google, 2016]. One of the five pillars is structure and clarity - does everyone know their goals, tasks and action plans?

In the regular concept of leadership, decisiveness has always been an important point. Some even take the view that a wrong decision is better than no decision at all. As long as you remain agile and adjust when necessary, we would add.

What does not fit well with this are connective leadership profiles. There are plenty of those and they are very popular. What does not fit at all are "seducers" (that term is really used!). If there is a dynamic, adequate and swift decision-making is required. You can connect, but it does not make you more decisive.

The fourth point is innovation. More than in regular leadership, digital leadership is about innovation. This leads to a style of leadership that gives room for experimentation and smart failure. It is not primarily about maintaining what already exists. Organisations do have the natural reflex to do so; the first thought is to preserve and expand what already exists. This does not lead to adaptation, but to increasing turnover and production. That does not fit with digital leadership, which goes from more to better to different [Maes, 2017]. This also means that uncertainty is a factor: the digital leader must be able to deal with this. Certainties are gone. The importance of structure is much less than usual. People can be deployed independently of hierarchy, in ad hoc teams. Organisations are "reframed" [Bolman & Deal, 1991].

The corona crisis has increased the pressure: waiting is not an option. To survive as an organisation, adaptation and making choices is the dominant story. Survival of the fittest. And that is not the one who has trained well in the gym, but the one who knows how to adapt best. The danger is that there is too great a call for firm leadership: there is a need for clarity, but you can also exaggerate that. You only have to look at the world stage, at Erdogan, Trump and Bolsonaro.

This certainly includes moral leadership, a very separate issue, which this article does not provide enough space for.

The second part: transformation

The second part is about transformation. In particular, of course, digital transformation. There is a lot of literature on this subject. The corona crisis is causing even deniers of this transformation to change their position, even though they are not the only ones.

if only because they have to go digital and skype anyway. Before corona (B.C.), this aspect was doused with a 'geek sauce'. Terms like blockchain and IoT frightened people away. But now we see that the change is accelerating and also becoming more accepted. It has become more concrete and visible.

This digital transformation is strongly linked to the mental transformation. It is not just a technical issue, but also has to do with image and attitude. The crisis has also changed this: it is no longer appropriate to say that you don't like the technology, or to invent fake reasons why you don't like a transformation [Kotteman, 2019]. The way in which an organisation works becomes different. Management can be different: less top-down, less centralised, less emphasis on rules and procedures, greater autonomy for employees because they have a much better information position. The Erasmus University, in particular the ECBI, the Erasmus Centre for Business Innovation, claims that innovation depends 25 per cent on technology and 75 per cent on people.

Now there seems to be a contradiction creeping into this argument: is there to be less top-down work or is it just about decisive leadership? The answer lies in differentiation and cartoons. Differentiation because situations and people differ and leadership must differentiate: for example, according to the task maturity of employees. Cartoons because a digital leader is not a caricature - she or he must be able to show different faces. She or he must be able, in terms of Amy Edmondson [2013], to offer psychological security. There is the learning aspect to it: short-cycle steering, the first point of leadership for this.

The differentiation also has a second aspect: in which phase does the organisation move? A different style is appropriate for developing organisations than for structuring organisations. In the first case, there is an orientation towards the environment; in the second, it is the internal orientation. The predominant point is that in the case of digital transformation and digital leadership, this happens rather quickly.

The third part: digitisation

You could say that the speed with which the corona crisis is spreading like an economic crisis is a consequence of the very fast world-wide communication. How different it was in the days of 1929 when carrierpigeons brought the Rothschilds their stock market fortunes. This means that technology has a key role as a facilitator. It is sometimes said that we are "highly dependent on technology", but then it seems that we do not let technology work for us. The technique is there, it is important, but it is a tool, nothing more. A tool that can change your organisation, or that, if you do not use it, can ruin your organisation. "A fool with a tool..."

Look at software development, for example. DevOps makes short releases possible. As Forrester writes: "This is not your father's IT with a release every three years" [Forrester Research, 2014]. The technology works as a facilitator that makes it possible to work in a short cycle. For the leadership this means that the digital leader must have technical-substantive insight. In their recent book, Stoker and Garretsen [2020] make fun of process managers who do not know the content.

What you sometimes read is that digital leadership is there because "everything is digital nowadays". But that is very easy. We are in a digital world and then a leader would automatically become a digital leader. That is not true. It is hoped that this article has made some distinction.

- Digital leadership can be distinguished from regular leadership.

- It requires a different pace of decision-making, it requires short-cycle working, flexibility and a different attitude towards experimentation.

- So: digital leadership is here, it will stay and it deserves a special place.

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Humanity, Smart Professional

by Petra van Driel and Klaas Brongers

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Smart Humanity, what a great ambition for every information professional to contribute to. How? By becoming aware of different perspectives of personal actions together with professionals from different disciplines.

The value of Smart Humanity is that our work serves both ourselves, others and society. The question is: how are you going to understand each other if you don't understand each other, because you have a different background, work ethic or professional discipline? We advocate starting and ending with empathy [Krznaric, 2014].

The developments in the information society, the increasing dependence on digital services and the vulnerability of society are at the centre of contemporary discussions on technology and innovation. The question behind this is what freedom means in relation to responsibility. This question recurs in the national discussions about the changes in the privacy legislation: the link with the democratic system was made [Brongers & Van Driel, 2019]. Meanwhile the 'yellow shirts' rose from discontent and distrust in the present social system. The paradox between one world and another becomes clear when we look at technological developments: on the one hand everything goes super-fast and the possibilities seem endless. On the other hand, making rights, policies and decisions about the use of technology takes time.

Who are we and why is this important?

What applies in society as a whole also applies to the people involved in the development and deployment of new technology. Just think of the (imaginary) laboratory, the work floor. During the process of working together, people's unconscious comes to the surface in the form of insights and development. This is the moment when clarifying and managing expectations becomes important. Because you assume that your intentions and viewpoints are clear to the other, but in practice they are often not. This applies to all sorts of areas. Between people on the shop floor, in the relationships between stakeholders and in the relationship between the government and the citizen. This so-called 'vertical image' of society has its counterpart in a 'horizontal image'.

The horizontal image of society consists of all kinds of thorough preparations and moments of information gathering, processing and communication (see also: [Van Driel, 2019]). This concerns, for example, the run-up to decision-making, final communication and the 'real' recording of information. A lot goes on behind the scenes of many organisations around such a process, which we do not observe, but which is important, namely: reaching well-considered decisions on the basis of knowledge, experience and solid information. This horizontal view of society mainly serves the sharing or not of enlightening information, which we can say has reached a (temporary) end point in an information supply process. The question that arises, however, is: where is the interest of the citizen reflected in the complex social (decision-making) processes and in projects [WRR, 2006]?

Digital transformation:
from inside to outside and back again

The term 'digital transformation' implies the use of ICT in both the organisation's goals and the means to achieve them. Organisations with a high degree of digital maturity perform better. But what does that mean and how do we get there?

Firstly, it can be built on the idea that human behaviour is shaped by the context of the organisation. Secondly, the chosen technology also has an institutional impact when used. In other words, the people in companies, organisations and society are the actors who determine the construction of technology, from their social environment.

At the same time, technological applications acquire meaning through their use by people with different backgrounds. In the development of technology, therefore, both the design and the use of it influence the success factors of technological applications [Outvorst et al., 2007] In this context, the importance of the innovative development of human values in the tension field between policy and employees, politics and society becomes clear. It is also the human being who shapes the environment in which he works. He does this both in the role of connector and on the role of connector [Van de Luijtgaarden, 2017].

Case study

Who we are, therefore, also determines our actions. In order to know what we (do not) do, we are dependent on our subconscious [Jung, 1992]. For one professional, 'doing nothing' is an active attitude and 'passivism' is a conscious choice, while for another it may seem indecent. This will quickly be noticed, as it is a clash of values and traditions. But behaviour can also be used consciously by professionals. If, for example, a specific response is deliberately provoked, the aim may be to obtain information early in the process for one's own benefit. It may then be right (very consciously) not to react. It is not only a matter of avoiding a conflict at a controlled moment, but also a way of giving the conflict a twist.

In order to solve complicated problems in which interests differ and different parties determine the field of influence, it is important to determine the starting position of the (intended) cooperation between care providers and care providers.

This requires a careful choice of timing, content and people involved in the decision-making process. This requires a careful choice of timing, of content and of the people involved in decision-making. In business development, it is in the preparation of projects, in the phase that is comparable to presales. In the initial phase, it is about the relationships between people and their shared interests within the project. This is the starting point for actual cooperation with a common goal. Creating the desired result with the most suitable means is the core of the conversation. It starts with naming the goal, means and result and agreeing on them. If that fails, the question is whether starting a project makes sense. Although stopping a project is often seen as 'not done', in some cases it can still be the best option. It can make the difference between an expensive "failed" ICT project or not: a project whose products are not taken up by the users - the business (*see also*: [Mulder & Mulder, 2013]).

What can you do as a professional?

For professionals, the digital transformation actually creates a para- dox between the inner and the outer world. Crucial to this is that you, as a professional, continually test your observations and assumptions. You do this with each other, with yourself and with your environment - an environment in which users, citizens and companies also play an important role! After all, others may have different goals and motivations. External influences and your own insights are particularly important here, because they, in turn, also influence your actions. We do not have to do everything on our own: working together can help to bring in different perspectives. It is precisely in an open discussion that you can reach a common perspective of action. If we put agendas on the table, it will become clear that collective and personal goals can go hand in hand. See, for example, the approach of Nonviolent Communication [Rosenberg, 2015]. It helps to outline the context of what you are doing and why. The precondition for this is a common goal of the organisation: knowing who you are precedes knowing what you do and why. This prevents getting in each other's way or working separately.

Like recognising different perceptions precedes bringing these visions of the world together. Ultimately, the aim is to achieve our goal with the right efforts at the right time. That is the essence of accountability and decision-making, and Smart Professionals can contribute to that.

What and why?

Our working method is therefore mainly aimed at building bridges through Smart Professionals, with the intention of passing on what we learn to others. The proposed approach is to first establish a basis in a lab. This is a small, sometimes (partly) virtual group of people from various disciplines who start an innovative process - even before there can be talk of a project. At that point, it is a matter of simply starting somewhere. In other words, setting a point on the horizon and going for it, while continuously making adjustments along the way. The recommended method for this is to alternate between carrying out the task in hand and reflecting on its implementation (see also: [Van de Luijtgaarden, 2017]). In doing so, we look at the various competencies, qualities and talents of those involved, with the starting point being to trust each other. The most important element is then to find forms in co-creation to respect human dignity and its limits and, moreover, to incorporate it in daily practice. This then becomes the new version of what we call the decision-making process. Sounds like innovation, right?

- Working together and achieving something starts with agreeing on actions, means and results. If that doesn't work, ask yourself if it makes sense to continue.
- Be aware of the different perspectives of personal actions. Try to understand each other with empathy.
- Test your observations and assumptions, with each other, with yourself and with those around you.

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It's 'smart' me!

Wouter Bronsgeest

My little daughter got her first smartphone last week. After a period of educationally sound discussions, she was allowed to try out comparison sites on her own. After weeks of searching and comparing, "the best" was found.

Besides online comparison, the social network was also benchmarked. Not a cheap device, but not an iPhone 10 either. And with Snapchat and WhatsApp, and preferably Instagram too ... but we won't be doing that just yet. There are quite a few risks involved. Fortunately, a child knows (at least in this case) that photos of yourself shouldn't just wander around the digital world. This had already been discussed in class; digital skills and safety start early. Fortunately.

The first message - in style, of course, i.e. in the form of five separate messages - was worth its weight in gold. To

to frame: "Hi, Dad! Look, my first message to you! Your child." And then followed by a picture of my wife, with the brilliant caption "proof". You can understand that for a while I couldn't seriously read the voluminous policy paper I was reading.

Children with smartphones: Our society is changing rapidly. The very young can literally grasp new technology and integrate it into their lives within minutes. They are online in seconds, and suddenly so are their friends. The trick now is to guide children in such a way that they understand how to use this technology,
but also how their brain deals with it. Ever wanted to take a tablet or smart-phone away from your child after agreed 'playtime'? It causes a lot of stress and often irritation. Many children do not know how to deal with the increased cortisol levels after playing games and tapping messages back and forth.

In addition to the fact that tablets and smartphones seem to be particularly 'addictive', the interaction with them speaks for itself.

The "reptilian brain" is constantly under attack. That is the brain of the basic 'fight-flight-freeze' reactions. In children, this is very noticeable because they often react on the basis of the emotion of the moment. In adults That is less noticeable. But do you also recognise that colleagues have completely forgotten what was just agreed in a conversation or meeting? Chances are, they've immediately focused their attention on their smart device. Busy with themselves, checking mails and apps ... and therefore immediately tap into another brain function. And therefore no longer save what they have just committed themselves to.

Neurospecialist Susan Greenfield's research has seen how the brain responds to the impulses of a computer or smart device. Her recommendations for the proper upbringing of children speak volumes, and are - once again! - scientific basis: read before, play outside and eat together. Activities that appeal to other parts of the brain and which re-establish the brain's hormonal balance. And perhaps most interestingly, they normalise the neurosynapses of "gaming" and build up other neurosynapses.

I wish all colleagues with children to apply this pedagogical advice. And in fact, I wish all colleagues in the organisation where I work that they also apply this advice - to themselves!

Source

Lifelong development:
the adaptive professional

by Guido Ongena and Pascal Ravesteijn

. . . .

Digital transformation is characterised by six phases [Solis, 2019]. The last phase is labelled as an organisation that is innovative, but also adaptive and thus able to respond to the opportunities offered by the external environment. Out-of-the-box thinking, experimentation and innovation should be encouraged to reach this stage.

But what about our own adaptability? Our agility in absorbing new knowledge? How agile are we as professionals? An agile professional is smart, able to prepare for changes in his or her field and, for this reason, will have to keep developing throughout his or her working life.

Up- and reskilling of the region

The Netherlands is facing a major and complex challenge to cope with the impact of technology on the labour market. There is a discrepancy between what people learn and are able to do and what the labour market needs. Also the influx into the labour market does not match the demand for knowledge and skills [Kemna, e.a., 2019]. This applies in particular to the ICT sector, where there is also a great shortage of (new) employees.

The prognosis is that this influx will also decrease. In addition to new influx, current ICT professionals will have to develop skills to be able to transfer to another IT profession and/or role (reskilling). They will also have to develop skills aimed at growing with the changing demand for technical skills within their own function/role (upskilling). Hüsing, Korte & Dashja [2016] provide a nice overview of the rapidly changing need for e-skills and digital leadership skills during 2014-2015. Their predictions towards 2020 have proven to be quite accurate: the conclusion is that the need for ICT professionals in Europe is generally growing stronger than the supply. However, the nuance is that this can differ enormously per function/role.

In a rapidly changing market, IT professionals must constantly stay up to date with the latest developments. It now seems to be in the DNA of the IT professional to brush up their knowledge and skills on a regular basis. This continuous pressure to invest also takes its toll. More and more IT professionals are considering quitting because of this continuous pressure [AG Connect, 2020a]. Employers, on the other hand, seem to be giving their employees plenty of leeway. This is not without reason, as training opportunities determine job satisfaction [AG Connect, 2020b].

However, we also see a broadening of the demand for IT and data expertise in other domains. Data in particular seems to be becoming a common denominator with all kinds of different sectors. For example, marketers are working with marketing analytics, HR specialists with HR analytics, engineers with predictive maintenance and even fintech has its fair share of data analytics. These sectors are therefore increasingly looking for a connection with IT (education).

Flexibilisation of education

In recent decades, more and more attention has been paid to personalised education. This attention stems from the shift in vision on learning, from standardisation to customised learning. The prin-

ciples of personalisation, in which tailoring education to the individual is central, are increasingly seen as core values [Beetham & Sharpe, 2013]. Not surprisingly, because research shows that individualised instruction produces better results than a uniform approach to more traditional, classroom instruction [Hattie, 2008].

We also see this trend in higher education. In recent years, considerable efforts have been made to make education more flexible. Following the advice of the advisory committee "Flexible higher education for those in work" [2014], a pilot was started by the Ministry of Education, Culture and Science to abandon fixed programmes in part-time higher education [MinOCW, 2016]. A large number of universities (21) of applied sciences are taking part, offering a range of different 345 courses. Central to the pilot are the learning outcomes. In contrast to learning objectives, learning outcomes are grafted onto the greater whole. They describe a correlation between knowledge, insights, skills and attitude that the student has to demonstrate. Important here is that learning outcomes are linked to assessment and not to the learning process. This disconnects the lessons from the assessment. A student can determine his own learning path. This is what is referred to as a learning path independent assessment (LOT). The routes to the diploma can therefore be varied and tailored to the student. These learning outcomes thus describe what a student is expected to know, understand and be able to apply upon completion of a learning period. Learning outcomes should meet the following quality requirements [NVAO, 2019]:

- Learning path independent: they enable students to determine their own learning path

- Representative of the learning outcomes of the programme

- Recognisable for the field

- Specific and measurable: they provide an unambiguous assessment framework for course-independent testing

- Transparent: the relationship between learning outcomes, units of learning, learning activities and assessment is clear

- Coherent: they form a coherent unit and can be distinguished from other (units of) learning outcomes

- Sustainable: they are formulated in such a way that they can be used for a number of years

## Linking education and practice

As mentioned above, an important quality requirement for learning outcomes is recognisability for the professional field. For full-time higher professional education ICT courses (bachelor's programmes), most universities of applied sciences use the HBO-i framework [HBO-i, 2018] as an umbrella for the development and implementation of the curriculum. However, for part-time programmes for professionals who already have several years of work experience, this is not self-evident. In such a situation, it is often better to connect to a framework that has been (more) developed from practice. Within Europe, it is then logical to align with the e-Competence Framework (e-CF). The e-CF is a framework to describe professional ICT skills. The most recent version (4.0) consists of competences and levels, which have been laid down as standards [CEN/TC 428, 2020]. A competence is described in this framework as a demonstrated ability to apply knowledge, skills and attitudes to achieve observable results. Four dimensions are distinguished. The first two dimensions are set up from an organisational perspective. Dimension one describes the five e-competence areas, derived from the IT business processes: plan, build, run, enable, and manage. Dimension Two describes a set of forty-one e-Competence references with a general description of each competence. For each competence, levels are defined which are referenced to the European Qualifications Framework (EQF) and which can be achieved by an individual (dimension three). The last and fourth dimension gives examples of knowledge and skills that a professional should have in relation to the competence in question.

A further contribution to the usefulness of the e-CF is the overview of ICT Roles Profiles [CEN/TC 428, 2018], in which the 30 most common roles in ICT are described, along with the tasks,

competences and responsibilities, the corresponding competences are also included. Organisations that are not satisfied with these profiles can always use the latest version of the KNVI Competence Model [Op de Coul & Van Oosterhout, 2018], which provides a much more comprehensive overview of functions, tasks, roles and competences and which also has a link to the e-CF.

The advantage of developing a curriculum based on a framework such as the e-CF is that the competences lend themselves well to translation into learning outcomes. This not only guarantees recognisability, but also ensures that there is a coherent whole from which the learning outcomes can be set up. Finally, it can be said that the e-CF framework is sustainable. Europe is continuously working on improving the competences formulated and the alignment with practice. For example, a 4number of transversal aspects have been added to the version; these are generic aspects that are important when exercising competencies in practice. Examples include attention to ethics, sustainability, ICT legislation and privacy issues, and the accessibility and usability of systems for users.

In addition to the e-CF, various initiatives have been launched to make application even easier. These are subdivided into four domains, also called pillars, which must be taken into account when developing courses and training programmes (see figure 1). In addition to i) competencies, ii) the development of guidelines for curriculum development and assessment criteria related to the competencies, (iii) providing insight into the Body of Knowledge of the ICT domain, and (iv) researching the normative ICT professional and developing an associated code of ethics. As shown in the1 figure, many of these components are still under development. However, once these various initiatives have been completed, they will collectively provide a whole set of instruments that can be used by both education and practical organisations to develop education, courses and training-on-the-job. This will create a whole range of possibilities for ICT professionals to continue their development.
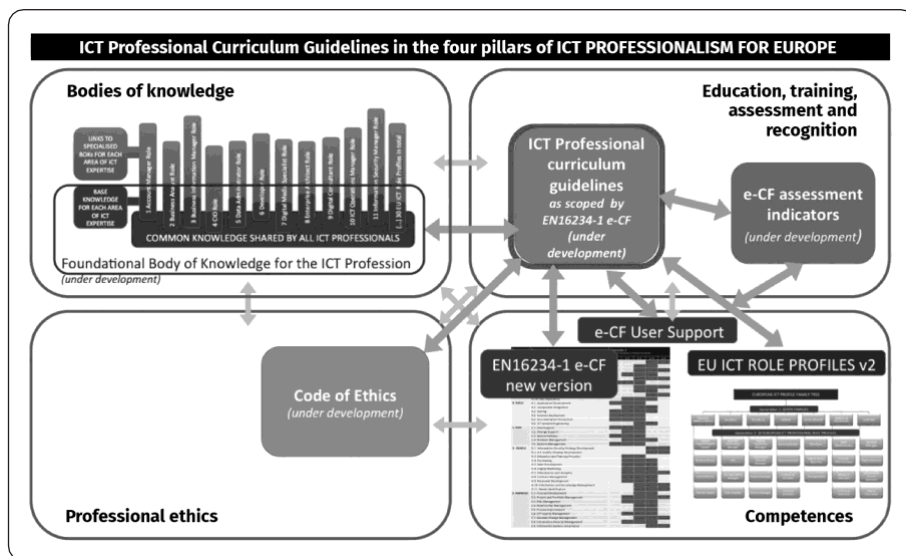
Figure 1: The four pillars of ICT professionalism for Europe (CEN/TC 428, 2020)

Finally

The attention to flexibilisation in education is a good reason for employers to re- and upskill their professionals. Short-cycle modules make it possible to brush up on knowledge and skills, but also make it possible to work towards a diploma using individual routes. This is also an invitation to the same employer to think along and actively participate in flexible education programmes. Thanks to this flexibility, updating the programme has become more accessible and it can therefore increasingly respond to the needs of the market.

- For ICT professionals, it is extremely important to continue to develop, not only in their own expertise but also in the broader ICT field. This is the only way to keep up with rapid developments and avoid ending up 'on the bench' one day.

- Jobs change faster than competences, so training should be built from there.

- Higher education should offer more flexibility in training routes, both for professionals and for full-time students.

- The professional field should participate more in the development and content of curricula.

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Return on learning for the professional

by Anita Bosman, Jacques Jan Muller and

Rick Strijbos

· ·

In the rapidly changing world, working has become learning. The corona crisis has given a boost to the use of new technology and new opportunities. The need for continuous learning is greater than ever.

ICT has ensured that learning has become very accessible and that the distinction between learning and working is increasingly blurred. Working is learning and learning is working. Organisations and trainers will have to fundamentally change their ideas about learning. Training and education should therefore demonstrably achieve something at the work behaviour level. Concepts such as "blended learning" and "agile learning" address this need. The time of pure classroom learning is definitely over.

Investing in learning

How can you ensure that you learn as effectively as possible? Remaining powerful in your work also means making the right choices when it comes to training and education. This is not only about choosing the content you want to learn, but also about how you want to learn.

What the right training format is is very personal: more traditional classroom sessions led by a (practice) teacher or self-study (MOOCs, e-learning, books, learning by doing, blended etc.). When making the right choices, the question always arises: how do you actually know what you don't know? And what does a training course or meeting actually deliver?

The question for professionals and their managers is often: "How do you get more out of your training? After all, training costs time, money and effort. With the right knowledge and skills, you achieve better results in less time. How do you ensure that you not only have a fun learning day, but that you immediately start applying it on the work floor? Optimisation of the investment in the learning process is therefore important.

Return on learning

A recent study by the Association for Talent Development (ASTD) supports this development (www.astd.org). ASTD is the world's largest platform on development and learning in organisations. It reports that only a third of the respondents in the study indicated that their current training efforts are effective. To increase the efficiency of learning and reduce costs, informal learning seems to be one of the golden eggs for the future.

Forms of learning

In the literature, the link between forms of learning and returns is frequently made. In particular, the concepts of formal and informal learning are often mentioned.

Formal learning is conscious, actively directed and planned [De Laat, Poell, Simons & Van der Krogt, 2001] and the outcomes are often predictable [Hager, 1998]. These outcomes consist of explicit and formal knowledge and skills [Slotte, Tynjälä & Hytönen, 2004]. Formal learning includes well thought-out forms such as courses, workshops and training. The return on investment of formal learning has been under discussion for many years. Wenger

wrote in 1998 the following about it: "At present, attention has shifted from formal training to informal learning in the workplace and to ways in which these can be improved" [Wenger,1 998]. Burke & Hutchins [2007] indicate in their research that the transfer of courses is low. Shortly after the course, the transfer is still at a level of 60 percent, but the degree of transfer decreases significantly over time - after a longer period of time, the value is only one 10 percent.

Informal learning means learning in daily practice. It happens spontaneously and unplanned, without a trainer or a training programme. Informal learning is mainly the result of processing the experiences that employees gain during their work. Taris [2007] states that most learning in organisations (at least in quantitative terms) is informal learning. According to Jennings & Wargnier [2012], 90 percent of learning occurs in informal settings through workplace learning, job aids, mentoring and social networks.

The results of informal learning are often unpredictable [Hager, 1998] and consist of implicit knowledge [Eraut, 2004; Hager, 1998]. At the same time, the literature also shows that informal learning does not have to be entirely coincidental. Creating the right, challenging learning climate contributes directly to the development of a professional [Frietman, Kennis & Hövels, 2010]. It is therefore about maximising the conditions for informal learning in an organisation [Smith & Sadler-Smith, 2006].

Transfer of learning

Another way of looking at learning efficiency is by using Velada's transfer model. This involves looking at the factors that influence the transfer for learning. Velada [2007] has developed a model for transfer of training. In his model, he divided transfer into the three key areas:

1. **Transfer climate.** Transfer climate is about situations, consequences and possibilities in an organisation that make employees

will or will not apply the behaviour learned during the training. Examples are an open learning climate, personal development plans, coaching role of management and colleagues and so on.

2. **Training design.** This core area is about the way in which training is designed and implemented. This includes, for example, classical education, e-learning, blended learning, project-driven or agile learning.

3. **Individual factors.** Individual learning factors are characteristics such as cognitive ability, personality and motivation. Think of driving forces, intelligence and learning motivation of the participant.

In summary, the dividing line between formal and informal learning is not always easy to make in practice. The distinction is particularly valuable in making clients and trainers realise that learning in organisations is a joint challenge.

What does this mean for the ICT professional?

Valeda's model provides insight into the factors that influence learning efficiency. For the professional this means that he or she chooses a learning path in which formal and informal learning can be combined as much as possible. In this way she or he ensures the highest learning efficiency. Based on Velada's model we can give the professional the following tips:

1. **Transfer climate (learning climate)**

▫ Organise feedback from those you work with, but especially for. Use your manager, experienced colleagues or clients to support you in your learning process. Think of periodic progress meetings, client evaluations and 360° feedback.

▫ Make sure your training fits your personal development needs and the needs of the organisation. What "value" will the learning path bring you and your organisation?

- Make sure your training is 'just in time'. At the time of your training, are there sufficient opportunities in your work to apply what you have learned? Which assignment or task can you use as a 'test' environment? Learning is experimenting. Other examples are innovation projects, hacking sessions or work placements.

- Schedule the training at a time when you and your organisation can make sufficient time for it.

2. **Training design**

- Choose a suitable education at the right level. It seems obvious, after all nothing is as frustrating as too high or too low a level of education. And frustration is counterproductive. Yet in practice it is difficult to find the right match. Are you looking for knowledge or competences? Is a certification or title important? Or is it also about practical knowledge? What is a good training course that fits in with the existing knowledge and experience? So spend enough time investigating what the learning objectives of the training are and how the training is structured.

- Choose to spread out in time: our minds have their limits in terms of absorption capacity. Everyone has a certain span of attention. Bootcamps of many long days in a row ignore this. At most, this works to pass an exam in a short period of time, but the space for insight, depth and application is often compromised. Spreading training courses that last longer than a few days, for example with a fixed day per week, has advantages. You can then let the material sink in, reflect on it and then build on an existing foundation. You learn from trainings with room for interaction, practice and discussion.

- Similarities with your practice: the experience of the training or education should resemble the real work situation as much as possible. This means exercises, case studies and assignments that are as close as possible to your own practice. You can also learn a lot from your fellow participants. So their level and practical experience are also important.

▫ Research shows that the yield is higher when learning is done through active learning. So choose a programme that encourages you to get actively involved by means of assignments, simulations, work placements and so on. Look for an education in which you can combine formal and informal learning.

3. **Individual factors**

▫ Take control of your own development. Make sure you want to do the training yourself. Do not allow yourself to be steered by your manager. Think about your learning goals in advance. What do you want to get out of the training? The more concrete you formulate your goals, the better you will be able to see the steps you have made during and after the training.

▫ Prepare well. A wise man once said, "To fail in preparation is to prepare for failure." This preparation of course includes selecting the right institute and the right training. Shortly before the start of the training, it is also a good idea to go through the curriculum again. What can I expect? What are the learning objectives? What are my goals? Why do I want to do this course again? If you set yourself goals, learning becomes more focused, better and easier. At the same time, relaxation is also an important advantage. If it is possible to rest well beforehand, this also increases your absorption capacity. After all, a rested mind absorbs more.

▫ Create an active learning motivation. It has been proven that active learning gives a higher yield. So what is active learning? You can read a text alone or listen to an explanation from the teacher. But making a diagram or mind map helps you structure the material. Above all, ask questions. Just thinking up the question encourages you to think actively and gain insight. Imagine what the teacher's answer or the reaction of your fellow student could add! Critical thinking (analysing and judging information independently of others) also helps you learn and remember better. Making a summary afterwards re-arranges what has been learned and ensures that it will sink in better. Give yourself

some homework (if the teacher doesn't do it already) and work with additional information and record your own learning experience.

▫ Learning styles. The fact is that everyone learns differently: we call these learning styles. Many learn the most by doing and learn by trial and error. Others are good at observing and reflecting and learn the most in this way. Being able to look up and read more information afterwards works better for those who need it. Good training takes this into account. This variety of didactic methods ensures that everyone is offered something that works best for him or her. In addition, it keeps the course or training lively and interesting until the end.

▫ Have fun. This is perhaps the most important tip of all! After all, learning is fun. When you feel safe and good, you absorb more. And remember that there is no such thing as failure. Discovery does.

- A learning process costs time, money and effort. Learning should directly support your performance as a professional. That is why the return on investment of learning is increasingly important.

- Learning is not only about formal but increasingly about informal learning.

- For the professional, this means choosing a learning path in which formal and informal learning can be combined as much as possible. By doing so, he or she ensures the highest learning efficiency.

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2

Smart Designer & User

Designing and using facilities is no longer the domain of 'ICT people'. No, that domain belongs now to information professionals in the broadest sense of the word. Starting with the people who have to use technical facilities, are looking for information or want a question answered. We talk more and more about 'chains' of production. From idea to user requirements via the design, creation, construction, testing and operation of facilities to the implementation of those facilities. From 'ICT project' to 'projects with an ICT component'.

To achieve this, other ways of working together and of producing are needed. More agile, more focused on modern architectural principles and managed on the basis of different kinds of measurement indicators. This part of the book deals with a number of these current perspectives.

The new mantra: data

Klaas Brongers

Once an organisation has found an answer to Simon Sinek's why-question, the next mantra comes into play: data. Or rather, data-driven work. This has become an existential issue for many organisations.

Data architects design landscapes with data (science) platforms, data alakes and data hubs and set up master data management. Data scientists are able to translate terabytes of data into new insights with artificial intelligence.

Process mining and digital twins help you understand how processes really work and how you can make *what-if predictions*. Self-assessments, with the well-known 5-point scales, offer support in determining the maturity of your organisation in working with data. And there is already a good range to be had at college and master level.

training. For supporting tooling, there is a wide range on the market, with the characteristic that at the time of purchase you are already lagging behind.

The top players in data-driven work are the tech giants Ama- sun, Facebook and Google. Apple and Microsoft will come pretty close. As soon as Amazon enters a market, it will dominate that market. The announcement that this web shop is coming to the Netherlands makes bol.com, Wehkamp and many other retailers shudder. Facebook is a trendsetter in the creation of bubbles and is criss-crossing our democratic system with click-like fake news. Google, with its parent company Alphabet, is now much more than the ultimate search engine that answers almost all of our questions. The stock market value of the tech giants is such that their ability to take over other companies and invest in innovation cannot be kept up. The Chinese omnivores and semi-state-run Alibaba and Tencent are in another class in the ranking of data-driven tech giants.

With these examples, the question is how to become such a top player yourself, or at least come close to it. And how useful is it for an organisation to invest so much thought and capital in data-driven work? In terms of financing, the step from investing in tooling yourself (CAPEX) to paying for what you use, such as the cloud (OPEX), is a precondition for surviving at all. The trick is to be able to benefit as much as possible from what the tech giants have devised for themselves.

My primary requirements? To be able to work in a similar way to the tech giants, with maximum data efficiency and to profit maximally from all technological developments without having to think about it every time. Oh yes, I prefer doing justice to European public values to the commercial ideology of America and certainly to the state-led ideology of China.

Which relationship manager can I contact?

Source

- Previously published online at: *AGConnect*, https://www.agconnect.nl/blog/de- nieuwe-mantra-data, 26th of March 2019

Agile: hype or trend?

by Lineke Sneller

. . . .

"So in the final analysis, the meteoric rise of interest in - and sometimes tremendous criticism of - Agile Methodologies is about the mushy stuff of values and culture." [Agile Alliance, 2001]

Introduction

Software has become indispensable for the realisation of the strategy of many organisations. As a result, software development has become a process of strategic importance. Traditionally, software development was roughly done in three successive phases. First, the user organisation made functional specifications of the software to be built. Then the developers built the software based on these specifications. When construction was completed, testers checked whether the software met the functional specifications. The testers' findings then had to be incorporated into the software and sometimes even into the specifications, after which the testers carried out a re-test. It was not unusual for these three consecutive phases to take a year or more, and the whole process was characterised by extensive documentation to support the phase transitions.

According to a group of leading software developers, traditional software development was too slow and too bureaucratic for the e-commerce era. They felt that a radical change was needed and looked for a method of software development that would be based on the principles of

trust and mutual respect. Their aim was to create organisations where people would work together in a way that they themselves would like to work there. In 2001 they met in Utah, called themselves the Agile Alliance and laid down their ideas in the Agile Manifesto [Agile Alliance, 2001].

The ideas of the Agile Alliance really struck a chord. Many organisations have embraced Agile methods in recent years and have rapidly implemented them. The question is how long this embrace will last. Agile could be a hype in our IT field, a development that is introduced with great enthusiasm but ultimately dies a quiet death. However, it could also be that Agile should be seen as a trend, a development that helps us move forward permanently. This contribution therefore focuses on the following question: is Agile a hype or a trend?

Agile: core values and principles

The Agile Alliance wanted a fundamentally different approach to software development. Based on their years of experience, the group formulated four core values for software development - these four core values are shown in figure Each 1.value consists of a left and a right-hand method. Both ways of working are valuable, but if choices have to be made, then with Agile you choose the left way of working. For example, the second core value has 'working software' as its left-hand method and 'extensive documentation' as its right-hand method. In software development, you want to create both working software and comprehensive documentation. However, if for any reason you have to choose between the two, you choose the left-hand approach: working software.

The core values of Agile lead to a number of principles for software development. In applying these principles, a whole jargon has been created. For more information on the various Agile methods and frameworks, please refer to Agile Alliance [2020].

. . . .

Figure 1: The Agile Manifesto. Source: Agile Alliance [2001].

The first principle of agile software development is the short-cycle delivery of software, where each delivery has value for the customer. A software development cycle usually lasts three to six weeks and is called a *sprint*. During *sprint planning*, the backlog is determined, the list of new features, changed features, fixes and other things that will be realised in the sprint.

The second principle is cooperation in multidisciplinary autonomous teams, also called *scrum teams* or *squads*. Employees are assigned full-time to a team. The team is composed in such a way that all required competencies are available, both in the field of technology (programming, design, testing) and in other fields (domain knowledge, decision-making). The team is autonomous and is as a team accountable for the results. Within the team, the *product owner* has the decisive voice in determining the backlog, while the *scrum master* is responsible for working

according to the Agile core values and the agreed processes. The team discusses the progress of the sprint in the *daily stand-up meeting* on the basis of the *burndown chart*, a graphic representation of the part of the backlog already realised and the part still to be realised in the current sprint.

The third principle is that the development process leads to working software that has added value. In a sprint, a number of *user stories* are developed and delivered, with each user story delivering a predetermined value to the customer. By delivering and offering *minimum viable products* to customers, the scrum team can learn from the experiences of customers. When delivering *minimum marketable products*, a price can be charged for the product with the least possible development effort.

The final principle of agile software development is attention to evaluation and structural improvement. After each sprint, the *velocity*, the total time spent per user story, is determined; this is then used to make ever better estimates of the backlog in subsequent sprints. In a *retrospective*, the way of working is also discussed and, where useful or necessary, improved.

Implementing Agile requires a transformation

Agile arose from the desire to tackle software development more effectively. Agile working does not start and end in the IT department, but extends throughout the entire organisation. The switch to agile working means that other organisational processes must also be redesigned.

This applies, for example, to the organisational hierarchy. In major agile transformations, the organisation is involved from top to bottom. ING, for example, has carried out a major agile transformation in recent years. The 2018 annual report shows that the Executive Board played an important role: The Executive Board reports that ING's agile way of working brings employees together in multidisciplinary cross-functional teams. This allows the company to respond more quickly to changing business needs

and feedback from customers, and to foster an innovative attitude and active engagement on the part of employees. The Board gives teams end-to-end responsibility to make collaboration across the organisation easier and more effective [ING, 2019]. For a traditionally hierarchically managed organisation like a bank, Agile is a big change.

Agile also means paying attention to renewal of the personnel policy. The usual annual planning and assessment interviews are not in line with constantly changing market conditions. Individual performance measures and remuneration methods do not fit in with working in multidisciplinary teams. The traditional relationship between manager and employee does not relate well to new team roles such as product owner and scrum master.

ABN Amro realised in 2018 that as a result of agile working, a new performance and assessment system became indispensable. A new system was introduced through the collective labour agreement, in which the annual planning discussion was replaced by a continuous dialogue about objectives [ABN Amro, 2019].

Mollie is a payment service provider that wants to compete with the big banks by being faster and more innovative. When recruiting and selecting new employees, the company profiles itself with innovative technologies, not only in the systems, but also for managing and controlling the organisation. "Scrum, Agile and continuous innovation are completely ingrained in us" [Mollie, 2015].

An agile transformation also requires a rethink of risk management. The Agile core values emphasise flexibility, trust and collaboration. In the risk management of many organisations, commitment plays an important role. Agile and risk management do not always go hand in hand, as the following examples show:

▪ The Dutch Central Bank requires that all insurers in the Netherlands write down their processes and instruments for information security and record the implementation [DNB, 2017].

If the core value of 'individuals and interactions over processes and tools' is applied stringently, problems with the central bank could arise here.

- The government must always be able to explain decisions made about citizens, because otherwise an unequal procedural position arises [Eck, 2017]. Applying the core value "working software over comprehensive documentation" may mean that decisions can hardly be understood without reading the software code - citizens will not be satisfied with this when they want an explanation of a decision.

- In software development, it is nice if teams, in accordance with the core value "customer collaboration over contract negotiation", work well with the customer. However, when projects do not go as planned, a good contract can strengthen the position of the parties. The Sociale Verzekeringsbank was pleased in 2014 that, in a conflict with a software supplier about a difficult project, good contractual agreements had been made [Doorenbosch, 2017].

- A great strength of Agile is the flexibility that the core value "responding to change over following a plan" brings. Sometimes, however, the deadline for legislation and regulations is very tight and software modifications must be implemented before the deadline in order to make the organisation compliant. For example, when implementing the General Data Protection Regulation (AVG) in 2018, many organisations will have had a preference for following the plan over reacting to change.

When an organisation embarks on an agile transformation, this means that trade-offs have to be made between software development processes and risk management.

To conclude

Agile is a reaction to traditional methods of software development that are perceived as rigid and bureaucratic. Agile is characterised by short-cycle delivery of customer value, collaboration in autonomous multi-disciplinary teams, emphasis on software as a product and a culture of continuous improvement.

Scientific research summarised in the box below shows that Agile can have a positive influence on employee satisfaction, project results and financial business results. These positive results encourage organisations not to consider Agile as hype, but to seriously consider its introduction. However, the introduction of Agile should be seen as a transformation that is not limited to the IT department. For example, Agile means a new way of working together, innovation in personnel policy and a rethink of risk management.

The question at the beginning of this paper was whether Agile is a hype or a trend. The characteristics of Agile, the results of scientific research and the position that Agile has acquired in many companies, led to the following answer. Agile is not a hype, it is a trend that has started inevitably and is helping software development permanently.

Agile and scientific research

Since the publication of the Agile Manifesto in 2001, a great deal of scientific research has been carried out on agile. The results of some of these studies are presented below.

Does Agile lead to higher employee satisfaction?

Tripp, Riemenschneider and Thatcher [2019] investigated the connection between the application of agile working methods, characteristics of the work and employee satisfaction. The agile practices studied fall into

agile project management and agile software development. The characteristics of the work in this study were autonomy, feedback, variety, individuality and meaning.

The authors conclude that the application of agile project management leads to higher employee satisfaction directly and via the experienced autonomy and feedback. The application of agile software development leads to higher employee satisfaction via individuality and meaning of the work. According to this study, agile therefore has a positive effect on employee satisfaction.

Does Agile lead to better project results?

Lee and Xia [2010] investigated the relationship between the characteristics of the agile team, the handling of change requests and the project results. The team characteristics examined were autonomy and diversity in functional background, skills, expertise and work experience. The handling of changes was examined in terms of the percentage of change requests submitted that were actually implemented and the efficiency of this implementation. Project results were measured in terms of on-time project completion, on-budget completion and delivery of requested functionality.

The authors concluded that team autonomy has a negative effect on the percentage of implemented changes, while team diversity has a positive effect. The efficient handling of change requests leads to an improvement of all project results, while a higher percentage of implemented changes only leads to better delivery of the requested functionality. According to this study, Agile therefore has a predominantly positive effect on project results.

Does Agile lead to better business results?

Bennet [2019] argues that the introduction of Agile involves a transformation that should result in a trend change in the financial performance of companies. He examined the impact of the introduction of Agile

on the financial indicators Revenue, Return on Assets (ROA) and Operating Expenses on Revenue. He compared these metrics before the introduction of Agile with those after the introduction of Agile.

The author concludes that after the introduction of Agile, the Turnover and ROA measures increase, while the cost measure OER decreases. Thus, according to this study, Agile brings about a positive trend break in the financial business results.

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Smart Enterprise Architecture for Smart Artificial Intelligence

by Martin van den Berg, Ouren Kuiper,
Sieuwert van Otterloo and Huib Aldewereld

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Developments in artificial intelligence (AI) are moving fast. We are increasingly concerned about the extent to which machines or computers determine our lives. One of the great thinkers of our time, Yu-val Noah Harari, holds up images of the future in which mankind is "hackable".

According to him, the time is coming when a machine will know more about us than we do ourselves. At the same time, there is a widespread awareness that human rights must be protected in light of these developments. Bodies such as the European Commission plead for 'trustworthy AI' [HLEG, 2019].

Prominent scientists and business leaders, including Demis Hassabis, Stephen Hawking and Elon Musk, have established 23 principles to ensure a safe future with AI [Asilomar AI Principles, 2017]. A group of scientists from Harvard conducted a meta-study to synthesise which themes contribute to an ethically sound, rights-respecting and socially desirable application of AI. These themes were found to be broadly expressed in the bulk of recently drafted principles from various documents [Fjeld et al., 2020]. Through all of these principles, a good

image of what we call 'Smart AI', a trusting and human-centred approach to AI. Yet the fear remains that machines are 'black boxes' making choices or decisions that we do not understand. More is needed than just nice words and principles. In this paper, we argue that enterprise architecture (EA) should be used to achieve Smart AI. But then a form of EA that is fundamentally different from the current form: 'Smart EA'. In order to understand the why of Smart EA, we will first zoom in on Smart AI.

What is Smart AI?

Artificial intelligence (AI) is in the spotlight. The number of applications is countless and growing rapidly. We all know the AI applications of Amazon, Spotify and Netflix, which make recommendations based on our buying, listening and viewing behaviour. But there are also algorithms that can recognise pictures and voices, determine which applicants are selected for an interview and determine whether or not you get a loan. Worldwide, states and organisations are tumbling over each other to make funds available for AI research and to promote the use of AI. Europe and the Netherlands are also participating fully and will invest billions in the coming years [Rijksoverheid, 2019]. But AI also has a dark side, namely when it is used irresponsibly. It conjures up images of fear of machines, and the algorithms they use, making humans superfluous. And even more frightening, that machines become so intelligent that they can make their own decisions which we do not understand and can impose their will on humans [Kurzweil, 2005]. It is for this reason that there is so much attention on the responsible application of AI. The Harvard study cited earlier gives a good picture of the themes on which we want to be able to test AI applications. Box 1 contains these themes.

Box 1: Eight key themes [Fjeld et al., 2020]

- **Privacy.** AI applications must respect the privacy of individuals, both in the use of data in developing these applications and by giving people who interact with these applications control over their data and the decisions that are made with it.

- **Accountability.** Responsibility for the effects of AI applications must be properly assigned and appropriate remedies provided.

- **Safety and Security.** AI applications must be safe, perform as intended and be resistant to unauthorised use.

- **Transparency and Explainability.** AI applications should be designed and implemented in such a way that monitoring is possible, including translating their operation into understandable output and providing information on where, when and how those applications are used.

- **Fairness and Non-discrimination.** There is a lot of concern about the bias that seems to be embedded in AI applications. Therefore, these applications should be designed on the basis of fairness and non-discrimination and their use should also be aimed at fairness and promoting inclusiveness.

- **Human Control of Technology.** Important decisions should always be subject to human review.

- **Professional Responsibility.** Individuals involved in the development and implementation of AI applications must act with professionalism and integrity by, among other things, consulting with appropriate stakeholders and considering the long-term effects of their AI applications.

- **Promotion of Human Values.** The goals we want to achieve with AI and the means we use to do so must be consistent with core human values that promote the well-being of humanity as a whole.

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Looking at the themes in the box 1, we regularly see the word 'individual' and 'human'. We state that smart AI is about building, implementing and using AI applications in accordance with these eight themes and the underlying principles. Principles in which people are central. Principles that guarantee human rights and at the same time give people the confidence that AI applications are there for the benefit of people. But how do we implement these principles correctly so that AI applications actually comply with them? Perhaps enterprise architecture can help.

Smart EA for Smart AI

Enterprise architecture (EA) is a discipline that is applied in almost every large organisation. An EA is seen as "a consistent whole of principles and models that gives direction to the design and realisation of the processes, organisational set-up, information provision and technical infrastructure of an organisation" [Wagter et al., 2001]. The beauty of this definition is that it contains the word 'principle'. So there is a discipline within organisations that draws up principles and supervises the enforcement of these principles. Enforcement is usually done by means of the comply or explain principle. If we consider AI applications to be part of the information provision, an obvious assumption, then EA seems perfectly suited to also supervise the correct design of AI applications, especially since, as we saw above, there are more than enough AI principles available. But it is not that simple.

The principles that an EA traditionally focuses on are mainly the hard aspects of business management. If people are mentioned at all, we are talking about roles or actors. What is often lacking in the application of EA is the human-centred perspective and the accompanying principles, as mentioned in box 1. In addition, the application of EA is often limited to aspects of the own organisation, while that organisation is part of an ecosystem with all sorts of stakeholders, including citizens and customers who are worried about not being discriminated against by algorithms and policymakers who are trying to keep a grip on the situation with

legislation and regulations. We need to move towards a form of EA in which an architecture is not only It is based on functional and non-functional requirements, but also on the smart AI principles such as transparency, non-discrimination, explainability and accountability. It must then also be tested from the perspective of all stakeholders in the organisation's ecosystem. This way of filling in and applying EA based on the Smart AI principles is called smart enterprise architecture. Smart EA thus has a more people-oriented and broader focus than traditional EA. This means that besides technical and business knowledge, enterprise architects must also have an understanding of how people interact with machines and of social sciences. For AI applications this is a must [Miller, 2016].

Methods for Smart EA

Whereas EA originally arose in the IT domain and later moved to the business domain, 'Smart EA' now extends it to the human domain. This implies that human values are taken into account when drawing up a Smart EA. Value sensitive design (VSD) is an existing design method based on the use of human values, which fits well within Smart EA [Friedman et al., 2008]. Box 2 contains a short explanation of VSD and values that can be used within VSD.

Box 2: Value Sensitive Design [Friedman et al., 2008]

Value-oriented design with VSD is done in three phases (not necessarily in this order):

- **Conceptual investigation.** Phase in which the prevailing values and their interpretation are determined.

- **Emperical investigation.** Phase in which the designer determines the conflicts between the values and resolves them with the help of the stakeholders.

- **Technical investigation.** Phase in which the translation is made from abstract values to their concrete technical interpretation(s).

Values that can be used within VSD:

Human welfare	Informed consent
Ownership and property	Accountability
Privacy	Courtesy
Freedom from bias	Identity
Universal usability	Calmness
Trust	Environmental sustainability
Autonomy	

Although VSD has been around for a long time, with the strong rise of AI, the interest in this method has increased dramatically. The VSD process is an iterative process consisting of conceptual, empirical and technical research, leading to the design of a specific solution. Within an EA process, a distinction is often made between different levels of abstraction, such as enterprise- or organisation-wide, domain or portfolios within the organisation and within these, projects or solutions. At each of these levels, principles and designs are made, which in turn provide a framework for the underlying levels.

Figure 1 shows how we have made the EA process smart by adding three elements:

- The principles that the organisation wants to apply to all its AI applications, in relation to the context in which the organisation operates. As indicated, there are many sets of principles that can be used as a starting point [Fjeld et al., 2020]

- The context relevant to each of the three levels. As argued, an organisation is part of an ecosystem. At each level, principles and designs need to be created that take into account the context of relevant

stakeholders in that ecosystem. Every architecture is highly determined by its context.

- Applying VSD at all three levels of architecture. At each level, designs are made in an iterative process in which values are explicitly considered.
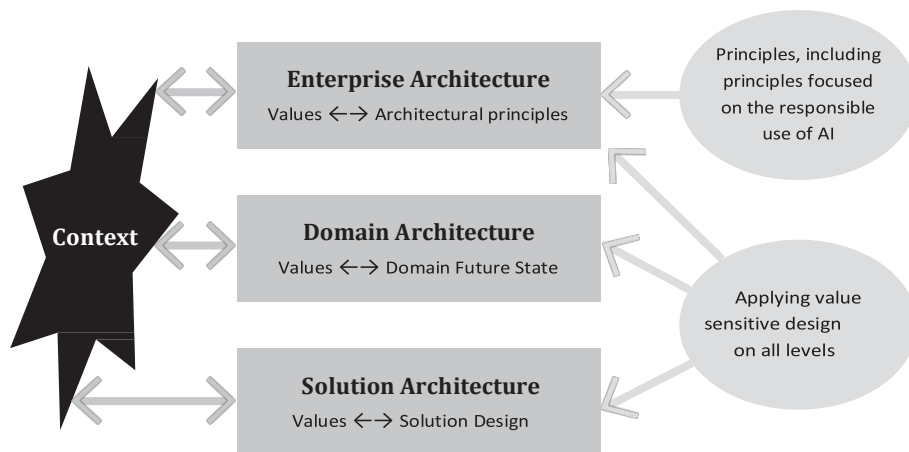
Figure 1: Smart Enterprise Architecture (Smart EA)

The use of VSD is not only applicable to AI applications. VSD is suitable for every technological development [Aldewereld, Dignum & Tan, 2015]. Due to the large and often disruptive influence of AI on people and society, the necessity of its use only increases.

Application of Smart EA in the financial sector

Let's use an example to illustrate how Smart EA could work. Imagine a bank that provides credit to SMEs. It wants to develop an advanced AI application based on deep learning to decide whether or not to grant a loan. One of the architectural

principles of the bank is 'explainability'. The bank wants to be able to explain in all its applications, and certainly to its customers, how a particular decision was arrived at. The bank has adopted this principle based on its mission of social and sustainable banking and the associated value of 'trust'.

In the design of the AI application, first the stakeholders of the AI application are identified, to what extent they are affected by the new application, and which values are involved. These can be higher level values such as trust and privacy, but also specific values for this AI application, such as preventing bias. At the same time, the bank needs to make quick decisions and control the time and costs involved in assessing loans. Next, stakeholders are interviewed to find out which values are most important. Once it is known which values are important and to what extent, the advanced AI application can be technically designed. Relevant architectural principles, such as explainability, are used. This can lead to design changes such as extra controls, sharing of information and making the operation of the AI transparent. The explainability that this ultimately ensures helps to protect trust in the bank.

The explicit use of values as referred to in VSD in combination with architectural principles can be a powerful tool to achieve more people-oriented applications. We therefore call on architects to apply VSD in their daily work, especially in relation to AI applications.

Conclusion

The goal of this article was to provide insight into how we can be more certain that AI applications are actually human-centred. Enterprise architecture is a discipline that can make an excellent contribution to this, but it must be a form of EA that incorporates the AI principles, that thinks strongly from the context and that develops applications from a value perspective as offered by VSD. With a more human-centred EA, we then realise more human-centred AI applications. In short, Smart EA for Smart AI.

It is necessary to design AI applications in a human-centred way: Smart AI.

Smart EA is a context- and value-oriented form of EA that enables Smart AI.

Smart EA ensures that organisations deal with the development of AI applications responsibly and humanely early on in the process.

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AI in 2020 - autonomous systems raise ethical questions

Rian van Heur

2020 is the year when systems, devices and processes become increasingly autonomous. This raises ethical questions. To what extent do we want systems to make decisions autonomously? And to what extent is the algorithm free of bias?

"Systems, devices and processes are becoming more and more autonomous, perhaps not yet specifically through cars on the road, but in agriculture and factories, for example," says Ron Tolido, Executive Vice President and Global CTO Capgemini Insights & Data, to *AG Connect*. According to him, artificial intelligence is here to stay. "Technology is definitely not entering another 'AI winter'. There are simply too many practical, real-world developments going on - enthusiasm no longer cools."

AG Connect asked experts which developments they see for 2020.

AI is seen as important, for the coming years, also confirms trend watcher and futurist Richard van Hooijdonk. "Everything will soon be done by robots and machines". It is mainly about tasks that can be repeated and are predictable. In a presentation during the Whizpr Technology Outlook he sketches a world in which everything is connected. He gives extreme examples, such as chips in the body that prevent you from getting ill or a brain chip that makes sure you learn another language quickly.

The fact that systems are becoming increasingly autonomous does raise ethical questions. Co-chairman Wouter Bronsgeest of professional association KNVI: "Technically, a great deal is possible, and technology is developing at a furious pace. Taking humanity further, and taking account of the human dimension, how do you do that? This requires a discussion about ethics, digital skills, new ways of training and staying in touch with your fellow man. The professional association is conducting this discussion under the heading Smart Humanity.

Van Hooijdonk mentions another ethical issue. "There are already employers who measure the productivity of employees and decide whether or not to dismiss them on that basis. The question is, do we want this?" Citizens wonder whether they can trust technology and that question is justified. Bias is a common problem in algorithms, says Van Hooijdonk. "Codes of ethics are needed."

Both Bronsgeest and Van Hooijdonk believe that attention should be paid to training good information professionals. "Do we still know what we are doing?" wonders Bronsgeest. "We need software to classify information for us, to repel cyber attacks, to build software, to drive vehicles.

People are losing contact with the 'work surface'. So what is needed? More investment in other ways of training, more and thorough knowledge of information technology and more attention to craftsmanship and digital skills and competences.

According to Van Hooijdonk, the emphasis is currently on training generalists, but the focus must shift to specialists. "We need brilliant players." He is talking about people who embrace change and see the new possibilities, but who also have the passion, curiosity and optimism to drive change forward. "Hard skills can be taken over by machines, it's now about how do you change the world and for that soft skills are important."

Source

Lean governance

by Daniël Smits

. . . .

In the ICT sector, new always seems better and we follow each other from hype to hype. A system that was the latest thing five years ago is quickly seen as 'legacy'. A euphemism for obsolete, or we should get rid of it soon. Besides, some things never seem to change. Blueprint thinking still prevails in governance.

Recent developments show that we are at a turning point. The human measure is emerging, also in the field of governance. This is high time, given the challenge of managing the ever-increasing ICT complexity.

Introduction

There are recurring hypes in ICT. Users (organisations) like to be taken by the hand by a supplier - certainly in view of the rapid developments in ICT. Suppliers then show them that a new product, development platform (low-code, no-code) or new technology (process mining, artificial intelligence) can solve existing questions considerably faster or more simply. In the past, 2nd (assembler), 3rd (e.g. C) and 4th generation languages (4GL) followed one another. Now low-code and no-code platforms are on the rise. In the past, RAD

and DSDM as successors to the waterfall method. Now they are Agile, DevOps and Lean (see table 1).

Hypes of the past	Hypes of the present
2nd, 3rd, 4th generation programming languages	Low-code, no-code platforms
Datawarehouse and Business Intelligence (BI)	Big data, data/process mining
DSDM, RAD	Agile, DevOps, Lean

. . . .

Table 1: Recurring hypes: past and present

The patterns of new hypes seem to return every time, but always in a slightly different guise - and with improvements, of course. After all, much more is possible with technology these days. For example, systems can process more and more data. This makes solutions possible that were previously unthinkable. Think of developments such as big data, artificial intelligence and video manipulation. The Internet has also made a lot possible: thanks to increasingly far-reaching standardisation, connecting systems has become a lot simpler.

If a product can be delivered ready-made or highly standardised, it can easily be produced on a large scale. This is what consumers experience in the services of the big five (Google, Facebook, Microsoft, Amazon and Apple). Employees increasingly expect the same from the information provision of the organisation they work for or cooperate with.

In organisations, things usually work differently. The specific characteristics of the business processes, legislation, but sometimes also simply the requirements and wishes of the employees who have to work with it, ensure that out-of- the-box solutions often have to be customised. Automating complex processes with IT is not easy and there is no magic bullet. And then it becomes just human work again.

In short, it is time to accept that developing and implementing information systems in large organisations is not easy, but takes a lot of work. A panacea does not exist. Sometimes it is possible to choose a standard solution. This solution has then been realised elsewhere with a lot of effort. But in cases where specific requirements and wishes of an organisation must be met, it is especially important to carefully determine what is really necessary and what can be omitted. This also applies to the controls.

Governance and Lean governance

Determining what is really needed, for the customer and for the organisation, is the core of Lean. Governance is mainly internally focused. Lean governance is internal and external. So, in addition to guaranteeing the continuity of an organisation, the value for the customer is also important. What delivers immediate value is usually clear. But something that does not provide visible value for the customer may still be necessary. An example of this is complying with legislation and regulations or having a payroll administration. What does not contribute can be left out (waste). Lean applies to the entire organisation. Applied to governance it looks as follows (see table 2).

Question	Governance	Lean governance
What delivers value?	Performance	Performance Delivering customer value
What is needed for the continuity?	Performance Complying with laws and regulations	Performance Complying with laws and regulations Delivering customer value Value for the organisation
What does not contribution?	This question is often forgotten	No value-added activities (waste/waste)

. . . .

Table 2: Lean governance

In many organisations, the current governance is described in detail with a listing of the organisational structure, the governing bodies (e.g. the executive board, a divisional MT or an IT board) and a good number of RACI charts. These kinds of tables indicate exactly who is responsible (R) or has final responsibility (A) and who should be consulted (C) or informed (I). This way of organising is a consequence of the widely spread tendency to design and implement organisations in a rational way. The so-called blueprint thinking in terms of De Caluwé and Vermaak [2004]. Yet there is considerable waste here. Have you ever come across a director who reads such a report to know what she or he may or may not do? Never or only in very exceptional cases. More importantly, there is a crucial omission: the human factor is hardly taken into account.

How should it be done? This will be discussed later, but for now I will explain the human factor.

The human side of governance

Attention to the human side is also reflected in emerging methodologies such as Agile and Lean. The Agile Manifesto puts people and their interaction above processes and tools. An important principle of Lean is respect for others. The philosophy of Toyota's Lean Production System states that the culture must support the people doing the work [Gao & Low, 2014].

Another example is the attention paid to ethics in the application of artificial intelligence. Attention is even paid to this in legislation. The AVG, for example, contains a ban on automated decision making and requires that automated decisions based on algorithms must be independently verifiable and transparent.

The human side is also being further developed in practice frameworks for governance. Where "culture, ethics and behaviour" in COBIT 5 [2013] was still seen as an *enabler*, in the most recent edition it is included as a component of the governance system [ISACA,

2018]. Such frameworks are often originally process-oriented. However, human behaviour cannot easily be captured in processes and structures.

In other words, the problem is that the human side is now recognised, but little guidance is given on how to integrate it into decision-making, working methods and processes.

Further concretisation is needed

Methods such as Agile and Lean recognise the importance of human behaviour. In COBIT, the expectation is 2019even expressed that it must be possible to formulate desired and undesired behaviour, including the corresponding maturity levels of capabilities. The question is whether this will succeed as long as practical frameworks in IT mainly apply a process approach. The mechanisms on the soft side are hardly process-oriented. In recent years, the process approach has therefore been more or less abandoned (e.g. ITIL v3 in 2007) or supplemented (e.g. COBIT 5.o in 2012 and BiSL Next in 2017). The question is whether this is sufficient. The frameworks themselves have not become any simpler.

The ISO 38500 is a welcome exception in this respect. So far, this standard does not contain much more than six principles: responsibility, strategy, acquisition, performance, compliance and human behaviour. As such, the standard is not very concrete, but the inclusion of human behaviour in the basic model of the standard does offer the prospect of arriving at a practical standard.

But without further concretisation, a framework still provides little support for the organisation in practice. This impedes the implementation, but also the learning capacity of an organisation to achieve an ever-improving organisation of governance. However, it is certainly possible to pay attention to the soft side of governance. Recent research provides leads for this [Smits, 2019].

How then?

The design of the governance thus requires a mix of hard and soft governance. Hard governance answers questions about the structure and processes. For example, how an organisation is split up into units: is a divisional structure preferable or do we prefer working with regional offices? The composition of the management boards (CxOs), the units and departments, the MTs and the governing bodies. In short, what does the organisation chart look like? So far, no different from what we are used to.

A pitfall is to then give everything further shape in detail in RACI charts. It is better to formulate some global frameworks and leave the further interpretation of these frameworks to the responsibility of the managers involved. Just like in the rest of the Lean philosophy, you may expect that the managing teams with common sense, autonomy and within the frameworks do what is good for the customer and for the organisation. After this, it often stops. The soft side is largely skipped. It is, however, just as important.

Which focus areas are relevant for soft governance?

Research shows that for the design of soft governance, attention must be paid at least to the following six focus areas: continuous improvement, leadership, participation, mutual understanding and trust, the organisational culture and the informal organisation [Smits, 2019]. Four of six focus areas are part of a maturity model, two in context.

This provides the basis for a practical framework for the design of hard and soft governance. With the help of this framework, the 'how' question can be answered in a much more concrete manner. We will return to this practical framework in the final section.

How can we improve soft governance?

By using a maturity model, it is easy to determine which improvements are possible. If the current maturity level is known, the model helps to show the improvement step. To illustrate, here is an example of each of these focus areas. It is assumed that the current situation for an organisation is always the lowest maturity level. A practical example is always given. We will return to both focus areas in the context below.

1. Continuous improvement

Continuous improvement is at the heart of Lean: the pursuit of perfection. But also in many other methods such as Kaizen and Agile. Determining what has value for the customer and what is needed to achieve this, and doing this better and better. This also applies to governance. The real value of Lean is in the pursuit of perfection through continuous improvement and the elimination of waste with a focus on the customer's wishes. An underlying principle of continuous improvement is that all employees can contribute. However, many organisations today are focused on the conviction that an organisation consists of thinkers and doers (the so-called *Taylorism*). In order to bring about a lasting change in behaviour with regard to continuous improvement, efforts are therefore also needed to unlearn old routines. This example also shows that this is sometimes a principle with far-reaching implications. A first step on the maturity ladder here is the formal agreement that an organisation will set up a system of continuous improvement that covers the entire organisation.

2. Leadership

The first level of leadership maturity in Collins' terms [2001] is the "capable individual" who contributes to the organisation through talent, knowledge, skills and good working practices. This applies to all employees, not just managers or board members.

In order to grow into maturity, this employee must grow into a member who contributes to the team. This is a prerequisite for advancing to the third level of competent manager or fourth level of effective leader. The growth step from competent employee to contributing team member is often skipped. Employees make promotion because they are extraordinarily competent without paying sufficient attention to the social skills of the employee in the different teams and not only in the hierarchy.

Employees who have above-average competence and skills to work together efficiently in a group setting are suitable for an executive or managerial position in the hierarchy of a Lean organisation. Instruments for transforming an organisation into a Lean organisation include selection, training or 360° feedback. It is also essential that past "mistakes" are repaired. The latter is often neglected.

3. Participation

The first improvement step in the maturity of participation, after ad hoc, is the introduction of mutual coordination. It must be determined for which subjects coordinating measures or roles are desirable. These can be structural elements such as intermediary roles between units (e.g. account managers), but also soft subjects such as cultural differences between countries. For example, it was sometimes said of Germany that the hierarchical distance is greater than in the Netherlands. Research by Hofstede in the 1980s and later showed that the Netherlands and Germany are very close to each other [Hofstede, 1994]. Statements about cultural differences per country are often of little use. The culture can differ considerably per organisation or even per organisational unit. It is therefore better to measure the organisational culture and act on it (see also the section 'The context' below). At a later stage, as soon as it appears that teams are sufficiently autonomous, coordinating measures can also be phased out.

4. Mutual understanding and trust

If the employees in a team trust each other, it all works a lot easier. This sounds like an open door. The basis for this is the organisational culture (more about this later). This includes shared norms and values, for example showing mutual respect and appreciation. But even if the norms and values are in line with each other, conflicts sometimes arise from a lack of understanding. For the management of an organisation, a common strategy and vision are crucial. Therefore, the next improvement step formulated in the framework is that the members of the team have a general understanding of each other's current goals and vision for IT.

The context

The context includes at least the organisational culture and the informal organisation. To measure organisational culture, the model of "competing values" developed by Cameron and Quinn [2005] is used, the accompanying questionnaire is one of the most widely used questionnaires to quantify an organisational culture.

In a clearly hierarchical organisational culture, governance may rest to a greater extent on hard governance. For example, in a clan organisation, a department or division behaves like a family (the clan). For governance, the clan leaders play a more important role. Here, the clan leader may have both formal and informal positions.

This kind of knowledge must be included in the design of the governance. A mechanism that can work well here is an advisory board or expert group in which the informal leaders are involved in decision-making.

Framework for Lean Governance

By taking into account the human dimension in the design of governance, not everything depends on the talent, knowledge, skills and good practices of the managers and directors involved. Such a practical framework helps organisations to grow and saves directors time which they can spend on other tasks such as making the right decisions.

On the basis of a baseline measurement you can determine where you stand and in the framework you can see which improvement actions are best suited to the current maturity level of the organisation. The aforementioned promotional study was carried out because such a framework does not exist and there is a need for it in practice. This resulted in a scientific framework with an accompanying measuring instrument.

Together with KNVI, the ISO 38500 committee and NEN, we are looking at how to achieve a practical standard that will help organisations measure, shape and improve human governance in an organisation.

- The soft side of governance is at least as important as the hard side.

- Implement what is really necessary for the control: no more and no less.

- Governance must also fit in with the organisational culture and infor- mation.

- A practice framework helps to grow as an organisation.

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Satisfied or inspired?

Wouter Bronsgeest

The KNVI is working hard on Smart Humanity, an umbrella theme that we are using to draw the attention of professionals both inside and outside the association. But also the attention of buyers of our professional (information) products.

Some information professionals love it and build with it, others have to get used to the idea or have never read about it. Just as some employees of technology companies are fast pioneers, and others just do 'their thing'. Or as some of the information professionals are busy learning, sharing good practices and engaging in intervision, and others are working on the basis of previously acquired knowledge and are less diligent in keeping up to date. Or, finally, as some professionals are members of the KNVI or another professional organisation, and

others will pass it by.

That difference in enthusiasm has occupied me for some time. Bas Kodden indicates in his publications and in his master class on 'Digital Leadership' at Nyenrode that satisfied employees are great, but that you can only really make progress with passionate employees. On content, on effort and commitment, on intrinsic motivation. That appeals.

Membership of KNVI brings me into contact with Marietje Schaake, chairman of our Advisory Board. Or in conversation with people (i.e. members) who are working on the Dutch Digital Delta. Or with people in Europe or even globally who have the ambition to improve the competences of professionals. This motivates me, and I try to include colleagues in all the opportunities I see. That motivates me, and I try to include my colleagues in all the opportunities I see. Because: technology is less and less of a bottleneck and makes more and more possible. Recently I saw what it meant for a young girl to be able to use two bionic arms. Technology that can totally change a life in a matter of seconds.

changes. At the same time, this week a picture of my charity was taken off the net by Facebook's ethical algorithms. I received a digital warning for publishing a photo from a developing country. A photo that shows how people live on the other side of the globe, and who are denied the chance to use technology to make their lives substantially better. Because we need that dirty mine and the raw materials to make our lives better.

our chips. The two sides of one technology coin.

Sometimes technology is so beautiful in its application, and sometimes it is not. In any case, I remain intrinsically motivated to help put technology to the best possible use. Because so much more is possible. At KNVI we are satisfied when colleagues and professionals come along to the professional organisation. At KNVI we are inspired when colleagues and professionals join in!

Source

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3
Smart
Citizen

Where can you best see whether your information facilities do or do not meet the requirements of our time? Or to the requirements of various users who all want access to information? Within organisations? Certainly. In public life, in society, among citizens? Yes, definitely! That is why it is so important to know what a 'smart citizen' is, and how we facilitate her and him with facilities.

If we take a closer look, we see that smart people are often not as skilled, and not at all as smart as we think (or wish) they were. And we see that many even have great difficulty keeping up with all the (technological) developments. Knowing how to use a mobile phone does not always mean that someone is also digitally proficient. In other words, citizens have a step to make in becoming more digitally literate - and sometimes they need extra help. And information professionals who support them in giving access to that information, or who create the facilities that give access to information, they too have some work to do. The question is, however, whether these two worlds will come together soon enough...

Smart people also lack digital quality

by Victor de Pous

. . . .

If we take stock of the legal situation, we see that digitisation is constantly leading to more legalisation. There is no escaping the enormous amount of legislation and case law - but also general conditions, contracts and disclaimers - in relation to information technology and its function: automated data processing.

This trend jeopardises the intended legal certainty and the creation of trust. Due to the cascade of digital rules, the risk has grown that rules will contradict each other or that their elaboration will lead to uncertainty. In addition, the timely introduction of ever new regulations, euphemistically stated, is a constant challenge, while the number of legal standards and their individual complexity, such as the General Data Protection Regulation, creates additional problems. To this we must now add the legal securing and further elaboration of social and ethical standards. Despite all the legal frameworks, the individual is still in a tricky position. This is due to the ever-increasing dependence on the availability of information and communication technology, the diverse mix of digital threats and, above all, the lack of digital quality, which should be at the basis of every modern society.

Vitality and vulnerability

Our society has been under pressure for years. Some important social issues are directly related to digital technology. First of all, we point out the fundamental dependence of ICT and ICT suppliers, especially on the American big company with its monopoly or oligopoly. In terms of policy, there is a remarkable dichotomy. Formally, our government and the European Commission distinguish, on the one hand, organisations from the vital infrastructure such as water, energy and, for example, telecommunication companies and the national government. On the other hand, it concerns the part of the private and (semi) public sectors which are not considered vital.

However necessary this separation may be, we must not forget that both categories are today equally dependent on the availability and proper functioning of ICT. In the vital category, the vulnerability of the process exceeds that of the organisation itself, so that in the event of a failure, there could be serious social disruption and a threat to national security. The importance of digital technology and data processing for the individual, the organisation and society is, however, without a doubt, an accomplished fact. On this basis alone, we can safely assume that the digital sector is generally considered to be socially vital, and this also applies to all kinds of digital processes in or with other sectors - directly and/or indirectly.

Other digital issues in society concern, for example, structurally insufficient digital quality and companies that deceive us. Furthermore, the more notorious threats from the corner of computer crime and foreign 'state actor' are increasing. The law can also threaten - with 'deterrent' sanctions of course, which legislators are using more often, but also because of the size and complexity of the regulation. Can we reasonably still expect SMEs to play by the digital rules? Artificial intelligence is also a threat, as is the use of facial recognition and predictive algorithms. Meanwhile, the notion is gaining ground that the coming decade will be decisive for a

new world order, based on information technology and data. ICT is becoming serious - perhaps superlatively so in the post-COVID-19 world where, according to some, 'remote' is becoming the new normal.

Defective software

Damage caused by faulty computer programmes is usually of a different nature than the catastrophic consequences of errors in the flight control software system MCAS of the Boeing 737 MAX, which caused two planes to crash. Nevertheless, this is a large, general and global problem: failing information systems due to defects, but also due to human errors or, for example, power failures. However, the problem is not sufficiently widely recognised. One exception is ENISA, the European Agency for Network and Information Security, which points out the painful consequences of digital deficiencies in an annual study in 2017. For example, telecommunications failures in the European Union are mainly caused by (i) software errors and (ii) faulty hardware and not by hackers or cyber saboteurs, although computer crime is undoubtedly also an exceptionally large problem. The weather also appears to be a relevant factor (power outages). Climate change will cause an increase in telecom failures.

New liability rules

Our government is worried. The coalition agreement 2017-2021 of October 10th 2017 shows that the government wants to stimulate companies to make safer software through a new, special form of legal liability. Note that the measure is limited to the security aspects of computer programmes. At the end of 2012, Nederland ICT (now NLdigital) puts the blame for the use of 'unsafe software' - mainly - on the client. It is possible to develop in a safe way, but if customers do not choose this, nothing happens, according to the sector organisation. Remarkable.

Five years later, the ECP Platform published a twenty-brick action plan. Number 16 reads: "Security in the chain of suppliers is realised by a 'road map' for secure software. Vulnerabilities in software will be resolved through self-regulation and cooperation between users and suppliers." The Rutte III cabinet thinks differently about this. Not self-regulation, but legislation. Rightly so, but it remains deafeningly quiet in The Hague.

The state of digital security

If you want to know the main outline of the state of digital security, we refer you to co-founder Ronald Prins of security company Fox-IT. During the national privacy debate organised by Bits of Freedom on March15th, 2018, he stated that you can compare software with an 'apartment building where all the windows are open'. If you close one window (by 'patching' a *zeroday leak*), the rest simply remain open. A disconcerting qualification.

In any case, it is certain that the sector does not produce secure computer programmes on its own and apparently needs an external stimulus, such as a legal threat, in order to improve this extremely crucial product aspect. Depending on how it is worked out, the specific regulation which the government is proposing will shake up the market considerably and subsequently cause implementation problems. Particularly in the case of open source software, partly because it's difficult to determine the code writer in an international community of contributing organisations and individual programmers. Moreover, open source contributors do not consider themselves liable for the consequences of their diligent work.

Unreliable

Digital regulation aims to provide legal certainty, create trust and facilitate modern business, but also to provide additional protection for consumers as economically weaker parties. In a EU perspective, it is also about unifying the digital market. It must become easier for both entrepreneurs and consumers to trade across borders.

Despite all legal regulations, the digitising society is still partly unreliable and unsafe because of threats that are permanent and continuous. One of the consequences is that people and organisations cannot always be online with confidence.

Although the tax benefits issue shows that a government organisation can make far-reaching mistakes, while there is also concern about the new digital powers of the police and judiciary ('back hacking') and the intelligence and security services ('Schleppnetz fahndung'), in principle the serious digital threats do not come from the Dutch government. In addition to faulty information technology, computer criminality and the actions of state actors, it is companies that, intentionally or not, act in violation of digital and other legal norms that pose a threat to people and organisations, and sometimes to society as a whole. Cambridge Analytica, for example.

Geopolitics

In the *Cyber Security Assessment Netherlands 2019*, the National Coordinator for Counterterrorism and Security rightly asks attention for the notorious dependence on ICT that makes us vulnerable, even across society. His broader view, which goes beyond espionage and criminality, is striking and praiseworthy. The Netherlands is (also) "dependent on a limited number of providers and countries, which makes us vulnerable to their (changing) intentions", pointing to the US and China. We stated earlier that almost all our personal digital equipment (PC, lap-top, smartphone) runs on American system software that is accessed with a ditto e-mail address. According to estimates, more than 90 per cent of data from Western countries is located in data centres in the US, while Dutch data centres are also increasingly in US hands. Foreign dependence in connection with changing geopolitics as an increased digital threat.

Controversial trade practices

Deviant commercial behaviour by the tech sector, as is increasingly being asserted today, does not only trace back to the large American companies such as Amazon, Facebook and Google. We see all kinds of ICT companies and other entrepreneurs, also from other countries, violating the law with digital products and services. First and foremost, the fundamental right to the protection of our privacy. Apps that do not turn off location registration even though the user has made this known through the setting, websites that install tracking software without permission, shop owners who surreptitiously engage in WiFi tracking of customers and passers-by on public roads, and so on. The list is long and legal incidents are the order of the day.

Another example. December 30th 2019, the Authority Consumer & Market (ACM) imposed millions of fines on KPN, Tele2, T-Mobile and Vodafone for the incorrect and incomplete information about their offers on their websites for consumers. For the record, inadequate (pre-contractual) information is not only detrimental to consumers, but can also lead to unlawful competition.

Modernist tunnel vision

Practice shows that entrepreneurs, large or small, foreign or of Dutch origin, sometimes focus on the interests of the shareholder with a remarkable tunnel vision. In doing so, they fail to take into account, or insufficiently consider, the compulsory legal framework, business ethics and social aspects of their actions. ICT plays a dubious double role here: a means of creating economic value (preferably as quickly as possible) and a means of violating legal standards. Or to put it another way, using digital cheating to gain market share and generate turnover. Incidentally, lawyers are also involved in this.

The same analysis applies to the use of sham software by car manufacturers. Deception of the testing institute, dealer, buyer and society as a regular business policy with the sole purpose of increasing shareholder value. This is therefore not a modus

operandi of organised crime, but a strategic choice of the upper world - reputable and listed companies.

Another case in point. Thanks to its strategic choice of a legal mix of open source software (Android core) and software products operated under other types of licence (Google Apps), Google has gained a pro-80 cent monopoly on the immense world market for mobile operating systems over the past ten years. In doing so, Google successfully prevented phone manufacturers with an Android version not approved by Google from pre-installing the Google apps desired by users. According to the European Commission, the latter practice violates EU competition law. The Commission therefore imposed a fine of 4,34 billion euros on the tech company on July 18th 2018. However, a fine does not reverse the monopoly (also of Google Search).

Cybersecurity

Nowadays, computer security mainly involves the composite response to the digitally-related threats posed by traditional malicious parties (and less to unintentional, uncertain incidents). Think of individual or organised criminals, secret services of certain countries, including China, North-Korea, Iran and Russia ('state-ac- tower') and the accidental student who carries out a DDOS attack. Despite security as a diverse legal requirement - whether or not complemented by an obligation to report a breach - and repeatedly tightened criminal law and procedure, this category of 'digital threat' is an ever-growing social problem. The municipality of Lochem, the University of Maastricht and GWK Travelex have also experienced this personally. The Public Prosecution Service expected in 2016 half of all crime in 2021 to be ICT-related - a paradigm shift. Cybersecurity is not an easy race. A series of protective measures requires continuous implementation and regular updating. This is no mean feat, even apart from crime. For example, the lion's share of reported data breaches in the Netherlands are caused by human error. Note that the European Commission has not yet taken a decision on this matter.

The European Commission is unable to pick the low-hanging fruit: a minimum level of technical security in IoT devices is not yet prescribed by law. A missed opportunity.

Apparent safety

In addition, cybersecurity has a limited focus, resulting in false security. The fully necessary security measures to make people and organisations digitally (more) resilient against the illegal practices of criminals and spies hardly offer any protection, if any, against entrepreneurship, where the basic principle of acting in accordance with legislation and regulations is subordinated to commercial objectives. After all, those who limit themselves to the cybersecurity measures that are sufficiently well known, are not protected against the regular entrepreneur who supplies faulty digital products and services, violates privacy laws, supplies incorrect or incomplete information, uses fraudulent software (i.e. with hidden functionalities to mislead) or abuses a position of dependence or other forms of power, for example.

Finally

Our fundamental dependence on ICT and the diversity and intensity of digital threats, together with the structural quality shortage in the delivery of digital products, lead to an awkward and undesirable concurrence, which inhibits every organisation and individual, as well as society as a whole. When all is said and done, no one can reasonably participate freely and uninhibitedly, let alone develop digitally without hindrance. Living as optimally as possible in a strongly digitalising society requires a lot from people, such as constantly taking protective measures, acting purely qui-vivially and at the same time remaining constantly up-to-date. This is only possible with sufficient analytical skills and self-discipline - no mean feat.

- Our fundamental dependence on ICT, the range of continuing digital threats and the structural shortage of quality in the delivery of digital products constitute a very unfortunate set of circumstances, which in addition to society as a whole, also inhibits every organisation and individual.

- This social issue means that ICT is more than ever about choices. Sovereign states, regions and for example municipalities each have, to a greater or lesser extent, the power to make policies and regulations that reflect what type of digital society the jurisdiction in question would like to be. Independently, in other words. For example, a government organisation can prohibit the use of face recognition techniques by its own services or ban the use of predictive algorithms. Entrepreneurs, whether they are ICT suppliers or user organisations, can in turn make clear choices, starting with respect to regulatory compliance and shareholder value, but also about ethics and society.

- However, the choices start with the quality of digital technology in general and software code in particular. Seventy-five years after the start of commercial electronic data processing, errors and defects are the order of the second.

- Above all, people must become smarter. The digital society asks more of us compared to the 'analogue' society.

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Face Off

Wouter Bronsgeest

Facial recognition: in a short space of time, two reports that look at facial recognition technology from completely different perspectives describe. Two messages that also leave me with an uneasy feeling.

This is because of the underlying and still unresolved ethical issue for society. An example of an issue that we should discuss more often as colleagues.

The first example is about a Chinese man wanted by the government for economic crimes. Now the whole world knows about it. This man thought he could attend a concert of the Hong Kong pop star Jacky Cheung without any problems, together with more than 50,000 other fans. If you stand 90 kilometres from your home to listen to the 'God of Songs', you are arrested. The technology is either deployed outside the concert hall, or possibly inside the hall itself.

Probably in combination with software to monitor the crowd. Technology for recognising faces in the dark is already more than three (!) years old. The question is, of course, how far such technology can be used, whether everyone can be 'seen' by software without knowing it. If a Chinese policeman looks at you with one of those glasses from *The Matrix*, you already know: you are being scanned. These glasses are made in China and cost around 1,000 euros. Of course, what is extra interesting is which information professionals have worked on this technology and the algorithms for face recognition. Colleagues of ours are working on the implementation. They are partly responsible for the result and the effect.

The second example is about New Delhi, India. The police could 3,000 missing children in four days by analysing a file of 60,000 missing children and photographs of 45,000 children in shelters. An approach that can help trace more children. To give an idea of the problem:

In the period 2012 to 2017, 240,000 children were reported missing. In New Delhi alone, about 10 children disappear every day. Some disappear, some are kidnapped. Bizarre figures in the year 2018. The use of technology here helps in finding these children, but also in exposing inefficiency and even bureaucracy. For example, many homes were not yet able to share their photo material and many homes lagged behind in raping the numbers of children taken in. Here too, information professionals have played a role in the ICT facilities and their contribution to the result and effect.

The question is, of course, how to deal with this 'bleeding edge' technology. Where is the ethical boundary? And if this is the beginning, where will we be in five or ten years? I do not know. Society is being transformed by technology, and with it the role and place of humankind. Some people expect robots and algorithms to take over the world, others see a wonderful fusion of humans and cybernetics, while still others see ICT as a tool to bring balance to society and for the sustainable use of our planet. KNVI calls this development Smart Humanity. Let me turn the question around: what is your vision of these dilemmas?

Source

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Participating in the digital society - local and at scale

by Piet Boekhoudt

. . . .

The worldwide spread of the coronavirus and COVID-19, and the related restrictive and far-reaching government measures, have led to a huge increase in online activities in a short space of time.

We use the internet for contact with family and friends, for our news, for shopping online, for learning online, for helping our children at school, for relaxation, for managing our (government) affairs online and for our work. It is safe to say that digitisation has prevented our society from grinding to a halt.

The corona crisis also exposes important societal challenges for further digitalisation of our daily lives. For example, the accelerated digitisation of the workplace contributes to the digital skills of those in work and potentially puts those not in work at a disadvantage. Think of the unexpectedly fast adoption of video conferencing, webinars and video calls and the expected breakthrough in the way we organise our work (more from home). And the skills needed to do so. Various studies show why digital inequality is problematic: the Internet reinforces existing forms of inequality in, for example, income, education, health and participation. An inclusive society is therefore not

possible without a targeted policy to prevent the negative consequences of digitisation. In this contribution, we outline a solution strategy that can contribute to an inclusive digital society.

Smart user Nellie

The digital society interferes with people's daily lives, both those who can keep up and those who cannot. Although I have known this professionally for a long time, I only realised it when I heard Nellie's story. Her husband always did the administration at home, including the tax return. A few years ago he suffered a TIA. Nellie had to take over the administration from him and soon found out that she had to learn to work better with computers and the Internet. She was very reluctant to do so, but when she was pointed to a course at the local library, she decided to take a chance. She found it exciting and was afraid that she did not have sufficient computer knowledge. But she found that she was not the only one and she did not mind. Later, at a conference, she proudly told us that she was now filing her tax returns online herself, that she felt much more confident and that she had overcome her digital anxiety. She had also bought herself a smartphone and could whatsapp with her twin sister and children. She wanted to tell everyone how important that feeling of digital self-confidence and self-direction is to her.

What touched me most about her story was the moving way she told it. I realised that it had changed her life and made it richer. It made Nellie feel good. And it made me feel good too, it even gave me goose bumps. I now realised that our professional work affects the lives of others on a much deeper level than just learning how to use a computer and the internet.

The story of 'smart user' Nellie stands for that of many others who have been able to take the step to participate in the digital society. But it also stands for the millions of Dutch people - vulnerable target groups such as the elderly, the illiterate, newcomers and those with a low level of education - who have not been able to take the first step into the digital world.

They run up against barriers to making good use of the Internet. Think for example of complex (linguistic) digital in- formation and services, poor accessibility of websites, fewer opportunities to gain experience and limited access to (mobile) internet.

Being able to use a computer and the Internet has become increasingly important for people to be able to participate (and remain) in society in many ways. In other words: if someone is able to take advantage of the possibilities of the Internet, this offers him or her better opportunities for full participation in society.

Participating by profiting from internet use

The report 'Digital inequality in the Netherlands anno 2018' by Alexander van Deursen (University of Twente) defines being able to profit from internet use as "that someone is able to obtain (positive) results from his internet use" [Van Deursen, 2019]. This involves the following categories of outcomes:

- Economic: income, property, education and work, ...

- Social: identity, being part of a group, ...

- Cultural: being a member of a network or association, ...

- Personal: health, entertainment, well-being, ...

Van Deursen concludes that not everyone benefits equally from the inter-net. The higher socio-economic class gets the most out of Internet use. The part of the population that potentially benefits the most from internet use, benefits the least from it, for example in terms of work and education. There are many causes and circumstances that can be pointed out for this. Van Deursen systematically breaks this down using the 'Process model of Internet access' (see figure 1).
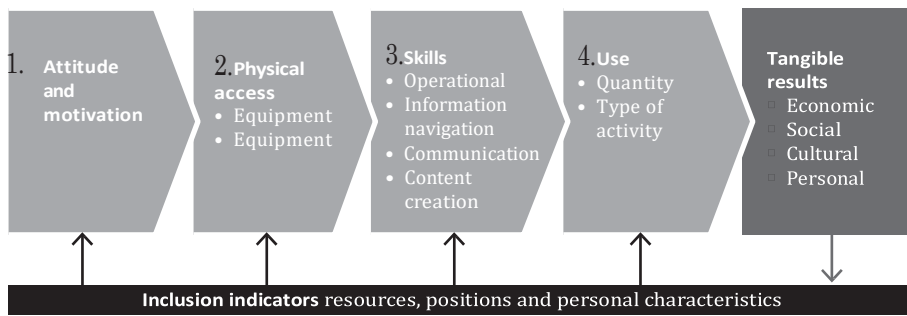
Figure 1: Process model of Internet access

Whether a person can achieve tangible outcomes from Internet use depends on (1) her or his attitude and motivation, (2) whether she or he has the resources or access to them, (3) whether she or he has sufficient Internet skills, and (4) how and to what extent she or he uses the Internet.

The model is causal and sequential. For example, skills are not learned if there is a lack of motivation and suitable equipment is not available. Each stage is necessary for the next stage and each stage is necessary to achieve a tangible outcome.

In addition, each stage affects 'inclusion indicators', such as income, wealth, having a social network, household composition, education, age and gender. The tangible outcomes in turn affect the inclusion indicators.

Development of digital skills in context

To be able to keep up in 21st century society, it is therefore important for people to have sufficient digital skills. However, this is about more than the internet skills in Van Deursen's model. Digital skills are often referred to as 'digital literacy', i.e. media literacy, information literacy, basic ICT skills and *computational thinking*. In the

interesting book *Digital Intelligence - What you have to know, learn and do in a digitally connected society*, the authors Hans Hoornstra and Wijnand van Lieshout show by means of the 'Columbus model of 21st century skills' that digital skills will be subject to constant change [Hoornstra & Van Lieshout, 2019]. The authors use the metaphor of the voyage of discovery of Columbus and call it 'driving skills'. However, other skills are needed to be able to use digital skills. These are the so-called 'supporting' and 'connecting' skills. Bearing skills are a condition for lifelong learning and are about depth and personal development, for which agility, entrepreneurship, creative thinking and critical thinking are needed. Connecting skills are about communication, cooperation, social and cultural skills and dream thinking. These are the skills that enable us to connect with the complex and dynamic world around us.

Over the past few years, Stichting Digisterker has developed a vision that already (partly) applies and combines the aforementioned models in educational programmes focusing on digital skills. The motto is 'Digisterker: Dare - Do - Participate'. This motto fits in nicely with the three categories of skills in the Columbus model. In this vision, digital skills are developed in a context that is relevant to people. For example, being able to arrange one's own affairs by learning to work with the digital services of government organisations. It is important that people are helped to dare and want to take the step to get started. Intrinsic motivation and reward are important here: people must have a certain need or experience a sense of urgency and they must be rewarded for taking the step that is difficult for them. This reward consists of, for example, a strengthening of their self-esteem and self-confidence, the feeling of being in control and of 'I'll get by'. This is the feeling that makes people like Nellie feel more connected to their surroundings and to modern society.

Development of inclusion policies - local and at scale

How can we ensure that more people, like Nellie, feel digitally connected to society? I think this requires an accessible support structure, on the one hand for (permanent) educational offerings and on the other hand for personal help and service. Low-threshold has various sides to it: locally present and close by, in a (public) environment where people can feel welcome, where they can easily use computers and the Internet and where they can practice at their own level and make digital mileage. All this in a non-formal or formal educational setting and under the guidance of qualified and understanding teachers and tutors. Libraries and schools (for young people) are the appropriate institutions for this. The library, for example, has good coverage nationwide and is located with 800 buildings less than two kilometres from the citizen. It is not for nothing that libraries have been able to set up a National Basic Skills Programme: libraries are organised nationally and are embedded in the local social domain. This offers the library great strategic opportunities and possibilities for a contemporary interpretation of its social function.

Within the boundaries of their social mission, libraries are developing new service concepts. A good example of this is the Digital Government Information Point. The Digital Government Information Points are there for people who have difficulty with digital services and have questions about doing digital business with the government. In this, libraries work together with the Manifestgroep, a partnership of national public service providers such as the Tax and Customs Administration, the SVB, the CAK and the UWV. This shows how a national approach with a local effect works. The national scale offers opportunities for local scaling up, which brings the help close to the target group of an estimated 4 million Dutch people.

Because of the complex interaction of the phases, Van Deursen argues for inclusion policies that address all phases of Internet access simultaneously. How this should be done in practice is not yet clear.

This is not easy, because digital inclusion cannot be the exclusive domain of, for example, a single government body. Nevertheless, we do see coherence emerging in Dutch government policy that can support such an integrated approach. The establishment of the Digital Living Alliance (www.digitaalsamenleven.nl) is an example of this. The importance of this is that a network around digital inclusion is developing, that movement is created and that the subject of digital inclusion is put on the political agenda. A follow-up to agenda-setting is the development of national policy, with the idea of a Ministry of Digital Affairs responsible for the broad social impact of digitisation.

Conclusion and recommendations

We started this contribution with the observation that the corona crisis reveals a challenge of digital inclusion. Everyone sometimes feels that they belong to the target group of non-digits, for example because they cannot keep up with developments. People with 2first-century skills can regain that leg. But vulnerable target groups in particular are in danger of missing the boat completely, because they do not have these skills, they are more likely to fall further behind and cannot (any longer) benefit from the facilities that are essential to them. This leads us to the following three recommendations:

- Beware of the counterproductive effect of digitalisation on vulnerable target groups.

- Use and strengthen aid structures, from a national approach with a local impact.

- Develop national policy, with the idea of a Ministry of Digital Affairs responsible for the broad social impact of digitisation.

Digital inclusion is not an end state that we can work towards in a planned way. It is an ongoing and necessary social process.

We will have to look ahead in order to be able to move with the rapid developments. We will have to look ahead, to move with the rapid developments. And we will have to adapt our support programmes accordingly. But we will also have to look back regularly to make sure that everyone is still on board, and that we do not leave anyone behind along the way.

- □ Digitalisation strengthens existing forms of social inequality.
- □ The development of aid structures for digital inclusion is possible from a national approach with a local impact.
- □ National inclusion policies can be shaped more effectively from a Digital Ministry.

Thank you

This contribution was made possible by the input and ideas of my colleagues Angeliek van der Zanden and Jan van Avezaath. I would like to thank them for that!

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Login and Connect

Wouter Bronsgeest

The words from Princess Laurentien van Oranje's opening keynote at the Smart Humanity 2019 congress still resonate: "Dear information professional, make sure you are not a 'solver', but a 'connector'. Listen to the people you help, try to understand them and put yourself in their shoes. And use that in your work before you come up with solutions."

These fitting opening words marked the start of the second KNVI Smart Humanity event, which focuses on the role of information professionals in society. In addition to deepening its knowledge of the subject and its lifelong development, KNVI is also committed to emphasising the responsibility of information professionals for society. The use of more and more advanced technology raises ethical questions. The use of ever more advanced technology raises ethical questions. These are an important part of the work

of professionals who offer their products and services to citizens, businesses and government. For unfortunately, stigmatising discount cards for "less fortunate children", video surveillance of unsuspecting shoppers, lottery services that use methods at the edge of ethically permissible internet and sales techniques are also the work of information professionals.

This week, I wanted to celebrate my 250th login and password. However, the World Economic Forum (WEF) along with Fernando Corbato (the inventor of computer passwords!) were ahead of me. They published a blog on November 18th 2019 with the news that an average consumer has about 191 usernames and corresponding passwords. With, of course, a lot of duplicates in it. And that is fodder for users of the 'dark web', because there you can buy a stolen bank account with login code or an Uber account for 7 dollars. A bargain: the 7 euros is quickly recouped if the account is only used once on behalf of the 'real' owner.

But who is actually the owner? Very recently, a large group of insured persons was allowed to experience how bad the is when your trusted insurer decides to come up with a complicated login procedure "to show you your data" safely. Many customers had to work with DigiD apps, new applications, codes and all kinds of additional digital forms. A digital jungle for one of the many accounts that a consumer has. And a disturbing approach for anyone who is not more than averagely digitally experienced.

Gartner predicts that the days of passwords and log-ins will soon be over. They foresee that companies will come up with even smarter ways to keep 'consumers' safe.

to help. I hold my breath: once the algorithm that made your mobile device out of your iris scan or fingerprint is for sale on the dark web, you will have lost it forever. Of course

It is nice that there are possibilities to manage your own data. But how many consumers know how to organise this? I am afraid that many will lose out to the so-called consumer-friendly services of commercial service providers. But I hope that I am wrong and that the legislator and the information professional are one step ahead of this development and come up with a really smart solution. Smart Humanity... here we come!

Source

The privacy of the (smart) citizen in the smart city

by Natascha van Duuren

· ·

Smart cities raise complex legal questions. Many of these questions are related to data. After all, smart cities collect data or combine data in various ways. Sometimes risk profiles are created or even decisions taken. This contribution examines a number of these questions and attempts to provide a solution.

Smart city and the Dutch strategy

The term 'smart city' has existed since 2005 and was introduced by major tech companies such as IBM, Siemens and Cisco. In 2017 the subject was put on the government's agenda and the NL Smart City Strategy was presented: 'The future of living'.

The advantages of smart cities are clear. They can contribute to solving major social problems, such as climate and energy use. But there are also solutions whose benefits are more concrete for most people. Think of smart cameras that count empty spaces in bicycle sheds. But also lampposts that measure noise and air quality or film the surroundings, smart sensors

in rubbish bins and traffic lights that give a green light to cyclists more often when it rains. A very current example is, of course, crowd management, which was put in place during the corona pandemic.

Data, lots of data

Many data are collected in smart city projects, including personal data. Pursuant to Article 15 AVG, citizens must not only be informed in advance, but must also be able to inspect the data collection. In practice, it seems difficult to meet these requirements. In a smart city, citizens are hardly or not at all informed about which personal data are collected and for what purpose. The question is how this duty to inform can be organised in practice. Hang the whole city full of texts informing the citizen? Or a system with icons that inform the citizen?

An additional complexity is that municipalities themselves sometimes hardly have an overview of all the personal data that is processed in their smart city. In that case, the smart city seems to be a black box for the municipality, which makes it very difficult to meet the obligation to provide information.

Anonymous personal data?

Many municipalities indicate that they only use 'anonymous data' in their smart cities. In many cases this means that they use pseudonymised data. Pseudonymisation is a security measure whereby personal data are processed without it being clear which persons the data relate to. Data can only be traced back to a specific person if additional data is used. In the case of pseudo information, however, it is still personal data. The municipality is therefore still obliged to comply with the privacy laws and regulations.

Even if a municipality only processes anonymous data, municipalities must realise that anonymised data can be traced back to individuals more easily than is often the case.

thinks. Researchers from the American MIT University concluded that you only need four information points, such as locations or purchases, to identify 90 per cent of individuals.

The argument of municipalities that in smart cities they 'only process anonymous data' is therefore not enough. In their risk analysis, municipalities are well advised to assume that they are dealing with personal data (and that they must therefore comply with the legislation on privacy).

Risk of structural disadvantage of certain groups, unjustified exclusion or stigmatisation of citizens in the smart city

In smart cities, not only are a lot of data collected, but these data are also combined with each other. Think of combining absenteeism figures with data about unemployment, debts, overweight, police figures and social media messages. This can be used, for example, to try to predict the risk of dropping out of school. An even more far-reaching step is making decisions based on data. The AVG imposes strict requirements on this type of data processing.

For example, the municipality will have to inform citizens about the 'underlying logic' of the algorithm. The criteria on the basis of which a decision is made must be made clear in a comprehensible manner.

Furthermore, the AVG is based on the principle that no one may be subjected to a decision that is exclusively based on automated processing and that has important (legal) consequences for him or her (Art. 22 AVG). In that case, the citizen must always have the possibility to have the decision reviewed by a human being, to express his or her point of view or to challenge the decision in court. Similar safeguards result from the General Administrative Law Act (Awb), insofar as the decision would be a decision of an administrative body.

Of course, algorithms must be prevented from being biased. A smart city should not lead to the structural disadvantage of certain groups, to unjustified exclusion or stigmatisation. People often do not realise that this already starts with the data collection: which data do you collect and which categories (e.g. groups) do you distinguish? A justified concern that is sometimes mentioned in the context of a smart city is that a smart city could cause *social chilling* or *social cooling*. This means that people will conform to the prevailing standards and behave in a reserved, non-creative and risk-averse manner. The ethical question related to this - and which is also rightly raised - is to what extent citizens are allowed to be imperfect and deviate from the defined norms? Norms that are in fact defined by data. Moreover, managers of smart cities should realise that a pattern in data need not be reality. After all, with different algorithms, you could get different results. In smart cities, the results of algorithms and data analyses must therefore always be tested.

Cyber security must be a priority in a smart city be number one

The large amount of data processed in a smart city means that information security must be priority number one. Imagine a cybercrime attack on a smart city. There is not only the risk that (sensitive) data of many citizens will be put on the street. It is also possible that the cyber attack is aimed at utilities or other facilities from the vital sector, with all the consequences this entails. This with all its consequences. In a smart city, information security must therefore be at the top of the policy and implementation agenda. The question is whether the Baseline for Municipal Information Security (BIG) is sufficient to protect smart cities against these kinds of risks. This is the reason why municipalities should organise a Data Protection Impact Assessment (DPIA) at the start of every smart city project, which should be able to identify the biggest risks.

Risk of over-dependence on powerful technology companies

As noted earlier, the smart city was introduced by large tech companies. Even now, large tech companies often play an important role in smart cities. After all, it seems almost impossible to build a smart city without using cloud and platform solutions. Besides the fact that these are often large and powerful parties, these parties usually come from the US. Our digital infrastructure is largely dependent on the US and China. This is certainly a point for attention. Municipalities would do well to be critical of the private parties they engage and which agreements can be made with these parties. In addition, municipalities should realise that the business model of companies that are active in the smart city market is sometimes based entirely on the 'new gold': data. They will therefore do everything in their power not to make this data public. This is of course at odds with (privacy) legislation. The risk of vendor lock-in also lurks. In other words, because of contractual agreements and the far-reaching interweaving of process agreements, municipalities can no longer contract other suppliers. It is therefore very important that municipalities prevent themselves from becoming dependent on large and powerful technology companies when realising a smart city.

The future of living?

The Rathenau Institute has identified seven public values that may come under pressure in the smart city: privacy, security, justice, autonomy, control over technology, human dignity and balance of power.

A number of these public values have been discussed in this contribution. The fact that the other values have not been discussed does not mean that they are less important. Safeguarding these values in a smart city is complex. This is probably why smart cities seem to be slow to get off the ground. An important step forward is that VNG members have agreed to the Digital Society Principles.

This common framework ensures that in every municipality there is a level playing field for discussions with providers. This can strengthen the position of municipalities in relation to the (sometimes powerful) market parties. At the same time, the principles must safeguard the public values, including, of course, the privacy of the (smart) citizen in the smart city.

- In a smart city, a lot of personal data is collected from citizens. It does not seem easy to comply with the legal obligation to provide information in a smart city. Options such as covering the entire city with texts that inform the citizen or a system with icons that inform the citizen quickly run into practical objections. The fact that the smart city is often a black box for municipalities also makes it difficult to comply with the legal obligation to provide information.

- Municipalities should be very alert to the risk of structural segregation of certain groups, unjustified exclusion or stigmatisation of citizens. These risks may be lurking in a smart city.

- It seems almost impossible to build a smart city without using cloud and platform solutions. Municipalities should avoid becoming dependent on powerful (often foreign) technology companies.

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From Smart City to Smart Humanity: what are municipalities doing with their IT?

Klaas Brongers

In the run-up to the municipal council elections, the 'Tech and Policy' programme was organised in Amsterdam on 21 March 2018. The line-up in Pakhuis de Zwijger was impressive, as was the turnout.

Alexander Rinnooy Kan, professor at the University of Amsterdam, sees both opportunities and threats. A threat that primarily requires attention is the enslaving and manipulative effect of social media. As a missed opportunity, he mentioned the absence of a minister or secretary of state for ICT in the new cabinet. And he sees an inherent tension between the free scientific development of technology and its practical translation into the reality of city and policy.

Marleen Stikker, director of the Waag Society, discussed the impact of technology on citizens. Nud- ery through algorithms, commercial use of data by Apple, Face book and Google and the influence of Airbnb and Uber on our economy. Technology, the economy and power can no longer be seen separately from each other. Citizens must be able to influence this. Open source, technological literacy and policy design labs can contribute to this. The municipal CSO and CTO spoke enthusiastically about the perspective of the smart city.

Six municipal group chairmen then discussed the use and ownership of data. Can you use sensors and data to predict and respond to the behaviour of citizens? How can you deal with open data?
Should municipalities do more with ICT themselves and develop alternatives to the commercial platforms? And above all: to what extent is the citizen actually interested in technology?

What do I expect from politicians at municipal level? Positions on use and ownership

of data seems to me more something for the national or even the European level. Using your own ICT to compete with commercial platforms? Reading the *Parool newspaper* about the difficult course of municipal ICT projects does not give me much confidence in our own abilities in this area. But I do expect
I want the services provided by the municipality to be accessible digitally. And that municipalities respond to the major decentralisations.

I also expect that not everything will be thought up on our own, but that there will be cooperation with other municipalities via the VNG and the EU. And that customer journeys, open source and open standards are used. I applaud blockchain initiatives close to the citizen, as in Utrecht and Zuidhorn. In any case, I assume that municipalities will put their citizens first, with the same theme as the KNVI: Smart Humanity.

Source

IT guy, come out of the basement! Veterans welcome to urban innovation

by Iemke Idsingh

. . . .

Everything that moves in the city is increasingly innovated. The 'addiction' of the city is visible everywhere - from the experimental stage to now more mature solutions. Often driven by technology, fortunately increasingly by the demands of citizens and businesses. It is striking how often the average IT person remains on the sidelines. Now is the time to use their experience and get involved!

Public discussions show that we need to solve 'classic' issues, similar to the challenges that IT professionals have already faced in the past. Think of data security, infrastructure availability and solution performance.

Urban information backbone

A great leap forward is needed: beyond the individual ad hoc innovations towards an urban information backbone. Because of the technology? No, it is about the human dimension in the much vaunted smart city. After all, ethics and technical security go hand in hand.

A 24/7 active city requires a reliable and available backbone. Transparency for citizens also consists of well-validated and standards-based quality software. IoT can bring the city to a standstill (think of the recent train breakdown in the Schiphol tunnel for which only the software of one sensor was responsible), which suggests the need for parallel alternatives. Protection of personal data requires robust and responsible management. These are all classics from an IT perspective.

The citizen himself has become an information professional - time for the IT professional to apply experience and skill to match the now high expectations. Reliability also requires a facilitating role from the public sector - the government to which we have traditionally entrusted the protection of the interests of society as a whole. After all, we cannot leave an urban backbone to the whims of individual programmers, suppliers and technicians. National and local governments must cooperate and set frameworks. Just as we did before with our sewage system, water supply, rural motorways and the electricity grid. The more we depend on urban innovations, the greater the call for a robust basic public infrastructure. We must not leave anyone behind in this movement. After all, a digital divide in society is lurking. It is striking that the various coalition agreements still make little mention of this type of ambition.

Pitfalls in the city

For the IT professional, this means there is work to be done. The experience of 'industry veterans' is particularly welcome. There are potholes enough in the streets of the physical city. So let's avoid the well-known IT pitfalls in virtual reality.

The responsibility of the IT professional goes beyond short-term whims such as AI, big data, IoT and whatever else may come our way. There is also a need for broad-based guardians of the urban backbone. It is the responsibility of the IT professional to

to join the various initiatives - from City Deals to the NL Smart City Strategy, from local living labs to supplier product development, from urban planning to IT architecture.

Smart Humanity - the theme used by KNVI - calls for the cross-links outlined above. From technical connectivity to connecting to the challenges of society. From mainly internal and technically oriented automation to meaningful solutions 'out there in the city'. IT professionals are the potential connectors. They can convert smart city dreams of policy makers into realistic and widely accepted solutions. In addition, and not unimportant in the current strained labour market, the sharing of knowledge between young starting freshly graduated students and the aforementioned professionals is a valuable catalyst for urban innovations.

Smart balance

Brainpower, creativity and innovations are in good hands with citizens and start-ups. The abundance of (partial) solutions has made that much clear. Give them room. The longer-term interests of society as a whole will now receive the much-needed attention. This will bring the smart city into balance.

We must move beyond individual ad hoc innovations towards an urban information backbone, taking into account the human dimension and ethical effects.

IT professionals are the potential connectors that can turn the smart city dreams of decision-makers into realistic and widely accepted solutions.

Above all, give space to the input of citizens and companies and their (partial) solutions.

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How smart mobility makes it more pleasant for road users

by Joost van Lier, Jurjen Braakhekke

and Theo Kishna

. . . .

Rotterdam cyclists get a green light faster and longer at certain traffic installations when it rains. The city is conducting trials with intelligent trans- port systems, also known as ITS. Other systems inform road users to reduce speed when wind gusts are detected, such as on the bridge over the Hollands Diep (A16).

These are examples of smart mobility, and therefore a relevant preview of Smart Humanity. Smart mobility concerns the deployment of innovative ICT solutions to keep the Netherlands safe, liveable and accessible, now and in the future. In terms of mobility, it does not matter whether the transport of people and goods takes place by road, rail, water, air (all modalities) or a combination of these.

More and more sensors are being deployed and intelligent transport systems (ITS) developed around all these modes. Making the collected and analysed data available provides new possibilities to inform users via information panels and service providers, such as broadcasters and route navigation system providers. The sensors used within an ITS not only measure the speed of traffic, but also

local weather conditions and, in some places, the air pollution level.

Developments

Systems that automatically collect data, analyse it and offer it to road users are so well established in the Netherlands that the average commuter no longer gives it a second thought. Nevertheless, there are technological developments that require attention because of their great impact on Dutch society. Only recently, the rise of Internet technology has given new players in retail, tourism and services enormous opportunities. This is now also happening within the transport and public transport sector.

Electric bicycles give people the freedom to travel faster and over greater distances. In public transport, more information panels are being installed at bus stops to give travellers a more accurate idea of the current waiting time. At the same time, mobile apps are giving travellers signals to leave in time to arrive at their next appointment. Trials are also taking place to inform travellers about alternative routes and departure times, but also about journey times using other means of transport. Finally, we see more and more experiments with autonomous vehicles on the road, on rail, on water and in the air.

In the technical field, we are seeing a trend where sensors are becoming more intelligent and wirelessly linked. Together with the autonomous provision of data via the cloud, Internet of Things (IoT) solutions are possible, for example in the public domain, where full waste controllers autonomously send signals to the route planning system of waste trucks. It also allows home automation sensors and systems to autonomously transmit alarms and signals to cloud applications to replenish supplies or call for care assistance. In recent decades, the industry has completely transformed from large-scale production for stock to just-in-time systems on customer order.

Other technologies will also offer opportunities in the field of transport. For example, 3D printing, which has been adopted in

dental surgery, in which prostheses are printed, is becoming more common. This has consequences for the transport sector, because traditional boundaries are blurring between disciplines such as civil, traffic and transport, urban planning, ICT and production. In addition to the aforementioned opportunities, there are subjects that are insufficiently developed within smart mobility, such as the transport of people and goods with autonomous planes or drones.

Challenges

For the development and use of intelligent transport systems, there are still challenges to be solved. First there is the legal framework. When we look at autonomous means of transport, the law does not yet regulate liability. In case of incidents, the question of who is liable is already frequently asked. The manufacturer, the owner or the occupants of the vehicle?

Another challenge is to embrace or keep up with the new developments. We think that only seniors drop out, but that turns out to be an urban myth. Other age groups also consciously or unconsciously drop out. People who consciously opt out specifically choose not to embrace digital means. The legislator does not have to take this into account. Unconscious switching off happens more and more. Developments are going faster and faster, just like the exponential curve for processor capacity. More and more people are having trouble keeping up with developments and embracing the new possibilities.

Another challenge is to find enough trained staff. This personnel is needed to make the developments possible. More technicians are needed to build and maintain the new technology. In addition, the professional groups that are affected by this far-reaching technological development of society must also be retrained. With the advent of autonomous means of transport, a different contribution is required from drivers, machinists, captains and pilots. Both issues require a concrete adaptation of studies and learning patterns.

All in all, we can conclude that the new technology will bring a lot to today's society. Technology is moving forward and offers a range of new possibilities. However, there are still a number of challenges that we as a society must address and solve before that time comes.

- New technology in the field of smart mobility can make travel better, more flexible and more informed.

- In order to facilitate new developments, the legislator should come up with new legislation more quickly.

- It is not only seniors who are dropping out of technological innovations; other age groups are also dropping out.

- To adequately facilitate new opportunities, we need adequately skilled personnel. The question is whether we can find them.

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4

Smart Data

Data. A short word of two syllables and four letters, which conceals a whole world. And a word that is supplemented by a third and fourth syllable to form even more important words: data management, data centrism, data mining, data quality, data security... Is data now gold or is data a raw material that, with additional processing, can only lead - polished and all - to brilliant information through algorithms?

When you say data, you are quick to talk about analyses and algorithms.

And about artificial intelligence and all its applications and derivatives. In this part of the book, you will find some reflections on the question of what we can and should do with that data. Cause for further reflection, because there ...are no answers (yet).

Big data in itself is nothing

Vincent Janssen in conversation with Jim Stolze

"If you read the newspapers lately, it's often about big data, artificial intelligence and concerns about privacy. There are also many misunderstandings about this," says Jim Stolze, innovation expert and tech entrepreneur. He wants to dispel these misconceptions.

The greatest misunderstanding, according to Stolze, is what he calls "anthropomorphism"; in other words, ascribing human characteristics to non-human things. Such as machines and algorithms. Because of this, we are afraid that robots, for example, could suddenly become self-thinking killing machines. The media often write alarmingly about big data and automation. According to the founder of TEDxAmsterdam, this is not necessary at all: "We blame algorithms, while the fault actually lies with ourselves. Algorithms

are only advanced human tools.

Behind the algorithms

"In the Netherlands everyone has an opinion about algorithms, but few people have read up on them. I am constantly trying to feed the social debate with facts and insights.
ten. An example: "Big data is nothing in itself. People call it the new oil, but we can't get it out of the ground yet! For that you need new tools and those tools are mathematical models, or algorithms."

Artworks

"Because algorithms are invisible, I have - together with colleagues - We intend to put them in the spotlight in different ways. We will do this by means of a national AI course and interactive art installations." Meanwhile, two of these installations can already be admired. The Mindfulness Machine is a robot that makes black-and-white images entirely autonomously and then displays them in a different way.

colours. The other work of art, the Crypto Fountain, visualises the prices of crypto currencies, such as Bit coin, Ether and Ripple, by making jets of water fluctuate throughout the day.

Hall of Fame

To draw extra attention to algorithms, Stolze is contributing to the so-called *Algorithm Hall of Fame*.

"This is still a list on the internet, but we are lobbying to make a physical space for this as well." In other words, if it were up to Jim Stolze, the
He will put the developments and our perception of algorithms and data through their paces.

Source

Quality of thought and
the relationship with data quality

by Danny Greefhorst

. . . .

There is an increasing flow of data, information and knowledge. The question is what this all means. Some see it as "information overload", while others see it as a form of meaning - the flow of data is a higher goal towards an Internet of all things.

In practice, we will have to adapt to this new reality. Moving at maximum speed with this increasing flow has implications both for ourselves and for the data flow we generate. If we are not careful, we will drown in the stream. There is a need for a higher quality of thinking as well as a higher quality of data. In this contribution, I explore these qualities, their relationship and the importance of context and ethics.

The significance of the increasing flow

As human beings, we will have to adapt to the increasing availability and exchange of data, information and knowledge. If we do nothing, we will simply be swamped. Our heads will increasingly be filled with all kinds of impressions, facts, feelings and thoughts. It will be increasingly difficult to separate these things from each other, given the increase in size and speed of the flow. In order to

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stay afloat, we will cling to what we can quickly imagine and what others tell us. Whether this is the most sensible thing to do and whether it is in line with what we want and how we want to relate to others, is questionable. The chances are that we make suboptimal choices and simply go along with others. The social media allow us to live in filter bubbles, where we only get to see information that has been selected by the built-in algorithm. We don't get to see information that contradicts our own point of view. Populism lurks and morality comes into play. Before we know it, we unconsciously find ourselves on the wrong side of the line and cause greater differences and further damage to our physical living environment (see also [Harari, 2017]).
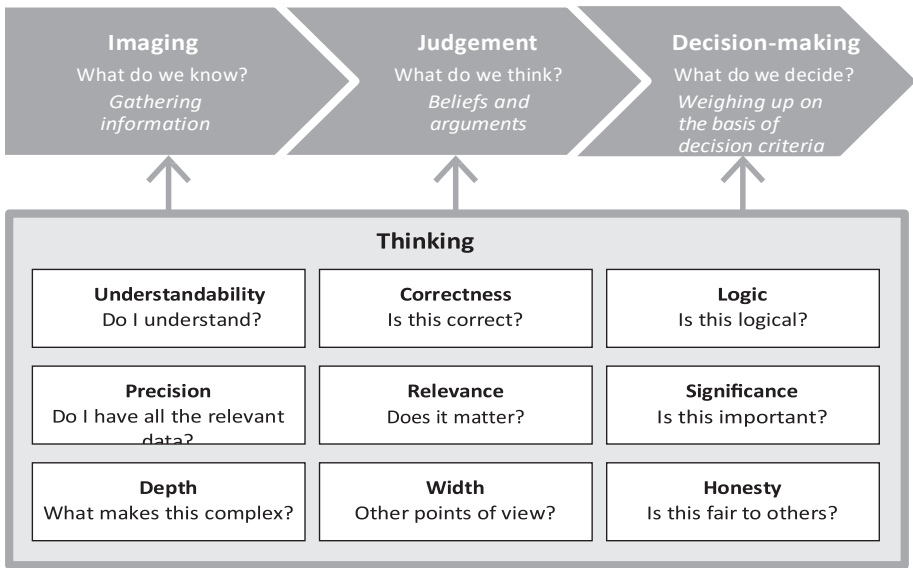
Our basic attitude should therefore be critical. We must constantly ask ourselves what the flow of data and information means, separate facts from thoughts and make conscious choices based on a logical line of reasoning. Critical thinking is a skill that helps to curb the natural tendency to believe anything and to recognise and avoid hidden assumptions, illogical reasoning and thinking errors. Critical thinking is probably as old as mankind. Buddha and Socrates already used critical questions to determine whether knowledge based on authority can be rationally, clearly and logically justified. Critical thinking clarifies goals, examines assumptions, distinguishes between guaranteed values, evaluates evidence, accomplishes actions and assesses conclusions. It requires a willingness to critically evaluate one's own reasoning and revise one's beliefs when the necessary arguments arise.

Quality of thought

A critical attitude leads to a higher quality of thinking. It ensures that we make better and more transparent choices. In practice, it means that you have to ask more questions. You have to look at things from all kinds of perspectives, aspects and interests and reflect on what people say. Everything that is unclear will then lead to questions. The

asking questions is done as an individual, but it will also often be in groups, for example in meetings, gatherings or conversations. The type of questions asked therefore depends on the phase of the group process. In general, a group process consists of three phases: forming an image, forming a judgement and making a decision. The key questions associated with these phases are "what do we know?", "what do we think?" and "what do we decide?".

The core questions mentioned can be further broken down into more specific questions as shown in the figure1. The questions are relevant to more phases, but in the figure they are roughly positioned under the most relevant phase. They are a translation and summary of the questions as described by Linda Elder and Richard Paul in their book on critical thinking [Elder & Paul, 2013]. The authors have clustered the questions according to quality dimensions, which they themselves call "intellectual standards". By using these quality dimensions in a structured way and asking the right questions, a certain quality of thinking emerges. Another part of the toolkit as described by Elder and Paul consists of a

Imaging	Judgement	Decision-making
What do we know?	What do we think?	What do we decide?
Gathering information	*Beliefs and arguments*	*Weighing up on the basis of decision criteria*

Thinking		
Understandability Do I understand?	**Correctness** Is this correct?	**Logic** Is this logical?
Precision Do I have all the relevant data?	**Relevance** Does it matter?	**Significance** Is this important?
Depth What makes this complex?	**Width** Other points of view?	**Honesty** Is this fair to others?

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*Figure 1: Thinking skills and their role in group processes*

thinking model that highlights various aspects of an issue. In this model, the authors distinguish between goal, key question, information, interpretation, concepts, assumptions, implications and point of view. Explicitly distinguishing between these aspects ensures that a logical line of reasoning emerges.
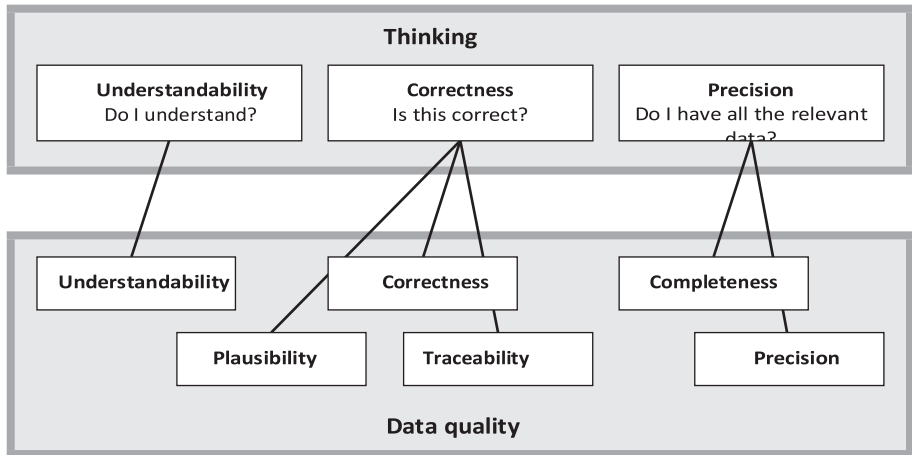
Data quality

People have their own responsibility for dealing with the increasing flow of data and information by ensuring a certain level of thinking. However, the amounts of data and information are too large for humans to process them all. As a human being, you cannot oversee it all. That is why it is interesting to see that thinking quality has a direct relationship with data quality. Data quality is something that can be checked partly automatically, which means that data of a low quality can be filtered out partly automatically.

Data quality is the degree to which data satisfies the needs of the user. It concerns dimensions such as correctness, completeness, consistency, timeliness, plausibility, precision and traceability. There are standards that offer a list of quality dimensions, such as the ISO/IEC 25012 [ISO, 2008] and 25024 standards (see figure 2). They also indicate how you can measure data quality by describing indicators. Indicators are concrete measurable properties, which can be used, for example, to show quality in a dashboard or report. The standards also distinguish between quality dimensions that are mainly about the data itself (inherent data quality) and quality dimensions that are more related to the system that offers the data (system-dependent data quality).

It is interesting to see that a number of the quality dimensions for data (largely) correspond to quality dimensions for thinking (see figure 3). The overlap is mainly in comprehensibility, accuracy and precision. Comprehensibility is the basis and is about the extent to which we understand something. It is the first stage of group processes. If we understand something
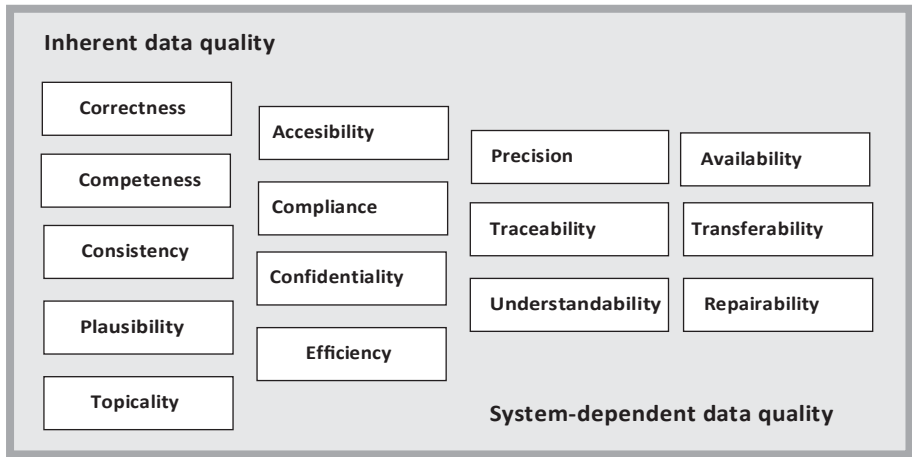
Figure 2: Quality dimensions in ISO/IEC 25012/25024

Figure 3: Relationship between thinking quality and data quality

then we can determine whether something is true or not - the correctness of our thinking. Correctness is the degree to which something corresponds to reality. Clearly, this is a key question when it comes to quality of thought. If something is not true, then it is noise (or fake news) and we should just ignore it. If you look at this in a broader sense, then the data quality dimensions of plausibility and traceability are also important. Plausibility is the extent to which the data is credible. Traceability is the extent to which the creation of data has been made explicit. The data quality precision is the extent to which all relevant information for making judgements is present. This is what the data quality dimensions completeness and precision cover.

The importance of context

A deeper insight into the relationship between quality of thinking and quality of data is that context is all-important. Part of the context is the use of the data. The use of the data determines which quality is sufficient. For example, when performing a detailed analysis, you also need detailed data (with high precision). Context is also everything that you need to understand something. For an automated operation, often only part of this context is relevant, namely the part that is relevant for the operation. As human beings, we often feel the need to better understand what something means. We are interested in exploring our needs and we look for many more nuances than computers. This is also our distinguishing feature and the reason why it will be a long time before we can be replaced by computers.

It is not easy to name all that is relevant for people to understand something properly. It probably involves much of what the creator of the data knew, but which was never made explicit or will never be made explicit [Woudenberg, 2002]. A fundamental question is therefore whether we can be sure that we have understood the data as the creator intended. Part of this kind of context can be made explicit by metadata. Metadata can at least give us a textual explanation of what the creator meant by certain words.

Metadata can also provide insight into another important part of the context: the creation of the data (traceability). If we know who created the data, at what point in time, and what processes it has undergone, we already have a much better understanding of the context. It can increase our confidence in the accuracy of the data.

An ethical perspective

An increasingly relevant question is to what extent data is fair to others. Whether data treats everyone equally. After all, we live in a world where people have interests. Data are not value-free. They carry the values and norms of the people who created them. It is therefore important to understand what these norms and values were and whether they are acceptable. An ethical perspective is an explicit un-third part of critical thinking as described for example by Elder and Paul [0123]. In addition, there is also increasing attention for ethics in the context of data management. In the Data Management Body of Knowledge, for instance, there is a chapter entirely devoted to data ethics [DAMA, 2017]. Ethics are inherently subjective and will have to be assessed contextually. There are, however, all sorts of practical tools for dealing with ethics, such as the Ethical Data Assistant of the Utrecht Data School and the Ethics Compass of Kennisnet [Pijpers et al., 2020] The essence of this last instrument is that you name the values you consider most important, collect arguments for and against and weigh these on the basis of the values you have named.

Conclusions

The previous paragraphs have mainly tried to make clear what the challenges are in dealing with an increasing flow of data and information. The key message is that both a higher quality of thinking and a higher quality of data are necessary. These qualities are also directly related; higher data quality also leads to higher thinking quality. For both, context is all-important.

The deeper purpose of this contribution as a whole is above all to get the reader thinking. It aims to relax organisations and create space for the crucial human interaction needed to understand each other, to judge and to decide. Ultimately, data and data exchange can never replace intersubjective meaning. Communication is not objective and our brains cannot simply be replaced by automated decision rules.

□ Encourage critical thinking in yourself and in others by asking questions.

□ Pay explicit attention to defining and measuring the quality of data.

□ Provide data with relevant context so that others can understand and assess them.

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It's smart me, for sure!

Wouter Bronsgeest

Earlier I wrote about children and their smartphones, now it's about me. At least, I will let you thinking. Because I am now using a wonderful new piece of software. Or rather, several pieces of software. But let me start at the beginning.

After all, it is a bit busy. Work, education, professional organisation, sometimes giving a guest lecture yourself, and of course the home front. Oh yes, and the gym, the children's sports club, working on a good cause and writing an article or column. I can still manage to keep the mailbox busy, but sometimes I would like to be in two places at once. And I'm starting to do just that. I have an action plan for that!

Firstly, active meditation. Green shakes, yoga, mindfulness and guided meditations help me to de-stress. I can do this with

In particular, I can quietly observe the hurried and agitated fellow man, and sometimes support him with empathy, without identifying myself too much. After all, I have my own problems! Over to step 2.

Secondly, tight time management. Seeing each e-mail only once, instructing secretaries and the company office well, answering very quickly and either carrying out the action myself or getting someone else to do it. And that helps, because others also experience pressure themselves, so I make sure that the action is put on someone else's plate again! It is the race of the mailbox, action points and the smart allocation of your time.
But, even that is not enough. On to step 3.

Thirdly, the use of technology! It still costs a pretty penny, but that will change in the relatively near future. I like to make use of what is generally called *deepfake*. A relatively simple example is the FakeApp, where you can insert a speaking mouth into someone else's face. Just like with the

FaceSwaps, you can make very funny jokes with this on your smart phone. But not too many, otherwise step 1 and step 2 are no longer effective enough. Fortunately, with a little polish, a good editor and some extra technology, you can do a lot more.

Meanwhile, there are promotional films, lecture notes and messages to colleagues for places where I do not have to be physically present. Through a combination of real recordings supplemented with deepfakes, I soon have more opportunities to get to know my colleagues. opportunities to share information. In fact, I now employ ghostwriters and ghost speakers who tell their 'own' stories based on conversations with me.

count. The software to imitate my voice was already there, so I am everywhere now. What a wonderful - and peaceful - feeling that gives. Working from home, for me the social innovation of this century.

The question is, how do you know whether it is me or not? How do you know this text is from my brain? Well, I don't know anymore myself. But, my goal is achieved for now. You are reading this column. And I am sitting with a cold beer on my yacht worth millions in the Mediterranean Sea, thinking about how I can make the world a better place with even more technology. For you, but especially for me.

Source

- Previously published online at: AG Connect, https://www.agconnect.nl/blog/its-smart-me-zeker-weten, September 3rd 2018.

Digital transformation after COVID-19, data centrism as a solution

by Ken van Ierlant

. . . .

The world is waking up very slowly after the outbreak of COVID-19, to a totally new reality that will accelerate. The economic consequences are not yet foreseeable, but the contours of a drama in the making are becoming more visible every day.

The consequences for the way in which digitisation 1.0 has taken place in the last de‑ cades are becoming remarkably and soberingly clear. Companies are faced with a choice: use digitisation as an efficiency tool or opt for digitalisation 4.0 with a disruptive leitmotiv.

If one thing has become clear, it is that the COVID‑19 outbreak is rapidly eating away at the balance sheets of companies and government bodies alike. It now suddenly appears that many operating models are far too costly, inflexible and static. Scaling down, let alone scaling up, has turned out to be an impossibility for 90 per cent of the companies.

The digital transformation 1.0 has had its day. For years, the market was bombarded with digital hype aimed at achieving efficiency gains by drawing attention to new business models. This subsequently led to kidnapped IT projects by new

building apps on old legacy systems. Old wine in new bags. The entire digital hipster circuit, including systems integrators and technology providers, has spent years responding to incremental IT transitions that, in 90 percent of cases, have achieved nothing. The era of the false prophets of innovation theatre has left a trail of destruction and value destruction in its wake. The time of careful poldering or a toe in the pond is over. It is now or never.

Balance sheets are now being rapidly emptied, leaving no money for old-style innovation, while innovation is desperately needed for survival. Companies now have a choice: either follow a blue process of implementing drastic cost reductions in which digitalisation is used as an efficiency tool, or opt for digitalisation 4.0 with a disruptive leitmotiv.

The positive takeaways and the dark side of the moon

The only positive thing about the crisis is that in two months we have learned to work digitally at home. Where we spent years trying to accept online working, it is now arranged in no time. It is amazing how quickly people adapt to a crisis situation and make use of technology that has been around for years. What we are learning is that people are adaptive when there is a sense of urgency. Time and money play an important role in remaining adaptive in a world that is changing rapidly due to emerging technologies and their application. The why-question has now been answered, but the how-question is far from being answered.

In the current crisis, it appears that the essence of digital transformations lies not in the exploitation of business models - through the use of IT tools - but in digital operating models that can be quickly switched off or on, as if it were an accelerator. This is not to say that having a digital business model or strategy is not an important condition. It certainly is. But how many companies have a disruptive digital strategy that looks four to five years ahead? Nine out of ten of all the digital strategies chosen come from the idea of making the exploitation model that is in place 'more fun'with digital gadgets and shiny object,

in order to bring their services to the market in the most efficient way possible. In short: sub-optimisation. In short: sub-optimisation.

It is at least as important to understand that in the 2020, post-COVID-91 era and before the advent of multi-sided platforms, companies' operating models have to be at least a factor 8 cheaper in order to survive. Cheesing over costs and incrementally sprucing up old IT landscapes has become an anomaly.

Digital transformation 4.0

What we are learning now is that as the horizon of survival draws nearer, there is no more time or money for us to just change things around. What we are also learning is that with those mountains of application landscapes, with ditto non-authentic processes, no value can be created. Or as Mr Bommel would say: "Tom Puss, think up a trick".

The digital transformation is a disruptive process that, in a time of 'no time and no money', must create a great deal of value, with the financing to a large extent to be found in the organisation itself. In other words, recuperating invested capital from the past that is now stuck in sublimated assets, ditto non-authentic processes and therefore a lot of hidden unemployment.

In other words, we must rigorously and rapidly seek out tied-up working capital, dismantle non-authentic processes and liquefy guaranteed value. A large part of the solution to the problem lies in the data of the companies. It will often turn out that companies that are stuck in bank covenants can no longer issue shares, and the government is unwilling or unable to intervene.

There are still two viable ways out:

- Operation find the money", in which the company will use a digital transformation 4.0 programme to make its own tied-up capital rapidly liquid in order to finance its own transformation,

- or resort to private capital in the form of private equity and venture capitalists to save the day.

But beware, these private equity guys are no softies who are satisfied with loss financing. They want a return on their investments, in the short term and with a certain probability of success. And that calls for entrepreneurship instead of technocratic management that, in the face of certain bankruptcy, asks the commissioners for a pay rise.

Data centrism as the only way out

Data is the new gold! A beautiful buzzword, but it is of no use if you can't access it. Before you can exploit the value of thirty years of accumulated data, you have to explore it. And that is no mean feat, certainly not if you have hundreds of data sources and data models that are attached to ditto applications that were once written by people who are now in retirement homes.

Before being able to work in a data-centric way, companies must first build up a data-driven mentality and business process, whereby they may no longer think in terms of existing business processes, but in terms of new data-driven business processes that can and must generate a great deal of value in a short space of time. In other words: thinking from the outside in and determining where the company's distinguishing capacity lies on the basis of good scenario and financial planning.

So stop looking at what the competition is doing. Because they are doing exactly what you are doing, which is looking at the competition. This mentality or behavioural change is most easily initiated as soon as the company goes on a voyage of discovery to find out where all its data is located and indexes, categorises, classifies, cleanses and migrates it to a homogeneous next-generation platform that is a factor 8 cheaper in terms of operating costs than the self-built on premise or hybrid platform that costs capital or results in a sky-high OPEX.

In 2017 I wrote an article with the title 'No guts no glory', while 'Now or never' would be much more appropriate. In fact, this clean-up is a blessing in disguise to say goodbye to a lot of dead wood in a Darwinian way.

- After COVID-19, companies' balance sheets have been eaten away and it is time for the digital transformation 4.0 to focus on the operating models rather than the business models.

- Operating model 4.0 is factor 8 more efficient with a C/I ratio of around 25 percent modelled on a data-centric next-generation platform in the cloud.

- Organisations can only operate in a data-driven way if they are organised in a data-rich way.

- The new data-centric operating models 4.0 are able to create exponential value in a short time-to-market at a low cost-to-serve. We call this Digital Intangible Assets (DIA).

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Reenvisage

Sicco Maathuis

The world is changing, we notice and know that. Technology influences and accelerates that change. The enormous increase in data, the ever-growing computing power and the ever-increasing connectivity create a world in which people must find their place again.

As human beings, we will have to think more about what is going to happen in the future and decide what we think about it as people and as humanity. I call this *re-envisage*. Envisage is to present a mental picture of something that might happen. Re-envisioning means that you also have to revise this mental picture from time to time. You then have to reflect on that mental picture yourself. How am I doing, what do I think about it and where am I going to focus my attention? Everything you give attention to, grows. Whether that is your children or fake news.

Every citizen should - as far as I am concerned - think about whether he or she lives in the world she or he wants. And if not, how can you contribute to creating a world that is one step closer to the one you want? To do this, step out of the delusion of the day. Only then do you take the time to study what that better world might be. Go for a walk in a forest, for example, every quarter or so. Just looking at the pictures of a forest makes a person calmer. Make a conscious choice about what you are going to focus your attention on. Again: everything you give attention to, grows. People know that the world is going to change, but they do not stop to think about what their purpose and contribution is in that world.
world than it is. We live too much according to the delusion of everyday life. You see it in government, in citizens and in journalism.

Politicians respond only to get good twitter rates. Popular language is the order of the day. Young people no longer believe the government, because it is almost exclusively testing balloons and talking in hot air.

The government should be busy facilitating the country for a world that is changing ever faster. In journalism, often only one viewpoint or figure is highlighted, the one that attracts attention. People do not think enough about the context of a figure or the other side of a story.

Consequence: people do not know what the purpose and contribution is in their lives. People become over-stimulated by all the information that is poured out on them. Burn-outs and bore-outs are the order of the day.

Algorithms play an important role in this world of increasing data, computing power and connectivity. We can no longer do without them. And although the press speaks fearfully of algorithms, we will never live without them. How do you deal with these algorithms as a human being? How do you trust them? How do you build and train them?

This is where an information professional has an important role to play. You, as an information professional, could think about algorithms. How can you make a better world with them? That can be a purpose for you as an information professional.

Source

Beyond science fiction:
Data storage in DNA

by Jasper Snoeren

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The current generation of digital information carriers will slowly but surely fall out of favour, as they are not durable enough and have limited storage capacity. But storage in DNA is coming. Although the first applications are promising, there are still some obstacles to be overcome.

Internet speeds are constantly increasing, and with them the amount of data being created worldwide. Every cat video, every holiday photo and every shopping list is stored and shared digitally. This has led to one of the greatest challenges in our field. While the need for data storage continues to grow, the storage capacity of digital media will eventually reach its limit. Moreover, these carriers have a limited lifespan: magnetic tape only lasts thirty years, a hard disk can be replaced after ten years. In short, we need a new tool to store data in a more compact and durable way. A solution to this problem appears to have been with us since the beginning of time: DNA.

Many advantages

DNA (deoxyribonucleic acid) contains all the hereditary information of an organism. It forms the blueprint for the proteins that regulate all processes in the body. DNA has the convenient property of being able to store enormous amounts of complex information in an extremely small format. As a storage medium for data, it therefore has enormous potential: theoretically, about 215 petabytes can be stored per gram of DNA. That is roughly the entire archive of the Netherlands Institute for Sound and Vision in a grain of rice. But not only the format has advantages, it is also extremely sustainable. The DNA from mammoth fossils or from the body of ice mummy Ötzi is still readable. If kept cool and dry, DNA can last for hundreds of thousands of years without loss of data. Moreover, it is energy-efficient: the molecules themselves do not consume any electricity. Also, knowledge about the use of DNA will not disappear as long as the genetic information of humans is stored in it. The techniques for making, processing and deciphering the material will undoubtedly be improved in a hundred years' time, but the information will remain readable as ever.

Not science fiction

That all sounds rather futuristic. Nevertheless, DNA is no longer science fiction as a storage medium. Major steps have been taken in the last fifteen years: as proof of concept, many books, music and even video clips have already been stored in DNA. For example, researchers from the University of Washington and Microsoft have converted 100 books from Project Gutenberg into DNA, as well as the Universal Declaration of Human Rights in all languages. And not to forget the sound recordings on the golden gramophone record that was sent into space in 1977 on Voyager as a message to extraterrestrial life forms. At the moment, researchers are working on capturing the entire English Wikipedia database.

How does it work?

How exactly does storage in DNA form work? A DNA strand is a polymer composed of a sequence of four *nucleotides*. These are designated by the letters A, T, C and G (or the organic molecules Adenine, Thymine, Cytosine and Guanine). In principle, it works in the same way as the ones and zeros in a digital bit stream. If we can digitise information, we can also translate it into a nucleotide sequence. This genetic code is then synthesised in a laboratory - the molecules are built. This is artificially created material, no living organism is involved. The strands are stored in a liquid solution and can then be stored and transported relatively easily. Making copies is fast and above all cheap: under the right chemical conditions, DNA copies itself, just as it does in the human body.

Splitting data

In practice, however, translating a digital code into the right nucleotide sequence is a little more complicated than it first appears. For example, a DNA strand may not be too long, and repeating the same nucleotide too often in succession poses a risk of breakage. To prevent this, one piece of data is split into numerous smaller strands of DNA.

Each string is provided with a so-called primer. This primer serves as a unique identifier for that piece of data and also contains additional metadata, such as the order in which the strings must be placed in order to read the data. Each strand occurs hundreds of times in the DNA mixture and also contains a lot of overlap with the preceding and following piece of bitstream. In this way, genetic data carries its own backups and the chance of reading and copying errors is drastically reduced.

Obstacles

The technology for storing data in DNA is advancing by leaps and bounds. But to be able to actually use it in practice, various obstacles still have to be overcome. For the most part, it is still a very slow process. It now takes many hours to open a file (in other words: to decipher and digitally represent the nucleotide sequence).

This does not outweigh the microseconds that a flash drive needs for the same task. It is expected that in the future, speeds of up to 100 Gbps will be achieved. Until then, DNA storage is only suitable as a permanent, extremely durable back-up for data that does not need to be consulted constantly. Think, for example, of the knowledge that must not be lost in the event of a major climate disaster or world war. But the most important barrier is the price tag. The costs of decoding and synthesising DNA may be falling rapidly, but it is still a pricey affair. The sums involved in synthesising a few MBs of data can easily run into a few thousand dollars. An archive in the cultural sector does not even dare to dream of this.

Even when writing DNA becomes affordable, the server cabinets will not be put on the street immediately. Transcoding digital to genetic data is one thing, but replacing the current infrastructure in the data centres is another. Commercial suppliers will not just take up the challenge as soon as the technology becomes available outside the scientific world.

Matter of time

According to estimates published by Nature, the worldwide digital archive will contain so much data in 2040, that storing it on current flash memory sticks will require a hundred times more silicon of microchip quality than is expected to be available on earth. That DNA data storage will provide the solution is fortunately only a matter of time. The Microsoft researchers expect that

at most, it will take a decade before technology is truly ready to conquer the world. Will the information professional soon be a biochemist too?

- □ The global digital archive in 2040 will contain so much data that storing it will require a hundred times more silicon of microchip quality than is available on earth. Other resources are therefore desperately needed. One promising solution is already with us naturally: DNA.

- □ Data can be stored extremely compactly in DNA. When stored in a cool and dry place, DNA can last for hundreds of thousands of years without loss of data. It is also very energy-efficient: the molecules themselves do not consume any electricity.

- □ There are still some practical obstacles to overcome, but it will not be ten years before data storage in DNA is available on the market.

Postscript

As a first acquaintance with the technology, Sound and Vision, in cooperation with Twist Bioscience, recently archived the iconic images surrounding the celebrations of the European Football Championship '88 in DNA (see http://pers.beeldengeluid.nl/192662-beeld- en-geluid-saves-iconic-fragment-ek-88-op-in-dna).

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An app will soon allow us to turn a book into an audiobook

by Ronald de Nijs

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"My whole working life I have been occupied with subjects on the cutting edge of search technology and content management," says Jan Willem van Wessel. Everything now comes together in his position at the Royal Library. Here he started work as the head of the Processing and Preservation sector eighteen months ago. Jan Willem studied alpha-informatics: "Now we call it natural language processing."

The issues he deals with at the KB are contained in his job title: processing and preservation. What does that entail? "Preservation concerns the preservation of all physical and digital collections. Processing concerns scanning, digitising and making available online books, newspapers and periodicals. Take for example our flagship Delpher, the website where millions of historical publications have been made full-text searchable."

Digital processes are increasingly coming into play, especially in the processing. Artificial intelligence, for example, is used in scanning and oscillating medieval manuscripts. In order to

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improve ocr'ing, the system is being trained, says Jan Willem. "Artificial intelligence will therefore play an increasingly important role in the work of the KB."

Audiobook collection

Artificial intelligence is a broad concept, according to Jan Willem. It includes self-driving cars and robotics. But in libraries, these are not hot issues. That is why he prefers to talk about machine learning or natural language processing as angles for artificial intelligence in the library world. "With machine learning, you can think of the automatic metadata description of texts, the assignment of classifications, and so on. And that is where you immediately get the overlap with natural language processing, such as the automatic summarising of texts."

According to him, machine learning and natural language processing can cover many functional areas. "Think of the automatic naming of the style of a text: is something, for example, children's literature?" Another example is Amazon's recommendation "This book is also interesting for you". The library world could also do something with this, Jan Willem thinks. At the same time, so many other applications are possible. "We have been able to convert texts to spoken text for some time now. At the moment it sounds like nothing, but with advancing technology the intonation is getting better and better. I expect that we will soon be able to use an app to convert a book collection into an audiobook collection in one go. These are exciting times!

Breeze in library world

According to Jan Willem, libraries have only just begun to use artificial intelligence. He prefers to speak of "a breeze that is beginning to blow in the library sector". Artificial intelligence will play an important role in four different areas. Take, for example, the library's services. "Although one can find already many applications of AI in advanced search technologies."

Furthermore, it affects the working methods of the library, including, for example, the previously mentioned classic library task of metadata. Artificial intelligence also changes the social role of the library. As an example Jan Willem mentions services aimed at the digitally illiterate: the group for whom it is difficult to gain access to digital information. And finally, the library itself can also contribute to the use of artificial intelligence, although this requires major investments. However, this requires large investments. That is why, according to him, libraries will work together more and more.

Examples

Ask Jan Willem about appealing examples and a flood ensues. He found the publication that Springer Nature presented in April 2019 to be impressive: a fully automatically generated scientific handbook on batteries (Lithium-Ion Batteries, Beta Writer). The documents were selected with artificial intelligence from some 50,000 scientific articles in the fields of physics and chemistry. An automatic analysis was then carried out to choose the right contributions, to make a logical connection in the bundle and to ensure that there was no duplication. "It is the first time that a publisher has produced a book in such a way. A library could also search for information in this way. "

Or take IBM's Debater project. A supercomputer, fed with tens of thousands of articles, is able to give arguments in a debate, to answer critical questions and to ask questions itself. "This is the holy grail in natural language processing, because it is so difficult to realise. The example is not directly applicable in the library world, but imagine that instead of information, we would soon be able to provide ready-made answers to our customers' questions."

Black box

All these developments in artificial intelligence are wonderful, but what about the ethical side of it? Jan Willem sees a few serious areas of concern. Transparency, for example. "Many artificial intelligence systems are a black box: you put something in and something comes out without knowing how the system reached its decision. And people start working with this output, whether or not indiscriminately. Or take precautions. If you train a system with pictures of men, the system will 'think' that there are only men. If you use such a system for a job application procedure, it will more often produce a man than a woman. The system is therefore wrongly trained. I would argue that, for the time being, humans should be the last link in artificial intelligence systems that make decisions."

Principles

To demonstrate that it will properly deploy artificial intelligence, the KB has drawn up a list of seven principles. It is a promise that the KB is making to its users. And to take away concerns from them. "There's a reason why the first principle is that you should use artificial intelligence to increase the availability of information. So we start with something positive. But at the same time we have to be careful not to reinforce the negative effects of artificial intelligence, such as bias."

The KB is not the only one to come up with such a list, Jan Willem has noticed. "The European Union has drawn up a set of principles, but so has the business world and big-tech companies such as Google and Facebook. Although the latter are viewed with some scepticism."

Jan Willem has submitted this list to the National Library of Norway and Stanford University Libraries. "They are setting up an inter- national working group to investigate the use of artificial intelligence in libraries. They think the principles are a good initiative and perhaps the list will be supplemented with their input." "But," hurries

Jan Willem says, "The list should not become a thing in itself. Let's develop beautiful things with artificial intelligence."

Artificial intelligence is playing an increasingly important role in the work of the Koninklijke Bibliotheek.

Soon, an app will be able to convert a book collection into a listening book collection in one go.

To show that it will use artificial intelligence in the right way, the Royal Library has drawn up a list of seven principles.

Source

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Smart
Ethics

The word (and theme) *ethics* runs through this book. So now we are really going to draw attention to it. In the professional organisation and in the social debate, the discussion about ethics is becoming increasingly frequent. And rightly so, because the discussion of ethics keeps us sharp and aware of what we are doing. In our profession, in our lives and in society.

   Big words, but in the context of the following contributions also justified. After all, the conversation should be held every day in a society where the 'clock speed' seems to be increasing rather than decreasing. The conversation about ethics produces reflections, but in this section it is visible that these reflections also lead to follow-up steps and actions. Applications even, including guiding design choices. Ethics is therefore not only about abstractions but also (and perhaps especially) about applications.

The public sphere

by Henrietta Joosten

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Information professionals not only tackle social problems, with their work they increasingly determine how we can and should live together. The (envisaged) corona app is the ultimate example of this.

Increasingly, the work of information professionals - whether they work in the private sector or in (semi-)government - is intertwined with political issues, i.e. issues about how we live together. Their work concerns us all. But because of the way we use technology, the public sphere is under increasing pressure in the 21st century. There is less and less room to work together - professionals, citizens and governments - and speak on an equal footing about the use of technology. It is high time for information professionals to use their potential to stimulate the public sphere. After all, a free society does not come about and persist on its own.

Information professionals have impact with their work

Whose safety comes first: that of children playing outside or that of the occupants of a self-driving car? Who is on the list of potential fraudsters? What information do we get to see through search engines? To what extent can so-called low-literate fellow citizens find their way in our society? Research by Bommelje and Keur [2013] shows that about a quarter (!) of the citizens will not and cannot become digitally literate.

Is a corona app primarily a tool for the government to defuse the corona crisis or is it a tool that enables citizens to take better care of themselves and each other? Through their work, information professionals provide answers to these questions and increasingly determine the shape of our society.

Technology is more than a neutral tool

Technology and mankind are becoming increasingly intertwined; they influence each other mutually. You can compare it to the presence of the coronavirus: the mere existence of the virus suddenly makes us - whether we want to or not - see each other as potential sources of infection. The same happens with technology. The presence of cameras makes you behave differently, whether they are on or not. The emergence of ever smarter (swarms of) robots makes us think about how we (want to) live together with them. The use of algorithms in the insurance industry has made us think very differently about solidarity. Technology is changing the way we think about ourselves and the world, how we treat each other and what we consider important.

Broad impact requires public responsibility

The broad impact of the work of information professionals on society goes hand in hand with a certain public responsibility. And that is not because ethics, politicians, interest groups or other parties impose it on information professionals from outside. It is inherent in their work; they are deeply involved in shaping society. This moral responsibility is being recognised more and more. It is no coincidence that Smart Humanity has been an important theme within the KNVI for a number of years. And even if you regard the protection of private, economic interests - within the limits of the law - as the only real mission of companies, companies had better recognise this impact and deal with it responsibly. When you

close your eyes to the social impact of your business activities, in the long run it will make your own activities more difficult, wrote the first professor of business ethics in Europe, Henk van Luijk [1993], already in the last millennium.

Information professionals representing public interests

This public responsibility is often put into practice by serving the general interest - through your expertise you contribute to the realisation of 'the good' for society. Information professionals create technological tours de force to solve the climate crisis, the shortage of staff in the care sector or the educational disadvantages of schoolchildren. But however good everyone's intentions may be, it is not up to information professionals to decide on their own what is desirable for society. These are issues that concern everyone; they belong in the public sphere.

Stimulating the public sphere

Information professionals can fulfil this public responsibility (mainly) by stimulating the public conversation about the kind of world we are creating. This is therefore not about promoting public interests. It is about stimulating the public conversation about public interests. The world we are shaping with IT, is that also the world we want to live in together? In recent years, more and more attention has been paid to the input of citizens in the design of technology. During Smart Humanity, for example, various2019 sessions were organised around the question of how to involve citizens and representatives of various stakeholder groups in the decision-making process. This is a good development. Also, tech companies are increasingly using methods to map and evaluate the ethical risks of new technologies, products and systems - often referred to as 'ethical foresight analysis' [Floridi & Strait, 2020]. But in the context of stimulating the public sphere, these developments do not go far enough. The question is how we can

use technology to shape a free society: a society where citizens can constantly - and not just in the preliminary stages or at the invitation of a tech company - question the design of society and where they can constantly appear on the public stage with their own answers.

Why is attention to the public sphere important (now)?

Robotics, nanotechnology, medical information science, hyper-automation and digital twins are just a few examples of technological trends that are already helping to shape our society. The boundaries between the physical, digital and biological domains of life are rapidly disappearing. In 20 years, our society will look very different. The importance of the public sphere will only increase.

But while the impact of technology continues to grow, the conditions for the public conversation are diminishing because of the way we use that same technology. The way we use technology is making the public conversation increasingly difficult. We are becoming more and more accustomed to a world that is adapted to our personal preferences and history. When it comes to the possibility of personalised cancer medication, this development is fantastic. But a one-sided emphasis on the personal slowly but surely makes us lose sight of the shared world - the world we all share. And that is precisely what the public sphere is all about. Online environments also lure us into spheres where like-mindedness prevails. Speaking together about how we want to live together requires the ability to listen to each other, even if the other person has very different values. A firm belief in the possibilities of technology - think of nudging - is not helpful either. Before you know it, complex social issues will be reduced to technological ones, which we are happy to leave to experts. Citizens' input is then unnecessary; in fact, it is undesirable. The fact that tech companies are becoming ever larger and more powerful is also not conducive to the public sphere. The public sphere, traditionally the haven for democratic consultation, is under pressure at the beginning of the 21st century.

Action perspective 1:
speak on the public stage themselves

We cannot stop technological developments, but we are not completely at their mercy. We can influence how we shape our society and we can always make room for public reflection on the question of what kind of world we are creating with the deployment of technology. In this way, information professionals, decision-makers and policy-makers have the opportunity to take part in the public conversation themselves. Instead of going along with the issues of the day, you speak out and thus give the public conversation a boost. For a moment, you are not putting your own interests or the interests of your supporters first, but the common interest. You can do this as an individual. But you can also organise this in a larger context. The public dialogue is a helpful method. This method was elaborated on the basis of five practical cases from the intensive livestock sector in North Brabant [Boers, Brunt, Evers & Van der Werff, 2016]. The authors describe what happens when entrepreneurs, nature organisations, citizens and government enter into discussion about public issues such as health, nature and the environment. This method is also appropriate when the discussions focus on the organization of society by means of technology.

Action perspective 2:
designing for the public sphere

A second area in which information professionals can contribute to enhancing the public sphere is closer to their expertise: design, but with an eye on the public sphere. Now the public sphere itself is not an artefact. It is not 'something' that you create once and then it is there for the long haul. It is rather a quality of human interaction. This sphere or space of appearance is created when people speak and act in public. When they separate again, this sphere of freedom no longer exists. When you design for the public sphere, you create orders that stimulate the public sphere. An example of such a design principle is 'data in cooperative hands'. With many apps and platforms, the data is in the hands of the providers.

This is also the case with the popular and free-to-use online neighbourhood marketplace Nextdoor. This commercial Silicon Valley start-up earns big money from data about neighbourhood residents [Van Dijck, Poell & De Waal, 2016]. In the municipality of Helmond, they want to approach things differently. In a smart neighbourhood that has yet to be built, the plan is to let the residents profit from their data. The money that is made from data goes to the person who produces the data and makes it available [Van Wijnen, 2019]. But what if, in Helmond, you apply the design principle 'data in cooperative hands'? The district as a whole then manages the data. Neighbourhood residents determine together what they do with the data (and the money that they can earn with it). By organising the district differently, you invite a discussion about shared interests - instead of your own. To achieve this, you need a very different technical infrastructure than is often used. More design principles are conceivable: 'actively open up', 'incorporate private and public values in the design' or 'invite the exploration of diverse perspectives on the world'. In the book The Public Sphere in the 21st Century: Hannah Arendt as a Guide for Professionals, many more 'public sphere' design principles are described and amply illustrated with examples [Joosten, 2019].

Focusing on partnerships

Designing for the public sphere means above all designing the world in such a way that the public conversation about the common world is stimulated. In this context, Professor of Philosophy of Man and Technology Verbeek speaks of a new interpretation of politics and democracy [Verbeek, 2019]. This is a major public task. You have influence as an individual owner, designer, builder or manager, but together you are stronger. The development of (temporary) cooperative ventures is obvious. But it is also a new task. Looking at the work of information professionals through the prism of the public sphere is not a self-evident perspective. Training is necessary. Expansion of the curricula of both IT training courses (with more attention for the public sphere) and management training courses (with more attention for the impact of IT) is a

good start. In addition, one can think of a supplement to the competency frameworks with the value "public sphere central" or the development of a "Pro public sphere" manifesto for (and from) information professionals. A professional organisation such as the KNVI is a good platform for putting these matters on the agenda and initiating them. This is desperately needed in these times of turbulent technological developments: after all, a free society does not come into being and does not automatically continue to exist.

- Technology makes some ways of living together impossible and imposes others.

- In a free society, anyone can have a say in how society is structured, but the way we use technology makes public conversation increasingly difficult.

- It is high time for information professionals to use their experience and expertise to stimulate the public sphere.

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An invitation to run along

Vincent Janssen in conversation with Maxim Februari

In 2008, Maxim Februari wrote one of his first columns for the *NRC:* a piece on the future of warfare. But his voice was not heard. "If only I had shouted louder."

"We are now so far advanced with automated weapons that we urgently need to start talking about ethics," says Maxim Februari. According to the philosopher and writer, we are actually already too late.

Lack

February is convinced that there is still a lack of discus- sion about ethics in today's society. Especially in the information domain. But this is not so much down to information professionals: "The problem lies with society - it does not concern itself with it enough. A

For example, IT personnel should not have to take a course in ethics, but society should express its expectations more towards the information sector." The conversation between information professionals and society must, according to February to start: "We're really late".

Butterfly net

One of the topics the philosopher discusses is our attitude towards data. Data does not exist: "People think that data is a natural phenomenon, that you can catch it with a butterfly net or pluck it from somewhere. But data are products we make ourselves." If we look at it this way, Februari believes, you also learn other things from those data. They are not neutral, hard data: "You make data, so you put a philosophy of life in it
in. Dates are therefore morally charged. I am trying to make that clear,
to create awareness of how we data."

Moral issues

February also often clarifies his philosophical views with topical examples in his books, articles and columns, and when he gives lectures, such as at the Smart Humanity event of the KNVI in 2018. With this view of the future, February wants to avoid "that we will be kicking ourselves in the head in ten years' time when things go wrong". For-

Picture the challenges in tax law: "The future of law will take place in machines, not in law books," says February.

The importance of ethics and philosophy in the information and technology sector is gradually growing. February therefore hopes for renewed heyday for philosophers.

Source

- Adaptation of an article previously published online in *IP*. See also: https://smarthumanity2018.knvi.nl/wp-content/uploads/2018/11/IP- special-Smart-Humanity-2018.pdf

Ethical matrix: balancing with values from design to use

by Marlies van Steenbergen

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The realisation that technology is not neutral and that every design, including digital innovations, implicitly contains certain values, is gaining ground. Clients and designers translate, consciously or unconsciously, their personal standards into specific design choices.

The *ethical matrix* is a tool to make this process explicit. It structures in a simple way the possible impact of design choices on the various values of the different stakeholders. The great advantage of this method of structuring is that it makes the ethical considerations in specific design choices traceable and also offers the possibility of testing, when a new digital innovation is in use, whether the intended effect on various values actually works out that way.

Technology is not neutral

Nice idea, until it became a monster' is the headline of an article in the Volkskrant [Volkskrant, August 10th, 2019]. The article cites various examples of people with regrets: a co-founder of Facebook, the inventor of the retweet and the inventor of Internetforum 8chan

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all come to the conclusion afterwards that they have created a monster. That was not their intention.

Technology is not neutral. Every design has moral consequences. Sometimes consciously, often unconsciously [Van den Hoven, 2017; Schep, 2016]. Whether it concerns an automatic entrance door (a revolving door is easier to keep out undesirable people than a sliding door, but also excludes wheelchair users) or a digital service (a cookie wall with a default setting allowing only the necessary cookies is more respectful of customer privacy than a default setting allowing everything), there are always certain actions that are easier to perform and others that require a lot of effort or are impossible. With a gun, you can't do much more than shoot bullets. But often it is more subtle and a technology is used in a way its creator did not foresee. Is this unavoidable? Or should the creator have been more careful?

Moral considerations in design

If technology is by definition not neutral, it is the duty of a designer of technological innovations to make moral considerations during the design process. A designer with good intentions will not only bring in his own standards and values, but will also take into account the interests of others, such as the intended users or other interested parties. What makes it difficult is that not everyone has the same interests and that what is beneficial from one perspective may be detrimental from another, equally legitimate, perspective.

Ben Mepham's ethical matrix [Mepham, 2000; Mepham et al., 2006] helps to make design choices morally transparent, traceable and verifiable. The ethical matrix originated in the food industry. It was developed by Ben Mepham as an instrument to support the ethical evaluation of biotechnological innovations. In its original form the ethical matrix is a 3×4 matrix. The columns contain three ethical principles, based on the principle of the

three important ethical currents: autonomy (deontology), welfare (utilitarianism) and justice (Rawls' distributive justice). The rows represent the parties affected by the biotechnological innovation: producers, consumers, animals and the environment. When a biotechnological innovation is considered, the ethical matrix is used to discuss the impact of the innovation with respect to each of the principles on each of the stakeholders and to indicate this in the cells of the matrix. Ben Mepham's ethical matrix has been applied in various fields in recent years [Kermisch & Depaus, 2018; Schroeder & Palmer, 2003; Vinnari et al., 2017].

The ethical matrix is, with some adaptations, also very useful outside the food industry and can also be used in a broader sense than just for evaluating technological innovations [Van der Stappen & Van Steenbergen, 2020]. Two examples of the use of the matrix that illustrate the diversity of possibilities are the development of an app to support students in practical education, and the inventory of the possible consequences of online proctoring.

Ethical choices in a student app

The first example, the student app, shows how the matrix can be used throughout the design and development process. The aim was to design an app for students who, under the supervision of a lecturer, would carry out preventive health checks on citizens by means of questions and simple tests, and on that basis give lifestyle advice (https://husite.nl/huklinieken/klinieken-on-location/). This could include advice on nutrition, exercise and the purchase of spectacles. Examples of stakeholders in this case are the student, the teacher and the citizen. But also the municipality. Examples of values at stake are transparency, autonomy and safety. In this project, we applied the matrix at different levels. First of all, we drew up a matrix for the basic idea of the app. In the cells we indicated which design choices could influence the values of those involved (figure 1). Grey is a positive impact, dark grey is negative and light grey can still go either way.

	Transparency	Privacy	Health	Responsibility	Safety	Autonomy
Burger	ICF classification functioning Route aut.	ICF classification operation Personal card	ICF classification functioning Route aut.		Route aut.	Route aut.
	Automatically generated advice	Collective feedback	Automatically generated advice			
			Collective feedback			
Student	ICF classification functioning			Route aut.	Route aut.	Route aut.
	Automatically generated advice			Automatically generated advice	Automatically generated advice	Automatically generated advice
Teacher/Researcher	ICF classification functioning		ICF classification functioning	ICF classification functioning	Automatically generated advice	
				Automatically generated advice		

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Figure 1: Main design choices and their IMPACT on stakeholder values

The matrix shows that the extent to which the app would support the student by automatically generating an advice can have a major impact. It can severely limit the student's autonomy and make transparency more difficult, both for the student and the citizen. It has advantages for the teacher, because it can reduce the chance that the student makes mistakes. In order to elaborate and investigate this further, we worked out a number of design alternatives and filled out a matrix for each alternative. Figure 2 shows part of the matrix for the design alternative where the advice is formulated entirely by the student, without support from the app. The figure shows the teachers' considerations of this design alternative.

	Responsibility					
	Transparency	Privacy	Health		Safety	Autonomy
Burger	Realisation is less transparent		Is the advice correct?		Safety is under pressure when student is in doubt a lot	
Student				Student has a great deal of responsibility; he is not yet a professional, so he can do this individually (without help or guidance).	Can give uncertainty about the correctness of their own advice	Great autonomy for student, can formulate his or her own ideas
Teacher/Researcher	Not transparent how			Quality assurance is difficult, requires a lot of monitoring	How do I check the student? Do I see everything?	

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Figure 2: Impact of the alternative where the student draws up an advice without the help of the app

It is clear that letting the student determine the advice completely has its disadvantages. But it is especially positive for the autonomy of the student. On the basis of this matrix, however, it can be concluded that it is probably not the best solution. In a similar way, all design issues can be considered in terms of their im- pact on the various stakeholders. We are not there yet, but the idea is to use the matrix when the app is actually in use, to test whether the intended impact is also present in practice. This may lead to adjustments of the app. In this way, a series of matrices is created that together show why certain choices were made and enable transparency with regard to moral considerations.

Ethical choices in online proctoring

The second example, online proctoring, shows how the matrix can be used to create awareness **and** initiate a discussion on values among those involved in the implementation of off-the-

shelf software. Due to the corona crisis, many institutes of higher education have switched to remote proctoring of examinations. The usual invigilator is replaced by software, the so-called *online proctoring software*. By analysing camera images and test results, this software checks whether students are making use of cheat sheets, the Internet or help from housemates while taking the exam at home. At two higher education institutions, we held an online session in which lecturers, examiners, examination committees, IT and students together filled in an ethical matrix. Together, we looked at what online proctoring means for the autonomy, welfare, reputation, equality of rights and privacy of those involved. This resulted in concrete recommendations regarding the use of proctoring software. A simple but important example is the requirement that cookies that have to be installed in order for the software to work are automatically deleted after the examination, or, if this is not possible, that the student is given explicit instructions afterwards about how to delete the cookies again.

Using the Ethical Matrix

To create an ethical matrix, the following steps are taken:

▫ Briefly describe the technological innovation you want to design.

▫ Identify the key stakeholders of this innovation, put them on the y-axis.

▫ Identify the most relevant values in relation to this innovation and these stakeholders and place them on the x-axis. Values can be identified by thinking about the potential benefits and harms that the innovation can cause to the various stakeholders and then considering what values lie beneath.

▫ Determine the potential impact of the innovation on stakeholders in relation to the values. Write this in the cells. Not every cell needs to be filled, there is no need for every stakeholder to have an impact on all the values identified.

Step 4 can be performed several times with different scopes, for example for the overall innovation and for different detailed design alternatives. Once a matrix has been filled in, it can be analysed and translated into concrete design criteria. The challenge will mainly lie in the tensions that can arise between values. For example, between safety and autonomy.

Finally

The ethical matrix is a simple instrument. But in practice it proves to be very powerful in structuring conversations about stakeholder values. The strength of the matrix lies in the fact that all stakeholders and all values are included in one model. This encourages a holistic perspective on all the different ethical issues and makes ethical dilemmas visible. It prevents a focus purely on privacy and a focus on only one or two groups of stakeholders. If the matrix is completed in an interactive session with the various stakeholder groups, it also leads to greater understanding of each other's perspective. And solutions can be creatively sought. Experience shows that the use of the matrix leads to other considerations and other design choices.

1. Technology is not neutral.

2. The ethical matrix makes ethical considerations traceable and verifiable.

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Suzan Verberne and the new search for information professionals

Ronald de Nijs

What are the wishes of professionals whose core task is to search for information? To find out, Suzan Verberne, researcher and lecturer at Leiden University, conducted a survey. Her aim: to outline a plan for scientific research into improving search systems.

"My own research and that of my PhD students is about finding or unlocking information in specific domains. This often concerns the work of knowledge workers, such as journalists, scientists, lawyers and archaeologists," says Suzan Verberne, who works at the Informatics Institute (LIACS) of Leiden University. Her expertise is text mining, but she is also very interested in the human side: how people search for information, especially for their work. "People answering complex questions at work often need a number of queries in a row, and specialist search ma- chines like PubMed and Google Scholar."

Restrictions

Her field, information retrieval, falls under computer science. "Our research is not very social science in nature, but focuses mainly on optimising results for simple search queries. Take, for example, the question of whether a restaurant is geo- pendent. In my field, it's all about the position where the right answer is found. But if you are looking for work-related information in specific domains, then googling no longer works. You then want to be able to formulate in a more specific way where
You are looking for, but you can also build on existing knowledge and on previous search queries. In short, our research is now somewhat limited."

Survey

"We should pay more attention to work-related information searching in the research field," says Verberne. That is why she decided to organise a work shop on this issue for international colleagues last summer. The input of the professionals themselves was indispensable. She wanted to find out by means of an international survey. Although the survey was distributed among knowledge workers in all sorts of bodies, it turned out that it was mainly filled out by information specialists. "The most common profession was librarian".

Outcomes

One striking result is that users prefer a more integrated professional search environment. Also noteworthy: the examples given show that there are very precise search queries that need to be answered.

At the same time, the search does not always have to be so complex. "At the same time, searches don't always have to be so complex; people also often look something up quickly. What also surprised her was that almost all professionals, regardless of their area of expertise, have the same wishes when it comes to improving search engines.

How to proceed

"In our field of work, there is a great need to involve users in research. By this I mean that we ask users what exactly they want and whether they are satisfied. We also want to observe people while they are searching, in order to learn about their behaviour." Together with her colleagues, Verberne is now drawing up a roadmap for the design of new research. The input of information professionals is still welcome.

Source

Adaptation of an article previously published online in IP.
See also: https://smarthumanity2018.knvi.nl/wp-content/uploads/2018/11/IP- special-Smart-Humanity-2018.pdf

Value Sensitive Design: digital innovations that do justice to personal values

by Marlies van Steenbergen

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The expectation of the organisers of the appathon on April 18th and 19th, 2020 about a tracking and tracing app to prevent the spread of the coronavirus was a little too optimistic.

The idea was that the appathon, which could be followed live by all Dutch citizens, would transparently determine, with input from all relevant experts, what would be a good solution to support contact investigation by the GGD. Things turned out differently. The appathon led to great commotion. And instead of the hoped-for smooth introduction of an app within a few weeks, there was a radio silence and no mention of an app for weeks. Except for the small announcement that reliable parties were working on an app.

Success of digital innovations?

It is becoming increasingly clear that success or failure is partly determined by the degree to which a digital innovation takes account of social and personal values. Insufficient respect for values regularly leads to social unrest, for example when privacy is at stake. Clear examples are the 'corona app' mentioned above and the Anti-Terrorism Act. In the case of these and other examples

the discussion is about an exchange of values: give up some of your privacy for the good of all, give up some of your privacy for the safety of all. This trade-off has penetrated so deeply that a law has been created to protect our privacy. But it is not just about giving up privacy. There is more at stake. For example, it is important to remotely check the examinations of students in higher education, so that their studies are not delayed. Fortunately, there is intelligent software that can detect deviations in the taking of online exams on the basis of camera images and the monitoring of the laptop. Privacy is clearly an issue here. But what about possible reputation damage and equal opportunities? In times of crisis, such as the corona crisis, everyone turns to digital solutions. Especially then, it is important to think carefully about the impact of those solutions. Not only in times of crisis, but also for digital solutions that seem less radical, it is important to explicitly include the values of potential stakeholders in the design. *Value Sensitive Design* (VSD) offers a way of doing this. This contribution describes how information professionals can use VSD to achieve better designs and implementations.

Value Sensitive Design as a design approach

By now, designers are used to looking not only at functional requirements, but also at non-functionals such as robustness, ease of use and reliability in their design. Less obvious is, in addition to these two perspectives, "What should the design do?" and "What should the quality of the design be?", to include a third perspective: "What does the design mean for the citizen and society? And I'm not talking about the broad social discussion about whether AI is going to take over and whether robotisation will lead to unemployment, however important it is to have this discussion. But it is not the only discussion. What I am talking about here is the smaller, but no less important, story of the impact of an individual digital service.

Value Sensitive Design (VSD) is a design approach that adds the value perspective to the design process, introduced at the beginning of this century by Batya Friedman [Friedman & Kahn, 2003]. Friedman [2006] provides a good introduction to the approach. VSD defines human value as 'what is important to people in their lives, with a focus on ethics and morality' [Friedman & Hendry201 9]. The use of a technological artefact can realise and impede values. Therefore values must be considered throughout the design process. VSD places great emphasis on the fact that not only the values of direct stakeholders, such as the users of a digital innovation, should be considered, but also the values of indirect stakeholders who may be indirectly affected by the innovation. These may include future generations or people who cannot or do not want to use a service. The values of these stakeholders, as well as possible tensions between them, are iteratively examined from a conceptual, empirical and technical perspective and translated into design choices.

VSD at conceptual level

On a conceptual level, the relevant stakeholders and values are identified and defined based on literature and expert knowledge. In the tracking and tracing app, the citizen who uses the app, the government and the GGD are the direct stakeholders. Examples of indirect stakeholders are the healthcare professional, the citizen who does not have the app, the entrepreneur in for example the hospitality industry or gym and the employee. Values that come into play with this app include livelihood security (of entrepreneurs and employees), privacy (of citizens), well-being (of healthcare professionals, entrepreneurs, citizens) and autonomy (of citizens). By searching the scientific literature for publications on disease control and tracking mechanisms, and talking to experts in the fields of viruses, surveillance and ethics, the most important stakeholders and values are identified. The famous appathon in April can be seen as a clumsy attempt to start the conversation with experts.

VSD at the empirical level

At the empirical level, it is investigated how the various stakeholders actually experience and weigh the values that are relevant. Methods such as interviews, focus groups or experiments are used here. This leads to a further elaboration of the values in norms. Norms are the boundaries people set. For example: I want to reveal who I have been close to, but not where I have been. Or, I think an infection rate of 0,8 is acceptable, but not of 1,2. In England, for example, a pilot has been conducted on the Isle of Wight with a tracking and tracing app. Hopefully the pilot will not only be used to measure the effectiveness of the app, but also to question citizens on how they experience its use. It would also be interesting to ask those who have not installed the app what their reasons were for not doing so and whether they have been stigmatised for not participating. A smaller-scale way of investigating how individuals experience certain values and what limits they apply to this is the *philosophical conversation*. In a philosophical conversation, a dialogue is conducted in which each person is asked intensive questions about what he or she considers important [Morrell, 2004].

VSD on a technical level

At the technical level, the values and norms are translated into technical design. Examples are the decision not to use location data because this is not desirable in terms of privacy, to store data locally instead of centrally (privacy) and to place the responsibility for taking action with the citizen instead of with the GGD (autonomy). In making these choices, the challenge is to look for creative solutions where there are tensions between values: for example, should everything be resolved 100% digitally? Does it all have to be so beautiful and wonderful? We are often so focused on a specific digital solution that we limit our solution space unnecessarily.

The task for designers

For many designers, it is not self-evident to consider their design in terms of personal values. Experience shows that the conversation very quickly falls back on protecting privacy. In order to realise that there are more values at stake, it is necessary to think much more broadly about a design. The Value Sensitive Design Research Lab at the University of Washington has developed a set of so-called *envisioning cards*, which contain questions that go beyond the immediate context of use and thus stimulate this broader view (vsdesign.org). The questions relate to the future, to what happens when a design penetrates further into existence, to indirect stakeholders and to values. Examples of such questions translated to the tracking-and-tracing app are: who might use the app for unintended purposes? How might the use of the app shift over decades? What are the consequences for citizens who do not want to use the app? How might the app influence our behaviour?

VSD is not a specific development methodology, but can be used with any development approach, waterfall, agile or design thinking. It adds an extra dimension, the value dimension. In her wonderful book *Ethical IT Innovation, A Value-Based System Design Approach*, Sarah Spiekermann describes in detail how VSD can be applied in practice to the development of IT systems [Spiekermann, 2016]. She elaborates on the questions posed by the various VSD per- spectives: Who are the direct and indirect stakeholders? What advantages and disadvantages does the solution have for these stakeholders? How do these advantages and disadvantages translate into underlying values? How can these values be further elaborated? What possible tensions exist between these values? How do the stakeholders weigh the values and where do they put priorities? How can the design prevent negative experiences and create positive experiences? In 2019 the book *Value Sensitive Design, Shaping Technology with Moral Imagination* was published [Friedman & Hendry, 2019]. This accessible book gives a nice overview of the philosophy behind VSD

and the development over the years. In my view, it is a must for anyone involved in the design, development and use of apps and other digital solutions. Especially in times when the pressure and the importance of fast digitalisation is enormous on all fronts.

- The success or failure of a digital innovation is partly determined by the extent to which the digital innovation takes account of social and personal values.

- Value Sensitive Design offers an approach, usable in any existing design approach, to include personal values in design and development from the very beginning, by design.

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Modesty adorns the ethical conscious system builders:
the human being at the centre

by Anna Snel

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There are growing calls for greater ethical awareness in IT. This should come as no surprise to anyone given the major scandals in the tech industry that have hit the news in recent years. Facebook, Uber, WhatsApp, Google, Instagram. Data hacks, fake news, accidents with self-driving cars, dangers of AI. Everything passed by.

But there are solutions, including more modesty in the design of systems, which can put people centre stage much better. Developments are rapid and the influence of technology on people and society is enormous. We are also becoming increasingly aware of it. As long as it's about data in general, and privacy as a concept and misinformation in the abstract, you can perhaps look away. But when it's about your data, about the politics of your city or country and the information you consume every day, then it gets close.

Technology provides an extra dimension to this story. Not only are different services, environments and systems becoming interconnected through all kinds of networks, but you also see that technology is gaining a kind of autonomy. A certain service may once have been designed

by people with the best intentions. But if this service becomes part of a network of services and a certain degree of self-learning occurs, there may be consequences that we did not foresee.

And that makes the story of ethics and IT tricky. Because do you look at the intentions that the designer had and whether these were good? Or do you look at what consequences the design led to? It seems that we do both. On the one hand, we often have ethical judgements about certain technologies before we even see the consequences. For example, many are concerned about the self-directed and self-learning capabilities of AI or the risks of algorithms making decisions for us. On the other hand, we also judge technological developments on what they have led to. No matter how sympathetic Zuckerberg's intentions may have been at one point, we feel bad if our data is used without our knowledge and if we are presented with fake news.

It is therefore a good idea to include ethical motivations throughout the design process, so that you keep track of both intentions and consequences or outcomes.

Needs people central

Almost every explanation of how design thinking works starts with figuring out the problem you are going to deal with. By thinking about who has a problem and what his or her problem actually is, you can avoid answers that are separate from a question. We then avoid designing things just because it is technologically possible, and first think about what problem we are actually solving. Something is only a problem if someone finds it problematic. So who is this someone and how do we find out what his or her problem is? Should we ask? Observe it? Walk with them? Put ourselves in that person's shoes? These are all ways in which we can ensure that the focus is not on the technological possibilities, but on the human being and what his or her needs are. This is about the intention of the design: how can we design for people and their needs

on the basis of empathy with people's needs? A little clarity on how far we know the issue is then appropriate.

More perspectives

This is the step in which design thinkers create ideas. By looking at the issue from different perspectives, different insights arise and you can arrive at different lines of thought. But here too it is important to keep your ethical awareness sharp. Are you only looking at the issue from a certain perspective such as what is technologically feasible, economically advantageous or politically desirable? Then realise that there are probably important perspectives that you have not included. By looking for new perspectives, you can avoid this bias in your thinking. Values such as diversity and inclusiveness are important here. Diversity in the sense of the perspectives you bring in, inclusiveness in the sense of what you actually do with the new insights. "Diversity is being invited to the party, inclusion is being asked to dance." We don't have all the necessary knowledge and insights ourselves, so again, modesty is a great thing.

Another important phase is the experimentation or prototyping phase. Here, ethics can be seen in the fact that you have to take into account the unforeseen consequences and effects of use. If you implement something and think: well, that was that, then you don't look at it anymore. Your job is done and what happens next is someone else's responsibility. But from a systemic point of view, it is very interesting to look at how you can prepare yourself to some extent for consequences that occur outside your traditional field of vision. By testing prototypes in a realistic setting, you may be able to see certain consequences coming. Then there is still time to adjust things, instead of implementing the whole thing, which later leads to unprecedented dramas. Monitoring what happens to the design is therefore an ongoing activity, because you do not know what consequences may still occur. Here again, we see the importance of modesty, this time in relation to our knowledge of the future.

When designing graphics and physical objects, people often stop at this prototyping stage. After all, these designs are visible and tangible, so people can judge for themselves whether they meet their expectations. However, in recent decades, the focus of designers has increasingly shifted towards the design of services, environments and systems. Here you are talking about designs of which man is a part, or fully a part. Designs that, if they incorporate the wrong values, can have major consequences for masses of people. For more complex issues such as services, systems and environments, an extra step is therefore needed. People cannot judge at first sight what the design entails, let alone whether it suits their needs, so more explanation is needed here.

Approach

The ethical component is in the approach. Do you tell people what you have thought up and how good it is, in order to tempt them to participate, or do you put people first and take them through the process you have gone through? With the possible result that people arrive at a different, who knows even better outcome? Are you open to the fact that there may be better solutions and do you give others the space they need to find the most suitable solution for themselves? In this last choice we again see the emphasis on a modest attitude.

"Farmers don't grow crops, they create the conditions for crops to grow." If we want to put people first, it might also be a good idea to cultivate humility in how we create the right conditions for the design of services, environments and systems.

- When designing applications, it is important to take ethical considerations into account during the design process, so that both the intentions and the consequences or outcomes can be seen.

- Something is only a problem if someone finds it problematic. This also applies to the creation of new IT solutions: it is better to think about what problem actually needs to be solved first, than to create nice designs just because something is technically possible.

- By ensuring diversity of perspectives in the design process, you ensure inclusiveness of new insights, and ultimately create a better (IT) solution.

Source

- Previously published on AG Connect:
  https://www.agconnect.nl/artikel/ bescheidenheid-siert-de-ethisch-bewuste-systeembouwers, February 27th, 2019

From filing cabinet to work system

Erik Saaman

In the past, archiving came at the end of a process. Nowadays, most information is digital. This makes it possible to shift archiving to the beginning. In the ideal world of today, archiving starts when information systems are set up. We call this 'archiving by design'.

Outdated image

How it used to be: an archivist walked through the room with piles of folders - on every desk there was something for the archive. And the archivist would try to keep the files in order.
in the chaos of documents. What should we keep and for how long? How do I ensure that someone will ever be able to find it again? In which filing cabinet is there still room? Help, they are all overflowing! With 'archiving by design' this image is outdated.

Archiving by design Archiving by design means that you already take into account when designing the information systems that support a work process.
It is about making the information from the work process permanently accessible. In this way, archiving by design bridges the gap between the work process and the archiving process.

With archiving by design, the work process is central, not the archiving process. It is therefore important that archive specialists have a good understanding of how the work process works. work process and the information systems used for it. Only then can they be a serious discussion partner for managers and ICT professionals. Because the work process is central, employees are also more willing to implement measures aimed at proper archiving.

How and when? Archiving by design is not something for information professionals to do. lend. You do that together with creators

and users of information. Let them think about the need for accessible information and what is required for this. The best time for this is during the design of the information systems that support the work process. Then you can set up the technology to support the work process and make the information that comes from it accessible in a sustainable way. It is better to do things right at the start than to repair them at the end.

Archiving in the work system

Traditionally, when archiving, information is moved from the system where it originated (the work system) to a dedicated archiving system. But this transfer often involves high costs. And there is a risk that the information will be corrupted in the process. There is often another way. Information can be archived in the work system itself, as long as it complies with the requirements for sustainable accessibility. You must be able to open up the work system, for example

It must be easily searchable for other users and use standard file formats. Sometimes moving the information to an archive system is the best or even the only solution. But that is the outcome of the design process and not its starting point. And certainly not a choice after the fact.

Archiving by design is **not a panacea**. It is a way of tackling the issue of digital archiving, but does not answer the question of how.
Digital archiving is still a tough problem. You cannot solve it by formulating a total solution in advance and implementing it according to a fixed plan. It is better to discover what works step by step. Archiving by design helps to take those steps.
All those involved work together: creators and users of information, information professionals, digital archive advisors and builders of the information system.

Source

Value-inspired design: moving forward together after the corona crisis

by Abraham de Kruijf

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Work processes can be value-inspired. This supports organisations in dealing well with customers, employees, the external environment and environmental and social sustainability [Brundtland, 1987].

Without explicitly including "value-based" goals in an organisation's work processes and systems, we run the risk of the "people" factor disappearing or at least becoming less important than technical, rational or machine-based process design. How can you incorporate "value" into business processes via IT solutions? Four values can help.

When asking which values are important for an organisation, it can help to start from the four verbs 'be', 'have', 'do' and 'become'. If the opposites of these four are also defined, a bandwidth of associations between each pair emerges. For example, if being stands for having a job and not being stands for losing your job, then between the two extremes there is a range of 'constructive words' that imply an appreciation, that express what is 'value-full', what is worth striving for.

From verbs to work values and interaction values

Reflecting the four verbs on daily life, work relationships, organisations and society, work values emerge. These work values are values in interactions between people, organisations and the living environment. The mirroring of work words into work values produces the following four basic values, interaction values:

- dignified existence (from being vs. non-being)

- sustainable development: economic, social, technological, ecological, cultural (from the point of view of having vs. not having)

- acting responsibly (from doing vs. not doing)

- listening leadership/collaboration (from becoming vs. not becoming)

For each of these values, more in-depth definitions were subsequently worked out (see figure 1 for definitions).

Values for personal, organisational and social interactions for the purpose of living and working in equality and respect

Human existence, connected with interaction and respect
The art of learning to live an inspired life with space and respect for oneself, for others, for every other living being, and to be a lord and lady of the earth.

Sustainable development, linked to socio-economics
The art of maximising/optimising the involvement of all people in caring and effective production and consumption, while minimising and changing the consumption of non-renewable energy and raw materials as well as CO_2 emissions'.

Responsible action, linked to co-creation
(take on 1% extra responsibility every day)
The art of uniting wanting, thinking, doing and not-doing with taking personal responsibility for your own contribution and as part of the whole.

Listening leadership and listening cooperation, connected to governance and politics
The art of inspiring coordination and alignment of many simultaneous developments, while protecting people's privacy'.

Source: [De Kruijf, 1994]

Figure 1: Definition of four interaction values

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By applying these definitions of interaction values in the design process, processes and the associated ICT facilities can be made value-oriented.

In a community of forty-two people, an approach was then worked out in which these people, by means of the value definitions, discussed value issues in their own organisations and in society [De Kruijf, 1994]. In this way the applicability of these value concepts was tested at the same time. The values are also used in other situations and organisations. In recent years, this practical research has led to a tightening up and improvement of the approach, which is briefly outlined below.

Design in dialogue and the PER clause

In order to be able to include values in the design process of ICT facilities, it is important to compose and structure the steps of a work process. The PER clause is used here (see the explanation below). This works in any case short-cycle and can also be done agile.

From this decomposition a translation can then be made to ICT-ser- vices and micro-services [TNO-ICT & De Kruijf, 2006]. This applies to executive, management and supporting work processes as well as to the data within these processes. In this approach, at times both the employees in the business process (the future 'users' of the ICT facilities) and the designers and builders are working together. Hoppenbrouwers [2007] says about this: "The approach falls into the category of communication-oriented methods that create a kind of 'gradual emergent understanding' from the actual interaction between stakeholders. "Processes and data are both addressed in this interaction.

The Process Execution Repetition clause, or PER clause, is a specific methodological approach within the value-based design approach. PER also stands for "per" in the sense of executing a process (step) per day, per week, per client, per incident, per time that something is executed.

prevents. With the PER-clause, modular design and decomposition can be done individually and/or in joint workshops [De Kruijf, A., 2000]. The method is thus immediately self-documenting, structurally testable and has a short time-to-market. The customer/user can read the structured and natural language well. In addition, the method is strong in finding, optimising, and legibly describing (multiple) cause-and-effect relationships in work processes.

The PER clause has already been applied in combination with Archimate, use cases and user stories. At times when information professionals design processes together with users, further polishing can take place during the dialogue. And by structuring the design, you can reenact it during the design process. In this way, a high-quality, customer-friendly and digital design is created with attention to the naming of appropriate technology and values. It is a design principle to first model technology- and organisation-independent and later, with advancing insight, to make implementation and design choices. See also below under "the fourth value" (page 245).

Concrete examples of this approach include incorporating the way an organisation wants to treat its clients, by giving employees specific instructions and pro- cess steps at the checkout or in an app. Another example: where alertness to value in terms of employment was ensured in facilities where people were made redundant. And, more technically: using calculation functions to indicate where scarcity or redundancy will occur, at what times and in what areas, and informing employees and managers of this through regular reports.

Ethics: applying the 4 values in a work process

The four values described can thus be applied in the model learning of work processes. In terms of content, if one chooses, for example, honesty (an underlying value of "respect"), or inventiveness (an underlying value of "co-creation") as a value, then one forms

a picture of what such a value means for the organisation, the organisational field, in the concrete implementation of the work. This can be done in, for example, a Values Workshop. The ideas that this generates can be included in the descriptions of the work processes.

The *first and second values* combined focus on human dignity and sustainability in a society: economic, ecological and social. The first value does not emphasise 'rule', as in environments where power plays an important role, but uses 'manage' [Nederlands Dagblad & De Kruijf, 2013]. Managing appeals to taking care of your environment, and to attention and respect.

The *third value* has received extra attention since the coronation period. Acting responsibly' is focused on your own contribution and on your interaction with the greater whole: you can pass on an infection to someone without being ill yourself. The added 'take 1extra responsibility every day' is a rule of thumb. The French Prime Minister Jospin used to speak about doing things "with quiet courage" [Jospin & NRC, 1997]. Everyone can choose to take an 1extra percentage of responsibility every day and go the extra mile.

The *fourth value* "leading with listening, cooperating with listening" indicates that someone who is in charge has to deal with people who already lead their own lives. A manager may add to this. In the early days of values work, society and work in organisations were even more hierarchically organised than they are today. In the same time of the development of values, the work word "op-organisation" was introduced: "organising from the bottom up and on the basis of values" [Roobeek & De Kruijf, 1994].

Ethics: applying the 4 values in a society

The development of societies and the adoption of values is plotted in the figure 2 as a growth trajectory in time. This is to be understood more as a developmental sequence than as a process in exact time periods.

Ecocracy, values for business and society (summary overview)							
Topic	**Chaos**	**Theocracy**	**Autocracy**	**Democracy**	**Egocracy**	**Sociocracy**	**Ecocracy**
Authority awarded to:	Movement, without recognisable structuring principle	An Almighty God, outside/ above us, which the human being assumes that God wills	A mighty man who is above and about people definitely	The people, the majority of the people who are own leaders select	The individual group/ownership long (for the time being) above the interest of the whole	Each and every one of them, such argue that each of the involved through consent to his comes right	Each person, and values as guide for the interaction between people and between man and surroundings
Strengths:	Flexibility, space for change, assistance in the case of adhocracy	Respect for the higher, ethical be aware	Powerful decide under all conditions present	Everyone can be make your voice heard, power is representative divided	For the individual the growth to the become themselves, the growth towards individuation	Quality of decide and decisions: attention to the individual and for the whole	Frame of reference as a tool for the change-over operation at living together and work together
Risks:	No common thread, no possible ability to organise	Responsible-heath outside the man, power at those who believe God better know then others	One person (or some) decides about others without being can defend himself	Majority can impose on minority, rule-can lead to bureaucracy	Selfishness, no really feel-attention and care for and each individual and for the whole	Sets special requirements for discussion leaders, and: why is it one argument better than the other	Sets special requirements for discussion leaders, risk of subjective choice, fill in and handling of values

. . . .

Figure 2: Developments in values in society

The summary overview orders from left to right on the basis of assigned authority: from interaction without order, to 'from above man', to dealing with each other as individuals, moving towards the use of values in their interactions [De Kruijf, 1994]. In other words, the figure indicates that it is possible to use values as a means of ordering, in this case the (basic) designs of societies.

To bring the overview to life, the reader can add years, and colours, for a region or a country. (Personal or professional: one can highlight where one is and where one wants to go. The overview has been expanded in the meantime. For the word 'ecocracy' another word is being considered).

It is advisable to combine the above-mentioned 'strengths' of di-fresh 'crations'. This combination has the effect that, as a professional, you act responsibly, you are prepared to be accountable, and you are concerned with sustainability and the involvement of people in your work and your environment [NRC & Van de Kerkhof, 1995].

Value definitions as reference material
to reflect on your world

Because there are value definitions, it is possible to reflect on them (figure 3). Value definitions as reference material therefore help to realise the state of a living environment. We expect information professionals to act autonomously: in this case this does not mean 'endlessly setting your own laws or just letting things blow by', but setting your own laws, imposing (some) restrictions on yourself, partly in the interest of society, the greater whole. The observance of values is very helpful in this respect.

> "Whether or not (in terms of the capacity of the earth) something is a limit is therefore to some extent a choice. And the form in which you cast that choice is crystal clear to Cornelius Castoriadis (1922-1997): you can choose that your desires are insatiable and behave accordingly (*the heteronomous option*) or you can restrain your desires and impose limits on yourself (*the autonomous option*). If you want to break through Mathus' iron logic of insatiable desires, limits, scarcity and growth, you can only do so with an autonomous attitude. For it is only by placing those boundaries in yourself.
>
> When I talked about this with a wise friend of mine, she wrote back that an autonomous attitude to life takes a lot of courage. She is right. And whether I have the courage, I do not know. What I do know is that it is the only way to escape the Malthus trap."
>
> *- Gertjan Cobelens in Jan van Arkels digital book 4ECO*

....

Figure 3: Quotation for meaning of the word 'autonomous' [Van Arkel, 2020].

In other words, without values, there is a risk that people will be treated in a cerebral and mechanical way by (prescribed) processes, by organisations or even by society. In other words, the image of mankind becomes "flattened". The dilemma, incidentally, is that someone who is not open to the conversation about values may also find it difficult to understand these sentences that ask for values.

There is a solution to get out of this paradox, and that is to ask questions and to think in terms of "and-and-and". After all, we live in a society that is developing rapidly: social media are creating new multi-sided associations in your thinking and old associations are fading away. We have to point this out to information professionals and - where possible - support them. I, too, went through that process. My value-free thinking took over. When I became aware of that, I started to make values explicit, to bring values back into my attention. In other words: attention to lifelong development and learning. Life demands of us humans that we pay attention and live and that we provide each other with our and each other's basic living conditions. Or as Stephen Covey, the author of The Seven Habits, says about the usefulness of values: "To lift all society through personal/social ecology. "

Business and ICT must first research values, so that they can be included in design workshops.

▫ Ethics - the application of (the four) values in a work process.

▫ The four value definitions help to give direction to the design of ICT facilities for work processes.

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Annexes

Editors and authors

Editors

Dr. Wouter Bronsgeest is co-president of KNVI, the Royal Dutch Association of Information Professionals. Wouter is connected to the University of Twente as a researcher. He obtained his doctorate from the Center for eGovernment Studies (CFES) at the University of Twente on the evaluation of IT projects in government. He publishes regularly on topics within the field and gives lectures at various universities, including VU University Amsterdam, University of Twente and Nyenrode Business University. Wouter is on the editorial board of AG Connect and is a member of the Supervisory Board of the HBO and Master ICT programme of Utrecht University of Applied Sciences. He was co-initiator of the ArchiValue consortium, which brings together architecture, project management and portfolio management, the consortium 'New Models for the Social Enterprise', which studies the effect of social media on the design of organisations, and the consortium 'Digital We' on the impact of the digital transformation on organisations. Wouter works at the Ministry of Finance - Belastingdienst as member of the MT of the IT-Directorate.

E-mail: wouter.bronsgeest@knvi.nl

Sandra de Waart MBA is secretary of KNVI, the Royal Dutch Association of Information Professionals. She studied Slavic Language and Literature at the universities of Würzburg, Cologne and Amsterdam. In 2016 she completed an Executive MBA in Business & IT at Nyenrode Business University. She works as an independent Business & IT professional in the Netherlands and Germany.

E-mail: sandra.de.waart@knvi.nl

Authors

Dr. Huib Aldewereld is a lecturer/researcher at the Artificial Intelligence centre of Utrecht University. He has a PhD in normative multi-agent systems, and has an extensive academic career in the field of normative and ethical aspects of the (deployment of) AI systems. In addition, he is a senior lecturer in AI & Data and responsible for the development and establishment of the first AI college of higher education.

E-mail: huib.aldewereld@hu.nl

Martijn Aslander (https://www.martijnaslander.nl/) is a stand-up philosopher, boardroom sparring partner and co-author of the bestseller *Nooit af*. He manually built the largest dolmen in the world, stood at the cradle of Lifehacking.nl and is co-founder of Permanent Beta. Both on stage and in his publications, he charts the complex impact of technology on society with passion and humour.

E-mail: mail@martijnaslander.nl

Dr. Martin van den Berg works as a researcher at the Artificial Intelligence chair and lecturer at the Master of Information at Utrecht University of Applied Sciences and as an enterprise architect in the financial sector. He obtained his doctorate in research in 2019 on how enterprise architecture can contribute to better decision making. Martin is a fellow of the KNVI.

E-mail: martin.m.vandenberg@hu.nl

Dr. ir. Piet Boekhoudt (1960) has been the director of the Digisterker Foundation (www.digisterker.nl) since its inception in 2014. The Digisterker Foundation develops educational materials on the use of digital government. The Digisterker Foundation operates in a large national network of libraries, schools, government organisations and other social organisations.

Piet Boekhoudt studied Applied Mathematics at the University of Twente, where he graduated cum 1984laude. His graduation work was in the field of mathematical systems theory. As a researcher, he worked at the University of Twente and the University of Maastricht. He obtained his doctorate in 1988 from the University of Twente. He was a university lecturer at Maastricht University from 198 until 1998. Piet Boekhoudt worked in Enschede at Novay, the former Telematica Instituut from 1998 until 2014. There he was project manager of innovation projects aimed at SMEs and the government.

E-mail: piet.boekhoudt@digisterker.nl

Anita Bosman MA is the director of the Institute for ICT at Utrecht University of Applied Sciences and is responsible for hbo-ICT, Master of Informatics and the Applied Datascience Master. She was a member of the board of KNVI from 2005 until 2019. Since 2020 she is active as a KNVI-fellow. Her main themes at KNVI are education and educational innovation. Anita has extensive management experience in the ICT education domain. Both at the HU and as a member of KNVI, she makes an active contribution to the professionalisation and profiling of the profession. Anita is constantly looking for connections between education, research and the business world. Her passion lies in innovating education and enthusing students & ICT professionals for ICT education.

E-mail: anita.bosman@hu.nl

As a consultant and project leader, **ing. Jurjen Braakhekke MM CTPP** helps organisations to explore and implement smart solutions. At Verdonck, Klooster & Associates (VKA) he explored possible development scenarios for smart shipping in inland shipping. Earlier, as product manager, he was responsible for various IoT solutions at Schiphol. For example, for (indoor) tracking of vehicles and assets and measuring visitor flows. He was also involved in the development of Schiphol's data strategy and the management and decision-making processes for the sharing and acquisition of data.

E-mail: jbraakhekke@gmail.com

Drs. Klaas Brongers has extensive experience in (information) management at various organisations and is a partner of the Bureau for Management & ICT. Before KNVI, he was successively secretary and chairman of its legal predecessors Ngi and Ngi- NGN (2006-2601) and is now a member of the Advisory Council. His main themes at KNVI are digital transformation and the professionalisation and profiling of the profession.

E-mail: k.brongers@solutions4u.nl

Mr. Petra van Driel, lawyer, works at the intersection of law, IT and process. Petra has more than ten years of experience in the public sector, in which she has and had various roles within organisations in times of transition (www.petravandriel. nl). For a number of years, she has been an external member of the Utrecht University Lectureship in Meaningful Innovation and of the Zuyd University of Applied Sciences in Sittard, at the Preventive Law lectureship. As a researcher, she is concerned with the relationship between law and ethics. Her PhD research is about the foundations of the rule of law in relation to digitisation processes. Besides guiding organisations in development, she is a horse coach.

E-mail: infopetravdriel@gmail.com

Mr. Natascha van Duuren is a lawyer and partner at De Clercq Advocaten Notariaat. She specialises in IT, intellectual property and privacy. Natascha is a fellow of KNVI and chair of the KNVI Interest Group on IT Law. She is editor of the KNVI publications Multidisciplinary Aspects of Blockchain and Multidisciplinary Aspects of Artificial Intelligence. On behalf of the KNVI, she participates in the Data Sharing working group of the National AI Coalition. Natascha is also chairman of the jury of the Computable Awards Healthcare 2020.

E-mail: n.vanduuren@declercq.com

Drs. Danny Greefhorst is director and principal consultant at ArchiXL and works as a consultant and architect on data, information and knowledge intensive issues. He has extensive knowledge and experience in the field of enterprise architecture and data management, particularly with public and semi-public organisations. He is active in the architecture community and he regularly publishes on data, information and architecture-related topics. He is chairman of the interest groups 'architecture' and 'critical thinking of information' of the KNVI and of the Digital Architecture Foundation. He is lead author of the book Architecture Principles - The Cornerstones of Enterprise Architecture and co-author of the books Ruimte voor mens en organisatie - visie en aanpak voor de digitale samenleving and Test automation agile organisatie - klaar voor de toekomst. In 2011, he received the NAF medal in recognition of his contributions to the Dutch architecture community.

E-mail: dgreefhorst@archixl.nl

Rian van Heur is content director of AG Connect, the IT trade platform for the Dutch IT decision maker. Rian has been working as an IT journalist since 2005 and has, besides articles for AG Connect, written articles for Computable, Intermediair, TIAS Business School, PW de Gids and Computerweekly.com.

E-mail: r.vanheur@agconnect.nl

Stephen Ibaraki is chairman of the board and managing partner at REDDS Capital. Stephen also holds or has held an unprecedented number (over 100) of positions and roles as chairman, founder, investor, board member and entrepreneur in numerous industries, including business, finance and computer science, such as: Chairman of the Practitioner Board of the Association for Computing Machinery, Chairman/Founder of the Global Industry Council and Vice-Chairman on the Board of the IP3 International Federation for Information Processing (IFIP), Founder of the Technology Advisory Board of Yintech Investment Holdings, Founder/Member of Beyond Initiative (VW/Audi's AI think tank), Founder/Chairman of the UN ITU Journal 'ICT Discoveries', Founder/Chairman of the UN ITU AI for Good Global Summit i.s.m. XPRIZE Foundation, organiser and speaker of the Wuzhen Summit World Internet Conference AI Forum, founder/chairman of the technology advisory board of the Financial Services Roundtable (FSR) and the FinTech Ideas Festival, founder/chairman of the advisory board and key note speaker of Digital Africa on Industry/Nation (4.02016,2017) and advisor on Nation and 4.0board member of the IEEE. For more information on his role as founder/ fellow, former board chair and president of the government-recognised Canadian Information Processing Society (CIPS), please visit http://www.cips.ca/stephen-ibaraki.

Stephen has received multiple awards and has been involved in many UN innovation programmes, renowned industry associations and think tanks, summits and more than a billion100 dollars worth of sustainable investment initiatives 300worldwide.

LinkedIn: http://ca.linkedin.com/in/sibaraki

Iemke Idsingh was active in the urban domain with i4Urban, following a long career on the cutting edge of the public sector and innovative information provision. He has been active (inter)nationally for more than thirty years as technical commercial consultant/marketer/product manager. Global responsibility for the Smart City activities

of Oracle. He is a loyal, intrinsically motivated, analytical and conceptually strong facilitator; he makes the connection between ideas and daily reality. Let him combine his human perspective with his structured approach to address the challenges of the public sector in society. His eagerness to learn, a broad interest in various disciplines and an intuition for solutions help him find creative and realistic answers.

E-mail: iemke.idsingh@gmail.com

Dr. Ken van Ierlant studied at the Katholieke Universiteit (KU) Leuven, and did a co-tutuelle with Ariel University in Israel, IMD in Lausanne, Switzerland and Insead Fontainebleau France. He is a director at FutureXL and a guest lecturer at Nyenrode Business University and FutureXL Academy, and a fellow of KNVI.

Ken started his career at Digital Equipment Corporation (DEC) and has worked in the maritime sector, including working with Dosbouw on the construction of the Delta Works. He has also worked for manufacturing companies, shipyards, intelligent buildings, offshore industry and CPG companies such as Heineken and Friesland Foods. As CIO/CDO/CEO, he has built up experience in the field of digital turnarounds and transformation processes within internationally oriented companies.

Ken was CIO of Eneco, Essent, Air France/KLM in Paris, WLB West Landes Bank in Düsseldorf and Imerys in Paris. As Vice President at Proudfoot Management Consultants in London, he spent five years advising European companies on complex IT/digitisation issues. At PWC, as Senior Director Strategy, he contributed to a vision of transformations of digital value chains and developed new economic models around next-gen platforms.

E-mail: ken@futurexl.nl

Vincent Janssen MA is an editor at IP | professional journal for information professionals. He writes monthly on the social and cultural impact of (information) technology. He is also the founder and editor-in-chief of GeenKwats, a citizen journalism platform. Outside of his freelance work, Vincent works for the Province of Limburg. Here he focuses mainly on communication and public affairs. Vincent holds degrees in political science and history.

E-mail: vma.janssen@gmail.com

Dr. Henriëtta Joosten is a business administrator and a (PhD) philosopher. After years of working as an ICT lecturer and as senior researcher at the Department of Philosophy and Professional Practice (at The Hague University of Applied Sciences), she has been associate 2020lecturer in Financial Ethics at the Hogeschool Arnhem en Nijmegen since August. Her philosophical inspirations are in particular Friedrich Nietzsche and Hannah Arendt. More information on her books and other work can be found at www.henriettajoosten.nl.

E-mail: henrietta.joosten@han.nl

Drs. Ing. Theo Kishna has worked for many years in the Traffic and Transport domain on ICT systems and related organisations. He has worked on systems for traveller information at public transport stations. In addition, he has worked on the set-up of organisations and systems for various traffic control centres for the motorways and the secondary road network. Theo has also done scientific research (Nyenrode) into the dynamics between organisational culture and working practices in large-scale transformations. He is currently working on ICT systems for truck charging (tax per driven km).

E-mail: theo.kishna@orgdyn.nl

Dion Kotteman MBA is an experienced strategist and IT specialist in the public domain. He holds master's degrees from Nyenrode University and the Wharton School of Management in Pennsylvania. He provides C-level advice to companies and public authorities and, in his various strategic roles, contributes to the realisation of complex ambitions in the field of both ICT and public administration.

operational management. These include Rijkswaterstaat, SVB, a few provinces and the National Police. He currently advises four municipalities. Previously, he was chairman of the IT Quality Board of the Municipality of Amsterdam.

He has experience in the private and public sector: he was IT Security Director of the ING Group, CIO Rijk, General Director of the Rijks Audit Dienst and advisor to the Minister of Finance. Dion is a popular speaker, teaches at various universities (Nyenrode, TU Delft, EIPA) and regularly writes books. He is a partner at Grey Matter Matters, a research agency for the government.

E-mail: dion.kotteman@greymattermatters.nl

Abraham de Kruijf is an independent entrepreneur by the name of IDA Innovation. He studied economics at the EUR for several years and was introduced to ICT by Professor Max Euwe, former chess world champion. He worked as an information and process analyst for IBM, via CAP Volmac and later independently for Albert Heijn, national and municipal governments, the Dutch Football Association and the European Commission, the Dutch Police, banks, rehabilitation and youth care, colleges of higher education and VNG Realisatie. He has been working on making (this) work value-inspired since 1994, and he published the book *Ecocratie, op weg naar waardevol-vol op-organiseren*. In addition, he published the still topical experience book *Vernieuwen van bedrijfsprocessen, organisatie en ICT* (2000). Both books/worlds interact with each other. He is an active member of three professional associations and works nationally and internationally on assignments.

E-mail: ida_innovatie@ziggo.nl

Dr. Ouren Kuiper works as a researcher at the Artificial Intelligence centre of Utrecht University. Before that he obtained a PhD2019 in research on the effects of auto- nome vehicles on humans.

E-mail: ouren.kuiper@hu.nl

Joost van Lier MSc is senior consultant at Verdonck, Klooster & Associates (VKA) and focuses on architecture and IT-strategy. He focuses mainly on issues at the intersection of business and IT. Within VKA Joost is one of the leaders of the IoT working group.

E-mail: joost.vanlier@vka.nl

Sicco Maathuis MSc BSc helps people and companies to find 'the art of the impossible', inspires by looking ahead and linking this to a business strategy. He is an experienced Innovation Managers Lead, Change Manager, Agile Transformation Coach and Trend Researcher, who designs and executes (future) strategies until implementation.
Sicco has set up large ecosystems that have produced major sustainable performance improvements and significant (technological) leaps in a short period of time. Sicco owns Brightling, a consultancy company focused on trend research, blogs, presentations, lectures and workshops, most of which have a technological slant.

E-mail: sicco_maathuis@hotmail.com

Prof. Dr. Rik Maes is emeritus professor at the University of Amsterdam and founder/academic director of the Aca- demy for Information & Management (www.ienm.nl). This academy organises training programmes in the field of information management and management in the information society. For him, learning is transformative learning in

dialogue with others and focused on effective action as a professional. He is particularly interested in the combination of (information) management with other disciplines such as philosophy, design, architecture and art. He has a broad expertise in advising, training and coaching top management in the field of (information) strategy and (information) management. He is a valued and much sought-after speaker.

E-mail: maestro@ienm.nl

Jacques Jan Muller MA is a learning and development consultant and trainer. For more than twenty years he has been active in the field of learning and organisational development. He does this in various roles such as consultant, programme manager, teacher or coach. In the past he has worked as a senior consultant trainer at Berenschot and KSG Trainers & Consultants. Moment
He currently works as an independent trainer and management consultant and is, among other things, a lecturer at the Hogeschool Utrecht in the BIM course and the Master of Informatics at the Institute for ICT.

E-mail: mullerjj@hotmail.com

Ronald de Nijs is network editor at the Network Digital Heritage (NDE). He writes about the results of the joint efforts in the network and the people behind them. Previously, he was editor-in-chief and editor-in-chief of *IP / vakblad voor informatieprofessionals*.

E-mail: ronald.de.nijs@netwerkdigitaalerfgoed.nl

Dr. Guido Ongena is programme manager at the Institute for ICT at Utrecht University of Applied Sciences and responsible for all part-time ICT education. He is also senior researcher at the research group Process Innovation and Information Systems.

E-mail: guido.ongena@hu.nl

Dr. Sieuwert van Otterloo heads the ICT Institute, a consultancy firm for IT, information security and privacy. He also teaches Software Project Management at the VU and is a researcher at the Artificial Intelligence centre of Utrecht University. Sieuwert has a degree in mathematics and artificial intelligence and a PhD in multi agent systems.

E-mail: sieuwert.vanotterloo@hu.nl

Victor de Pous is an ICT lawyer and analyst, fellow of KNVI and founder of the IT & Law Interest Group of KNVI.

E-mail: depous@live.nl

Dr. Pascal Ravesteijn is a lecturer in Process Innovation and Information Systems. He is also a board member of The International In- formation Management Association (IIMA) and editor of the scientific Journal International Technology and Infor- mation Management (JITIM).

E-mail: pascal.ravesteijn@hu.nl

Dr. Erik Saaman is a strategic consultant and project leader at the National Archive of the Netherlands. He coordinates the development and management of knowledge products (such as standards and manuals) related to digital archiving. The aim is that government organisations should be better able to set up their information systems in such a way that the information they hold can be accessed and processed and thus permanently accessible (archiving by design). With this, he wants to 're- tell' the traditional, but still relevant, values and concepts of paper archiving to the world of digital information.

In addition, Erik is a much sought-after speaker, author and guest lecturer (University of Amsterdam and the Rijksacademie voor Finance, Economy and Operations). Before working at the Nationaal Archief, he was chief editor of NORA (Dutch Government Reference Architecture) and project leader for digital education at the Rijksacademie Groningen and

SURFnet. Erik studied Computer Science and has a PhD in the design of a formal specification language.

E-mail: Erik.Saaman@nationaalarchief.nl

Dr. Daniël Smits is an independent management consultant and chair of the Governance interest group at KNVI. In addition to his work as an independent, Daniël is a lecturer in ICT Management at the University of Twente and holds a PhD in research on improving the effectiveness and maturity of IT governance.

E-mail: daniel@dsmits.com

Dr. Anna Snel PhD is the founder of VUCA Academy. She develops training courses and programmes for dealing with complex innovation and change, among other things together with Radboud University in Nijmegen. Central themes are experience, deep learning and design thinking. Mottoes are "Do not assume" and "Disturb me please".

E-mail: anna@vuca-academy.nl

Professor dr. Lineke Sneller RC is Professor of IT Value at Nyenrode Business University. She is an econometrician and chartered controller, and obtained her doctorate with a thesis entitled 'Does ERP add company value? She lectures and publishes on IT governance, ERP and the value of IT. In addition to her work at Nyenrode, Line- ke is a supervisory director of Achmea and ProRail, among others, and a partner of the Bureau for Management & ICT. In recent years, Lineke has held various CIO and management positions at Vodafone, Tele2 and InterfaceFLOR. In 2011, 2010she was named CIO of the Year.

E-mail: l.sneller@nyenrode.nl

Jasper Snoeren MA has worked at the Netherlands Institute for Sound and Vision since 2016. As Coordinator Immortalising, his responsibilities include archiving websites, web video and video games. He is also responsible for the paper collections. Previously he was coordinator and knowledge broker for AVA_Net, the network for audiovisual archives. He studied film and television studies at Utrecht University and archives at the University of Amsterdam.

E-mail: jsnoeren@beeldengeluid.nl

Marlies van Steenbergen is lecturer Meaningful Digital Innovation at Utrecht University. She conducts research into the development of meaningful digital services, with a focus on the ethical aspects of data-driven services. She is also principal consultant enterprise architecture at Sogeti Nederland B.V. In this capacity, she helps organisations set up and professionalise their architecture function.

E-mail: marlies.vansteenbergen@hu.nl

Rick Strijbos is the director of the Security Academy in Woerden. In this role, he is responsible for the composition of the training portfolio, the didactic guidance of the practical teachers, the contact with clients and the operational management of the organisation. In the past, he has been programme leader of the post-higher education Internet Security (2002-2013) and member of the Professional Field Committee for the Bachelor's Degree Programme in Information Security Management of The Hague University of Applied Sciences (2007-2014).

For KNVI, he has successively been chairman of one of its legal predecessors (Netwerk Gebruikersgroep Nederland - NGN) (2007-2011), member of the executive committee Ngi-NGN (2014-2016) and active for the SIG Information Security & IT Security (IBIS).

E-mail: rick.strijbos@securityacademy.nl

About KNVI

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The KNVI, the Royal Dutch Association of Information Professionals, was formed in January 2017 through a merger of the Ngi-NGN, the KNVI and the SOD.

The professional association Ngi-NGN has its origins in the Netherlands Calculator Society, founded in 1959. This merged with the newly founded Genootschap voor Automatisering (Automation Society) in 1960 to become the Nederlands Genootschap voor Informatica (NGI) (Netherlands Society for Informatics). Later on, NGI, VRI (from 1984) and NGN met and the Ngi-NGN came into being. One of the founders of the association is Aad van Wijngaarden (1916-1987), a Dutch computer scientist. The Centrum Wiskunde & Informatica (CWI) awards once every few years the prestigious Van Wijngaarden medal to top scientists in the field.

The original KNVI was founded in 1912 as NVB, the Dutch Association of Librarians and Library Officials. When the designation 'Royal' was obtained on the occasion of its 100th anniversary in 2012, this was a good time to update the name to do more justice to the changes within the profession. At the end, of 2012 the members chose a new name: Royal Dutch Association of Information Professionals. The KNVI was born.

The Society for Documentary Information and Archive Management (SOD), founded in 1931, joins them. Over the years, the SOD association has developed into a knowledge network for information and archive management. A very interesting field, precisely because of the far-reaching digitalisation within

Organisations. As a result of digital working, the archive specialist has developed from '(reactive) executor' to '(proactive) director'.

KNVI anno 2020 is an ecosystem in which information professionals from all disciplines can find each other in order to realise optimal solutions for society. It has been set up as an independent platform for colleagues, interested parties and stakeholders in the areas of information management, information provision and information technology. The association's structure takes shape in interest groups and events throughout the Netherlands that offer members relevant information, inspiration and innovation. KNVI brings relevant content with four professional journals: IT-Infra (newsletter), Informatieprofessional (IP), Overheidsdocumentatie (OD) and AG Connect (magazine, website and intelligence platform).

Information plays a leading and innovative role in the development of people and society. What connects the members of KNVI - as information professionals 3.0: they want to develop along with those innovations in the profession and in society. KNVI sees it as its task to promote this development of information professionals, by working together, facilitating, meeting each other, creating focus, and taking the lead.

All the various activities of the association support the five ambitions that KNVI has in its strategic plan:

- The KNVI is the platform in the Netherlands for professionals in information management, information technology and information provision, where every professional in these disciplines feels at home.

- The KNVI promotes the development of information professionals.

- The KNVI contributes to the substantive development of the domains of information management, information technology and information supply.

- KNVI identifies and structures the themes that are important for the development and positioning of the profession in the Netherlands, Europe and internationally.

- KNVI is a well-known player in the field in the Netherlands; its opinion and that of its members is valued and respected.

KNVI has introduced 'Smart Humanity' as a multi-year theme. Defining this is a task that KNVI has been tackling since January 2018, for which the professional organisation has earmarked three years. The concept is being further developed with various scientists and practitioners, for example by organising three major annual events for the professional group and by publishing various books and articles on the subject.

Board member Sandra de Waart is the inventor of Smart Humanity, and in doing so, gives words to the KNVI's vision. It is the association's board's deepest conviction that mankind owes it to itself to make the most of its own inventions for the benefit of humanity. In other words, information professionals make technology and help implement it. They are creators as well as users and educators. They facilitate other people and organisations in accessing information. People are therefore central to the professional organisation: they must be able to stand up to the successive disruptive waves in society, as well as their social consequences and ethical impact.

Documentaries KNVI

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KNVI's SOD interest group has produced three documentaries in recent years. These are available for everyone to watch.

Alles is Informatie https://vimeo.com/110982917

This documentary is about the changing role of the information manager and information services. It was released in 2015 and is remarkably topical. *Alles is Informatie* provides a good insight into how various organisations deal with digitisation of the information supply and how the information manager should deal with this.

Toegang https://vimeo.com/258962002

This time, we looked at the influence of information on the (information) society and the consequences of increasing digitisation on the ability to manage information. Who is actually in control? And what does that mean for the Dutch government, companies and the role of the information professional?

Kenniswerk https://vimeo.com/372983340

We have 5 millions of knowledge workers, all doing knowledge work in a knowledge economy, in a knowledge society... But what if we don't really know what knowledge work is? If you ask anyone, say a knowledge worker, the answer is often a glassy-eyed look. In any case, information is an essential element of knowledge work. But it is precisely this element that often appears to be poorly organised. Why is this and how do we solve it?

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Index of names

Alphabetical by first name

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