

# Architecture in this new world we live in

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# Architecture In This New World We Live In

– a DYA white paper by Sogeti –

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## I. Architecture in this new world we live in

**Abstract—It has become clear that staying relevant is a different ballgame compared to fifteen years ago. The world has changed from a collection of complicated issues into a complex and often unpredictable set of problems. Innovative trends and hypes are popping up continuously, causing a flow of disruption and unpredictability. Knowledge and technology are democratised, free for the public and out there to stay.**

**In this article, we define the elements that influence our new normal. We help to identify that what we do as architects is not all about technology, yet also about ethics and new ways of organising organisations. We conclude with a model, which provides an overview of the elements, portraying iterative causal relations with each other, together shaping a unique organisation.**

**This article is written for the decision-makers within the organisation, new and old enterprise architects, and everyone who participates in an organisation — basically anyone who is looking for a holistic view of what is going on.**

**This written piece is the beginning of a series that will result in a new book in the series of DYA-books. DYA is the view of Sogeti on architecture. We believe that enterprise architecture is not static but always moving. Organisations need to be dynamic to stay relevant. With the series of articles, we will discuss the following main topics: human-centric, flow-oriented, value-sensitive and discretionary.**

## II. The context in which organisations live

I am sitting outside, staring at a frog in the small pond in my garden. It is hot. It is high summer. I am working from home today, as most of my colleagues are enjoying their summer holidays. The few who, like me, are still working, communicate through WhatsApp, chat, email or Skype.

I am sitting in the shadow of a walnut tree. It is cooler outside than inside. I am working on chapter 2 of our new book on architecture. This chapter is to be about organisations in today's and tomorrow's world. We start our book with this topic because it is impossible to say anything sensible about architecture without the context of the organisations in which architecture is deployed. Earlier today I watched a couple of videos from University of Michigan on ethics for data science. It was about the hunger for data and why traditional implicit or explicit societal consensus on values such as trust and privacy do

not provide simple answers to new ethical dilemmas that arise from the opportunities provided by the availability of data. I am dreaming about next year when I plan to move to Spain for two months and work from there.

I realise that the picture I am painting here represents a significant change from, say, five years ago, while at the same time, it can hardly be considered front-end innovation anymore. Even so, my picture alone warrants another approach to architecture. Let alone, if we consider everything that is going on in the world: unlimited technological possibilities, the rise of ecosystems, the democratisation of technology, the increasing preference for simple stories above complex reality, the call for ethical acting.

## III. Unlimited technological possibilities

We seem to live in a world of unlimited technological possibilities. We can safely state that there is a tsunami of technological innovations ready to be applied by organisations. The candy store is enormous, and it is filled with the technology of various degrees of maturity. We are living in a world that was imagined by science fiction writers years ago. Technology enables us to grow quantities of food from a very small piece of soil. We have made HIV/AIDS a chronic disease and eradicated polio from the world. We have video conversations with people all over the globe at the same time. Furthermore, we achieved this as a species just within the past few years.

Naturally, organisations feel the need to embrace the new possibilities that technology and its applications provide in order to keep up with their competition and with expectations. The exponential growth of possibilities makes this a tremendous challenge to providers and consumers: can you keep up with the latest developments in entertainment?

## IV. Limited by imagination

The speed of innovations realised with these new technologies is increasing in a non-linear fashion. An essential cause of this increase in speed is the free global network of communication and transport we have created with the internet and the global market. The laws

of Metcalfe<sup>1</sup> and Moore<sup>2</sup> combined predict that the only limitation to what we can achieve is the limit of our imagination.

Technology can provide deep insights into inside and outside workings of organisations. It can even enable the running of a fully autonomous (digital) organisation without any human intervention. The full spectrum of off-the-grid organisations, of digitally and physically seamlessly blended organisations and of entirely non-human organisations are available to us. Insurance companies are supporting the entire lifecycle of a customer through chatbots, from becoming a client, to making a claim, until the ending of the contract with the company. The amount of human activities in the global marketplace are being minimised to the degree that parts of the organisation are more robot- than human-operated. But it is not about efficiency alone, as much as it is about delivering new services and experiences to the customer.

### A. But... How?

What if, for decades, you, your organisation and even the society you are part of, relying on employees to keep the organisation going. How do we decide which parts should be digitalised into chatbots or autonomous organisations? Should we let the people running the processes decide this, or should someone else decide this before the market forces the decision on us? What are sensible steps to take?

### B. A new perspective: from alignment to non-distinction

It is time for a different viewpoint on business and technology. Business and technology are one. For decades we have been arguing for business strategy to drive IT strategy. In terms of the well-known strategic alignment model by Henderson and Venkatraman (Henderson and Venkatraman, 1993), the direction of alignment was from left to right: from business to IT. Technology push was considered wrong. IT was supposed to follow the business, not the other way around.

With the all-pervasiveness of IT this has changed. Technology has become an integral part of our business models. We are all aware of this. The concept of business IT alignment is losing its meaning. If we insist on distinguishing the two, we rather speak of business IT fusion than of business IT alignment. But it won't be long before the distinction of the terms business and IT becomes obsolete.

The traditional business strategy is replaced by a digital business strategy (Bharadwaj et al., 2013). A digital business strategy is more than just integrating business and IT strategy. The digitalisation of the physical into data makes many things fluid. Digitalisation removes the physical boundaries of an organisation. Not only are all consumers in the world suddenly available to the organisation, but so are all resources (data) and value chain partners (services). The amount of possibilities to develop non-stop new-value-creation propositions is endless and is part of the digital business strategy.

<sup>1</sup>[https://en.wikipedia.org/wiki/Metcalfe's\\_law](https://en.wikipedia.org/wiki/Metcalfe's_law)

<sup>2</sup>[https://en.wikipedia.org/wiki/Moore's\\_law](https://en.wikipedia.org/wiki/Moore's_law)

Organisations must not only enable the next innovation but also all the consecutive ones... Companies looking for a business model that will provide for the customer of today will probably fail in the future. They will inevitably fail if they neglect the question who tomorrow's customer is and what they genuinely care for.

The big challenge for existing companies is to balance customer value and company value continuously. They must be prepared to seize new opportunities quickly. Companies must keep adapting. Successful companies built on fixed assets, stable value dimensions in branding, and reliance on in-house core competencies, may fade away.

In short, the move towards a practical digital business strategy has a profound impact on organisations. It requires the capability of being able to incorporate new technology into adaptive business models rapidly. The only way to do so is for business and IT to be one from the start. Otherwise, the responses to the constantly changing demand will not be fast enough for organisations to stay relevant.

### C. Endless possibilities of innovation need a creative process

For decades data architecture mainly dealt with structured data registered in relational databases. This field has evolved with Big Data and Machine Learning, into the collection of unstructured data from many sources, finding performance patterns and anomalies. Unique combinations of data are the breeding ground for organisations to develop new and better services.

Searching for new combinations and added value is a creative process. Co-creation with customers, business partners and employees, is the new normal to spark this innovative process.

Big Data is not the only technological innovation that organisations are faced with. The list is long, diverse and volatile. At the time of writing it contains developments such as social media, internet of things, data analytics, machine learning, blockchain and robotic process automation. At the time of reading, this list will seem hugely outdated. The list is not only diverse and volatile, it is also ambiguous.

### D. Value is ambiguity

What defines Big Data changed over the years. In the beginning, every big dataset was called Big Data. Soon we discovered this was business as usual for Business Intelligence engineers. The same goes for Machine Learning (pattern matching) and Blockchain (distributed database). The hype makes developments ambiguous and takes time to settle. At the same time, the hype sparks innovation and undiscovered added value to the consumer. The digital world is all about first-mover advantage.

In the digital era, the concept of value has become less straightforward. It is no longer merely a stable and fixed result of the product or service alone, entirely under control of the provider (Keen and Williams, 2013). Instead, the value depends on a large part on the choices

available to the continually changing consumer. Consumers mix and match various services from multiple providers, thereby making value a relative and dynamic concept. A value that is for a large part outside the direct control of the provider.

The challenge lies in treading the thin line between being a first mover and not getting the product entirely right and delivering an integrated proposition that might not be the first mover. The cost of change and the number of possibilities for a consumer are vast; thus, organisations need to keep delivering or lose their customer.

Organisations that know how to combine new technological opportunities with existing capabilities are best positioned to make full use of technological innovation and most able to deliver actual value to their customers primarily if they work together with organisations that provide complementary capabilities.

## V. Democratisation of technology

Not only is there an abundance of new technology, but it is also increasingly democratised. New technologies are increasingly available to all. Partly due to technology being open source and available on various online platforms, and partly to the introduction of 'as a Service' (the Cloud). Because of this, both developers and users have new technology and their applications available at their fingertips. Together with the introduction of connected mobile devices, technology became available to the mass market. For many, the home environment appears to be more technologically advanced than the work environment. Resulting in not only an external pull from the consumer and competitors but also a driving force from inside questioning the internal status quo.

One of the results of democratisation of technology is that small teams (e.g. start-ups) can have a significant impact without large investments. The democratisation of technology also comes with a different investment model. The development of a new service via an app can be funded by a pay-per-use supplier (for example Google Cloud Platform). Capital expenses are globally turned into operational expenses. A shift from buying to renting services. Consumers massively adopt digital commercial services and have developed trust in newcomers. This results in the entry of new entrepreneurs on the existing market, with new business models that totally disrupt the market. These new entrepreneurs did not have to invest in physical presence, marketing and suppliers.

The combination of the democratisation of technology and the availability of free knowledge results in competition becoming increasingly hard to predict. Organisations must develop their responsive capabilities to deal with this. Responsiveness is also required because the creation and spread of information has democratised. For example, positive and negative sentiments about your organisation or services can suddenly go viral on a global scale. This cannot be controlled or orchestrated. Organisations cannot lean back and just let the sentiment spread, they must engage in the conversation. And thus, try to take control of the narrative and limit the damage.

The full digitalisation of the interaction with the consumer in the service consummation, enabled organisations to create personalised value propositions, by combining data collected via social media and other, less direct, digital services that consumers massively embraced. The increase of fast data collection and the ability to create personal profiles surged the application of nudging and Neuromarketing. Everything online is now tailored to your personal circumstance: from advertisements that match your interests to the suggestion of new connections on LinkedIn that share the same competences. And these tailor-made profiles are up for sale. Leading to the saying that "When a service is free, you are the product". Because the digital world is not governed by consumer right legislation like the goods market is, this is today's reality.

It was the tech-giants like Google, Amazon, Facebook, Apple (Big Four) that understood in the early days that data was the most important asset. And they hoarded! However, the behaviour of the Big Four was not new. For decades, agencies in the world have collected "open" data of consumers. For instance, via local US law that makes public name and address of anyone who becomes a registered voter, or via the databases of companies that hoard data to supply credit checks and via the databases of companies that offer intelligence and research data (OSINT). The main difference is that the hoarding of data by the Big Four is more visible, because they are active in the business-to-consumer ecosystem. This makes potential misuse of their data intelligence services more vulnerable to the public opinion.

### A. Digital transformation is hard to undertake but necessary

The democratisation of technology forces organisations to digitalise even more. Digitalisation is a prerequisite to keeping both their customers and their employees on board. Many organisations are not born digital, however, so their focus must change. They must realise the difference between automation, digitisation and digitalisation. After automating their administrative systems with digital equivalents, organisations started with digitising their communication channels to preserve the attention of the existing customers and reach out to new target groups. The next step is the adoption of new business models to fulfil customer needs by digitalisation. However, if organisations maintain a culture of striving for efficient business management, digitalisation programmes run the risk of being isolated efforts, failing to incorporate digital in the corporate strategy and corporate culture. The democratisation of technology forces organisations to look at their digitalisation from the perspective of individuals, both within and without.

## VI. The rise of ecosystems

The digitalisation of the physical into data, the free and global communication and the ease of transportation

made companies evolve from a clearly defined and managed value chain to a more complex, diverse and ever-changing ecosystem. Operating in isolation is no more; instead organisations are an active part of an ecosystem that delivers value in various co-operations.

The lifespan of big companies has substantially decreased over the decades, from 33 years in 1965 to 20 in 1990, and is expected to decrease even further to 14 years in 2026 (Anthony et al., 2016). This is indicative of the trend that delivering value to customers is becoming a matter of cooperation between organisations instead of domination by one big company. The few big companies that remain are the companies that provide the platforms for others to cooperate. Most organisations are no longer able to define and offer a value proposition and create a market over which they have complete control.

A characteristic of balanced ecosystems is that no one party controls the ecosystem. Because of the multiple interdependencies, power relations are more evenly spread. To be successful and survive, embracing and developing their ecosystem becomes increasingly crucial for organisations. An ecosystem in this context is a system of organisations and individuals that each have their strengths, but also need others to realise their goals. This interdependency appears in various forms, differing in character, force and duration, creating a fluid network of associations. It is no longer about owning the right resources so much as about being able to tap into the right capabilities, from whatever source. For most organisations, this is the only way to deliver the fleeting concept of excellent service (Keen and Williams, 2013).

The rise of distributive ledger technology (blockchain) has led people to think about new business models of cooperation where trust and ownership of data get new meanings. But the concept of Distributed Organisations existed before the DLT hype, for example the spider & Starfish, the cell organisation, the cathedral and the bazaar. Technology has the unique ability to inspire people by showing the possibilities. It is the implementation of the Bitcoin in a period of distrust of the centralistic financial system that boosted the imagination of people on the possibilities of distributed organisations. People all over the world became aware of the power of the ecosystem and that value is more than just optimising the value chain.

#### A. Evolution from value chain to ecosystems demands a different view on enterprise design

New concepts become essential to be successful. The view on the role of an enterprise and its design has changed fundamentally.

Margherita Pagani (2013) provides a classification into three organisation designs that are useful when trying to make sense of the evolution of organisation design. The first one, the tightly vertically integrated model, is the classic value chain model. It is based on centralisation. It consists of a (limited) number of significant components

that are strongly connected in a sequential value chain. The need for independence drives this model and having control over the entire chain. This is the opposite of the ecosystem concept. This model has worked fine in predictable times where organisations could offer the same products and services over long periods. This gave them the time to form their empires and thus keep control over the entire production and delivery chain. Many tools to optimise the value chain invented in the past few years brought much value to us, like Lean, Six Sigma, Business Process Management etc. In times of unpredictability and more power with the customer, this model is destined for disaster.

The second model that Pagani describes is the loosely coupled coalition model. This model emerged as a response to increasing market complexity due to incremental innovation. It is no longer about a centrally controlled singular value chain, but instead about the emergence of a value network with various kinds of partnerships between the different parties in the network. In practice, some firms tend to achieve more prominence and power by occupying a central position in the value network structure. They then use their prominence to grasp a leadership role, pulling together resources and capabilities from a diversity of sources: in effect, they take charge of network orchestration. The result is a value chain, or instead value network, that is more disintegrated and open. There still are unequal power relations, but the more powerful parties too, are dependent on others. Tools to optimise this field of a variety of value chains are Value Chain Management, open markets, the creation of coalitions and industry standards. An example of this is the global market of sub-contractors that provide value to a larger sub-contractor. The capability to connect effectively with others becomes an essential capability in this model.

The final model discussed by Pagani is the multisided platform. Multisided platforms came into being because of cross-boundary industry disruptions. A multisided platform company brings together two or more distinct groups of participants (the sides) that need each other in some way. To facilitate this, the company builds an infrastructure (the platform) that creates value for the participants by reducing distribution, transaction, and search costs of interaction. Well-known examples of multisided platform companies are eBay, Visa and Google, to name but a few. Multisided platforms can have two, three, four or more sides. The more sides, the higher the degree of complexity and the greater the challenge of balancing the interests of all sides. The business model of the multisided platform company is based on earning money from the facilitation of the participants. Additionally, the collection and selling of data generated by using the platform can be a source of income.

The multisided platform model is becoming increasingly popular. Interestingly, it can be regarded as a return to centralising power. Not power over what value is created and offered, but power over who gets access to who in the creation and consumption of value. In other words: the owner of the platform is the central power that controls the platform, and so all the pros and cons of a central system apply to this implementation of the platform model.



## B. A different view on enterprise design – a first glance

Both the coalition model and the platform model are forms of ecosystems in which the participants offer specific capabilities to others. The combination of capabilities enables the creation of value. To make this work, a variety of elements must be in place:

- 1) that participants can exchange data and information,
- 2) that there is a mechanism of trust,
- 3) that there is a model for collaboration,
- 4) that coalition forming is flexible.

As Margherita Pagani states, in this context of ecosystems, organisations need relational intelligence more than organisation intelligence.

## VII. Simple stories versus complex reality

Related to the digitalisation of interaction and the democratisation of technology, information and knowledge is the trend that stories are more successful in convincing people than rational argumentation and facts. The distinction between fact and fiction is blurring, and people are building their reality. This is strengthened by the fact that social platforms tend to adapt to the interests of the user. An information bubble is formed and strengthened by the adoption of a specific platform, by the selection of information (for example the filtering in the feed of information) done by the adopted platform and by the specific usage of the platform by the user. Since the variation in digital skills between individuals and the number of digital realities to immerse in, is unlimited, the amount of variations in the type of consumers and their unique world perceptions is also unlimited. There is no universal ratio available anymore.

For organisations, it is becoming increasingly important to think about the story of what they want to be, and, consequently, to live this story to appeal to the love of the consumer.

## VIII. Ethics matter

The discussion around the collection and use of personal data, the fact that nobody is able to oversee the potential impact of the unlimited possibilities of technology, the increasing interdependency between organisations in ecosystems, the vast variations in digital literacy among consumers, the apparent decline of the value of facts, all stimulate a renewed interest in questions of right and wrong. This can be noticed, for instance, by a large number of ethical codes for applying Artificial Intelligence that has been published in the past few years. Nevertheless, also, by the many publications addressing them, often unintentionally, negative impacts of technology.

One reason for the present call for decent acting, is the fact that law, by definition, always lies behind reality. This has always been the case but becomes more visible with the speed of the technological innovation we experience today. Developing an opinion on self-driving cars by the

inhabitants of a country takes much time. Even more, time is needed by legislators to formulate laws on the subject. In this case, we have got some time, because a self-driving car is a physical object the introduction of which is limited by design, production and application. This limitation does not apply to mobile apps, however, that enable the collection and tagging of photos of cars. Speed of innovation combined with global impact requires thinking, and above all, having conversations, about the difference between what **can** be done and what **should** be done.

## A. Organisations need to take an ethical stand

We need renewed societal consensus about what is right and what is wrong. Organisations, too, must take their role in this discussion. Being compliant to the law is no longer enough. Today's society requires that organisations take an ethical stand.

When in 2014 a Dutch bank announced their intention to sell account transaction data to advertising companies, customers lost their trust in the bank. Even though the bank explained it was respecting the customer's privacy, several hundred customers cancelled their accounts on the same day. The societal values seemed not to match the enterprise values. The bank soon withdrew the plan.

## B. Ethics are becoming relevant since automated decisions always lead to biased decisions

Decision-making by technology (e.g. autonomous vehicles and AI) confronts society with new ethical questions not grown from scientific, philosophical discussion. It has kick-started a discussion that impacts our day-to-day lives. These discussions are also triggered by immediate harmful effects of new technology, such as data breaches and discrimination. Whereas the dilemmas of the autonomous car may still seem far away for many, the exclusion from being invited for a job interview impacts many more people. These so-called near time algorithms are already operational today or will be soon (O'Neil, 2016). What is the impact of biased datasets used to train AI algorithms that support automated decisions? The consequences of digitalisation are plenty and can be very undesirable. They range from machine learning algorithms that strengthen, sometimes hidden, biases in society to digital services that exclude entire parts of society from using certain services. Personalisation of insurance, for instance, allowing for a lower insurance fee, may be advantageous to some individuals, while it does away with solidarity as a value in society.

We are becoming aware that the automation of choice forces us to create discrete statements of situations that are not discrete. Is it possible to classify a man with a beard into a category of lifestyle or a religion? As people, we are confronted with the fact that our own decisions are biased. If we do not take care, we may unconsciously teach these biases to machines that are supposed to improve decision making.

### C. Ethics are becoming relevant since the internet does not forget

There are several reasons why ethical concerns are increasingly being raised. One reason is the realisation that today's mistakes are forever. Information, once made public, can never be fully retracted nor forgotten. Even minor mistakes may haunt people for the rest of their lives. This not only impacts their life when someone does a background check, but it also might impact automated decisions that look further than the context and information of the present day and situation.

Also, individuals have less control over what kind of personal information is made public or shared with parties they do not know about. Enabling the combination of data from multiple sources, painting an ever more detailed profile of who you are, what you like and how you spend your time.

A third reason is that lack of privacy endangers democratic processes. On the one hand, because of the possibility of nudging people into specific political directions, on the other hand, because people may start to feel restricted in voting and acting freely. This is strengthened by the fact that power increasingly comes into the hands of companies as the Big Four, that, by nature, are not democratic.

In the non-western worlds, it is common for the sitting power to have control over the communication infrastructure and to be able to listen in and store what citizens are saying. An example of this is the great firewall and citizen point system in china. The use of end-to-end encrypted communication that leaves no information residue on devices can be a fact of life and death to people with a non-conformant way of living in certain countries, or for people that make plans against a regime, they want to disrupt.

More generally speaking, collecting and storing data is something that must be regarded with caution. Technology is never neutral! A certain amount of nudging is inevitable in a commercial context. However, it can also lead to making people make decisions that are not in their interests. To the point that collected data becomes lethal.

Fourth, decisions made by advanced machine learning algorithms are not transparent nor explainable. Not necessarily a problem, until someone is wrongly excluded from something they desire, or when whole groups are being excluded. A famous example is the CV selection algorithm that Amazon intended to use for making the first selection from job applicants. The algorithm appeared to discriminate against women systematically. Not unexpectedly, in hindsight, as the company had been favouring males for years in hiring new employees. This teaches us that algorithms trained with data from the past or present will never change the future. This is an undesirable case of ossification.

Ethics are getting more relevant due to the potential impact of technological innovation. An impact that not everyone may be aware of. Thus, it is not only a matter of choosing right above wrong but also of recognising the potential wrong in seemingly right decisions and acting upon it.

### IX. Continuous change, ethically done, with a skilled workforce

The developments as sketched above pose significant challenges to today's organisations. The main driver, the increase in technological possibilities, forces organisations to keep evolving in how they deliver value to their customers. They must keep up with technological innovation as well as with societal demands for new types of (service) relationships, including responsible businesses.

As demands on organisations increase, so make the demands on employees. To keep up with the required pace of change, organisations need to develop self-learning skills as well as collaborative skills. Only attractive employers will be able to attract and retain skilled employees. Making full use of technological possibilities also comes with the responsibility to do so in a responsible, ethical manner. As the debate about the ethical side of technological innovation gathers strength, organisations are wise to take an ethical stand and make a serious point of ethical behaviour throughout the organisation.

We might conclude from all this, that an increase in digitalisation paradoxically goes with an increasing need for human consideration.

### X. The role of architecture

Enterprise architecture is expected to meet the challenges of continuous change, technological innovation, and responsibly doing business. It can realise real and sustained value for the organisation if it succeeds in turning the organisation into a robust, or even antifragile organisation, capable not only of surviving unexpected disturbances from outside but of growing stronger from them ([Taleb, 2012](#)).

An essential contribution of architecture is to enable making sense of everything: architectural views provide a conceptual language that enables decision-makers to make sense of new developments in the context of their organisation. This helps them envision the possible impacts of different choices and see the connection between them. It is the classic purpose of providing coherence in the bigger picture. Architecture has been doing this for decades.

Making sense of an ever-changing world to create the necessary flexibility responsibly requires an architecture that is human-centred, flow-oriented, value-sensitive and situational.

- Human-centred because in an increasingly complex world, the attitude, interactions and capabilities of people are essential.
- Flow-oriented because it is not about static descriptions but about the dynamics of doing business.
- Value-sensitive because the values of all stakeholders, direct and indirect, including future society, must be respected.
- Situational because to create flexibility, architecture

must be able to differentiate between different contexts and subsystems and adjust both content and way of working to the needs of a situation.

The various concepts and factors introduced in this chapter influence each other dynamically. Leading to a complex system. This is illustrated in the causal loop diagram in figure 1. The diagram shows how various factors may strengthen or weaken each other. In some occasions leading to a balance (balancing loop), in others to an increasingly strong or weak position (reinforcing loop).

An example of a reinforcing loop is represented by the cycle: ethical thinking in architecture reinforces ethical acting by the organisation, reinforcing maintaining a skilled workforce by the organisation which reinforces ethical thinking in architecture. Another reinforcing loop is successful participation in ecosystems, reinforcing delivering value by the organisation which reinforces success in the ecosystem.

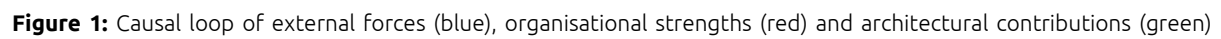
The causal loop diagram is one of the instruments in systems thinking and an example of the new conceptual language that we will be developing in this book as it is our firm opinion that the classic frameworks are no longer adequate.

We need a new conceptual language. A language geared towards the dynamic flows within and between organisations instead of the description of immobile states, whether for the present or the future. A language can express the extent of flexibility of an organisation — a language with the expressive power to incorporate ethical thinking into architectural decision making. If organisations are going to take decent acting seriously, ethical considerations must play a role throughout the design and implementation processes. This includes architectural decision making. A language is able to express the interaction between humans and technology adequately. In short, a language that helps organisations to learn and evolve. To create this language, we will borrow from other disciplines such as systems thinking, value-sensitive design and complexity theory.

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**Figure 1:** Causal loop of external forces (blue), organisational strengths (red) and architectural contributions (green)

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**Ton Eusterbroek** is an experienced enterprise architect. He works as an advisor and coach in the field of enterprise architecture and has guided many organisations from all industry sectors in the development of an effective enterprise architecture practice. Ton is one of the

promoters of DYA (Dynamic Architecture), offering a pragmatic approach to architecture based on best practices. He is also a speaker on seminars and lectures at universities and coaches students teams. Ton's focus is in architecture principles and how to organise architecture governance in modern ways of working.

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**Hans Nouwens** is an experienced enterprise architect with 20+ years of practical experience in the field of ICT, infused with rigorous academic learning. He works as an architect and trusted advisor mainly for Higher Education institutes.

Enterprise engineering, enterprise architecture and enterprise governance are his specialities that come with DEMO and CGEIT certifications. Hans has an academic interest in systems theory and cybernetics. Hans volunteers as board member for the interest group architecture of the KNVI and as board member of the Dutch society of systems thinkers (SCIO-NL). He regularly gives guest lectures on enterprise architecture and coaches students teams.

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**Edzo A. Botjes** is an experienced all-round (IT) professional and architect with 25+ years' experience. He works as an enterprise, program and solution architect for companies from all industry sectors. He does this by combining various expertise's to identify and resolve root-cause

issues in the Enterprise Governance domain and in the realisation domain of an organisation. Edzo is a creator and loves sharing his passion via blogs, workshops and presentations. His focus nowadays is on the evolution of organisations into antifragile organisations and the role of communication within the identity of organisations. He is Antifragility Architect at Xebia.

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