Tampere University of Applied Sciences

Digital Transformation Maturity and the Team Model

Fuelling Growth in and by IT Consulting Business

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ABSTRACT

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Digital technologies do not transform businesses, people do. Digital transformation (DT) is used to describe the fundamental realignment of business due to digitalisation. Many heavy engineering companies geared towards process-driven manufacturing of hardware have chosen to rely on external expertise to help them realise new business models through software solutions and technologies.

In contrast to some years back, IT consultancies are no longer in the business of providing 'pairs of hands', but coherent solutions developed by teams of experts. This thesis wishes to analyse the current state and the elements of the offering defined as a team model, with the purpose of looking into the future and providing insight into potential improvements, so as to fuel growth.

The theoretical section explores the concepts of digital transformation and Industry 4.0 in the context of heavy engineering. The team model is then introduced and analysed against the theories of team composition. Based on the literature, a conceptual framework is constructed.

The empirical part consists of gathering data in the form of semi-structured interviews and questionnaires to gain an understanding of the landscape the commissioning company operates in. The data is validated by a comparative study between two heavy engineering companies, both clients of the commissioning IT consultancy. The study then proposes DT maturity index for measuring and acting on. To conclude, the thesis investigates certain parameters of the team model, which can be adjusted to respond to the issues raised by the DT maturity index.

The objective of this study is to discover whether measuring the DT maturity of clients of IT consultancies can improve the implementation of the team model and consequently add value to all parties concerned. In conjunction with the applied approach of the research, this thesis puts to the test the notion that while DT might be an elusive concept, a consistent, structured, and people-centric change management yields the most sustainable results.

Key words: digital transformation, team model, industry 4.0, IT consulting

CONTENTS

1   INTRODUCTION

Over the last decade or so it has become apparent that to exist, businesses need to embrace the digital world. Being 'online' has become so much more than having your services available through a digital portal; with the emergence of such technological concepts as the Internet of Things (IoT) and everything being 'in the cloud', entire business models have been turned on their heads.

For companies in manufacturing, it has meant not only the automation of production, but also digital solutions becoming part of the offering. Products are no longer only about the hardware, the slick or durable design, they are integrated with various software components to provide a seamless experience through the services attached. This is true of both consumer products and heavy industry engineering. Systems and technologies are enablers, but the use of collected data by, for example, artificial intelligence (AI), make for a digital transformation (DT) which affects individuals, organisations, companies, and societies alike.

This digital omnipresence is developed by experts, who have formed new ways of working and in doing so, changed the way people interact and collaborate to achieve together. Literature on software development and its methodologies, such as agile and scrum, are abundant, with much of the focus being on the processes and performance, less on the human impact and leadership in general. Only recently has there been questions raised about the need to study the challenges of software development in a more holistic way, analysing organisational cross-functional dependencies and team dynamics.

Be it as it may, when the topic of digital transformation is discussed, very rarely is it in the context of the role software development teams play in the process of transformation itself. DT is still analysed mostly only from the business perspective, not how it requires changes in the mindsets of everyone involved. When a company undertakes the DT journey, the software development teams could potentially have a specific role in translating the challenges the whole company is facing, making the less technologically savvy grasp the finer points. Understanding is, without a doubt, the key to palliating resistance to change.

Consequently, software development is becoming more and more specialised, needing experts in both legacy and new technologies. It makes sense, therefore, for companies to purchase such work from outside, especially if it is for the development of a specific entity, expected to be up and running in a set timeframe. Enter IT consultancies, where the role of the experts is both to consult and deliver.

If a decade ago companies saw software development largely as a cost item, something that could be subcontracted at a fixed price from low-cost countries, these days companies have become to appreciate the intricacies of the work and value quality over speed. IT consultancy businesses have seized on the opportunity and looked into ways in which they can differentiate their offering in the market. As a result, competition over talent is fierce and IT consultancies are constantly having to innovate how they attract the best software developers, data scientists and cloud gurus to solve clients' demands on DT. To combat such challenges, an approach called the team model has been developed and adopted by the company commissioning this thesis.

The team model is an offering concept where, instead of providing pairs of hands, the IT consultancy offers its client a team of experts tailored to address the specific undertaking the client has set out to master. The hypothesis is that there are two significant drivers affecting the implementation of the team model in IT consulting: The digital transformation maturity and change management capability of the client organisation. The first one is more about processes and ability to apply understanding of software development effectively, whereas the latter is about people.

The challenge the commissioner is faced with is how to best equip the team entering the client's environment, both in terms of competencies and change management abilities. On the surface, the team is there to perform tasks to the end of achieving the set targets, but naturally it is much more than just technical prowess that will make team succeed. It is these questions on success requirements that this thesis aims to address.

Academic publications on DT as well as the concept of Industry 4.0 are still rather scarce, even though they have a major effect on how manufacturing enterprises are able to remain competitive going forward. The subject area is evolving constantly and has so many facets to it that getting a solid overview can be challenging. To add to the set of challenges, studies on various team models in the IT consulting business are almost non-existent. Therefore, the focus of this thesis is largely on how to provide practical tools for an IT consulting company, the commissioner of this thesis, to address the emerging issues they face when providing software programming services for companies operating in heavy engineering.

1.1 Objective and scope of the study

Digital transformation in business is a complex subject area to study for the single reason that it affects modern societies on all levels. DT is changing ways people interact and what customers buy. As for heavy industries, this shift from process engineering to integrated software solutions is impacting everything from leadership and managed practices to development and operative models. It is this interplay of all of these complexities that has acted as a catalyst for this particular thesis.

DT acts as an outer rim for this study: It encompasses everything, but more than the phenomenon itself, the thesis aims to look at the impact DT is making on software development in the setting of IT consultancy. Industry 4.0 is explored because as a concept it defines how the manufacturing industry has evolved and how the industry is positioning itself against the changing context, DT included.

Against the beforementioned backdrop, the aim of this thesis is to understand how IT consultancies, with the adoption of a specific team model, best meet the needs of their clients. Being able to do so requires that IT consultancies understand both the industry their client operates in as well as their DT maturity level. Hence this study will home in on finding means to measure the DT maturity level of the clients of IT consultancies, while also taking into consideration the special nature of heavy engineering.

To attain the results the thesis has set out to accomplish, it is important to study different notions of maturity modelling. Specific insight is gained by comparing the DT maturity levels of two companies operating in the heavy manufacturing industry. These companies have been chosen to represent different ends of the spectrum and both are clients of the IT consulting company commissioning the research. As this thesis adheres to the methods of applied research, it shall produce a proposal on how the commissioning company can measure the DT maturity of its clients and adjust the team model composition based on the findings. In summary, the goal is to apply the theory of maturity to an analysis in the field, and then finally, produce a method to measure so as to align and improve.

Other concepts affecting the work are change and expectation management. The study shall not address either of these approaches in any detail, but they are acknowledged as being the subtext for how issues of maturity are analysed. DT is essentially a change process, but the elements of that change are not so much in the interest of this study. This thesis wishes to outline how the maturity level of a company affects the ability of the external IT consultancy team to succeed in achieving the set targets. The research shall not analyse in any great depth the process of change itself, the issues the client company needs to solve to move forward with their chosen DT journey.

The study will cover the basics of successful software team modelling, but it shall not aim to propose a comprehensive blueprint for putting together IT consultancy teams for any given situation. Theories on team composition are addressed, but it is not the purpose of this study to make steadfast recommendations on team structures and talent distributions. To do so, much more explorative research would need to be conducted.

Also, while the object of study are software development teams, the specific nature of these teams is not explored as such. It follows that, for example, agile and lean software development and their impact on team composition and dynamics shall remain a footnote in the research.

In summary, the thesis sets out to explore and understand the parameters of DT maturity in the context of heavy engineering companies and how measuring them could help IT consulting companies to apply the right team modelling to their client assignments.

1.2   Research questions

The first question this thesis wishes to research and conceptualise is the definition of DT maturity in heavy engineering: What are the hallmarks of DT maturity specifically in the process-oriented heavy manufacturing industry? To follow, can such DT maturity be measured so that IT consultancies can take action based on the results?

The hypothesis is that DT maturity can be measured, but the second major research question is how the DT maturity of the client then impacts the team model of an IT consultancy? As it stands, to analyse any impact, measuring DT maturity has to happen by use of a systematic method: One aim of this thesis is to devise a DT maturity index, a kind of tool to categorise into manageable items the issues that affect specific aspects of the team model. In other words, the most value the research can offer to the commissioner of the study is by assessing whether the adaptable and adjustable elements of the team model can positively impact the output and wellbeing of the team for the benefit of both the IT consultancy and the client. The argument goes that a well-functioning team is more effective and innovative, hence generating new opportunities for revenue growth for the IT consultancy.

1.3   Structure of the study

The thesis begins with building the theoretical background to the research. It is followed by introducing the methodology used, including argumentation for the specific approaches chosen. The section on findings shall outline the results of data gathering, with an analysis of the implications. Recommendations are made based on an amalgamation of theory, research findings and practice. The thesis

shall be concluded with a look at the whole research process, its strengths and weaknesses.

2 THEORETICAL FRAMEWORK

2.1 Digital transformation

Vial (2019) defines DT as a process where digital technologies play a central role in the creation and reinforcement of disruptions taking place in society and industry. In their literature review of DT, Vial (2019) summarised certain traits associated with DT, such as the technologies as a source of disruption, resulting in changing value creation and competitive landscapes as well as altering of customer behaviour and expectations. For business, DT signifies the need to be agile and implement ambidexterity. Overall, DT rewrites the book on how to conduct and lead business.

According to Ahlskog and al. (2022), DT has the following focus areas: value creation, business strategy and models, maturity models and characteristics, digital technologies, and organisational aspects. From a theoretical perspective, the usage and integration of digital technologies enable DT, but the end goal of this change process is to create value that enables competitive advantages (Ahlskog et al., 2022).

Digital transformation (DT) happens when a business is mature enough to adjust its processes to the adaptation of new technologies, with the purpose of innovating new business and product concepts. The activities should be cross-functional, immersive and goal-oriented. For a company to get to the stage of transformation, it has already embraced the digital experience and adapted digital in its processes. This is outlined in figure 1. Where the challenges often arise is with the ability to innovate and create new business, to find their way through digital disruption.
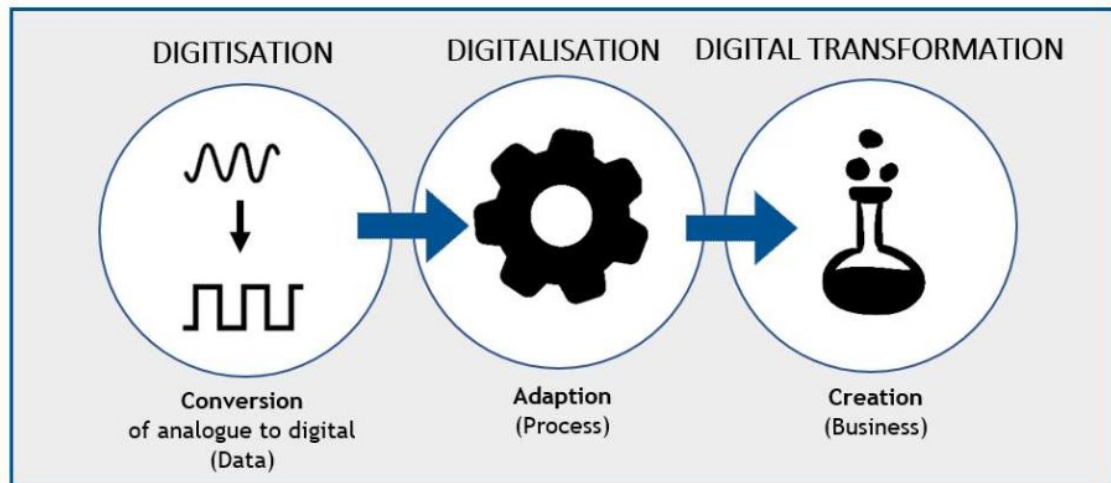
FIGURE 1. Evolution of the terms digitisation, digitalisation and digital transformation by Bumann (2019).

(Ravn et al., 2022) make a claim that digital technology is central in redefining companies' value propositions, which give rise to a new organisational identity. Digitalisation, in contrast, involves the use of digital technology to support an existing value proposition, reinforcing the existing identity of an organization. It follows that agile methods take centre stage in the process of adapting entire organisation to digital transformation. (Ravn et al., 2022.)

Jedynak et al. (2021) have comprised a conceptual map of digital transformation research in management literature. Interestingly, there is no mention in the findings about maturity models, which form a significant basis for this thesis. Instead, they outline three overarching themes that dominate the research into DT: tools, business models, and human resources. Jedynak et al. (2021) also point out some considerable research gaps, much of which centre around so-called softer skills: HR challenges, culture issues, competence gaps. This confirms the notion that the research on DT has not matured enough to really evaluate, in a holistic manner, all the levels of interaction happening within a transformation.

One of the few papers addressing the human factor in DT can be found in the article by Foerster-Metz et al. (2018), in which they start their analysis from the smallest entity of study, individuals. It cannot be overlooked that DT does promote certain traits, characteristics, and preferences which shape who are employed and what teams within companies embracing DT look like. When the younger

generations enter companies, they bring along new values and practices, which influence company culture. Foerster-Metz et al. (2018) also conclude that new workforce demand new leadership and propose the so-called VO-PA leadership model designed by Buhse to be used as a baseline. The model is built on the core value of trust, which are supported by the four points of networking, openness, agility, and participation. The study of leadership and DT is outside of the scope of this thesis, but it impacts heavily on how IT consultancies should model the team offering to their clients.
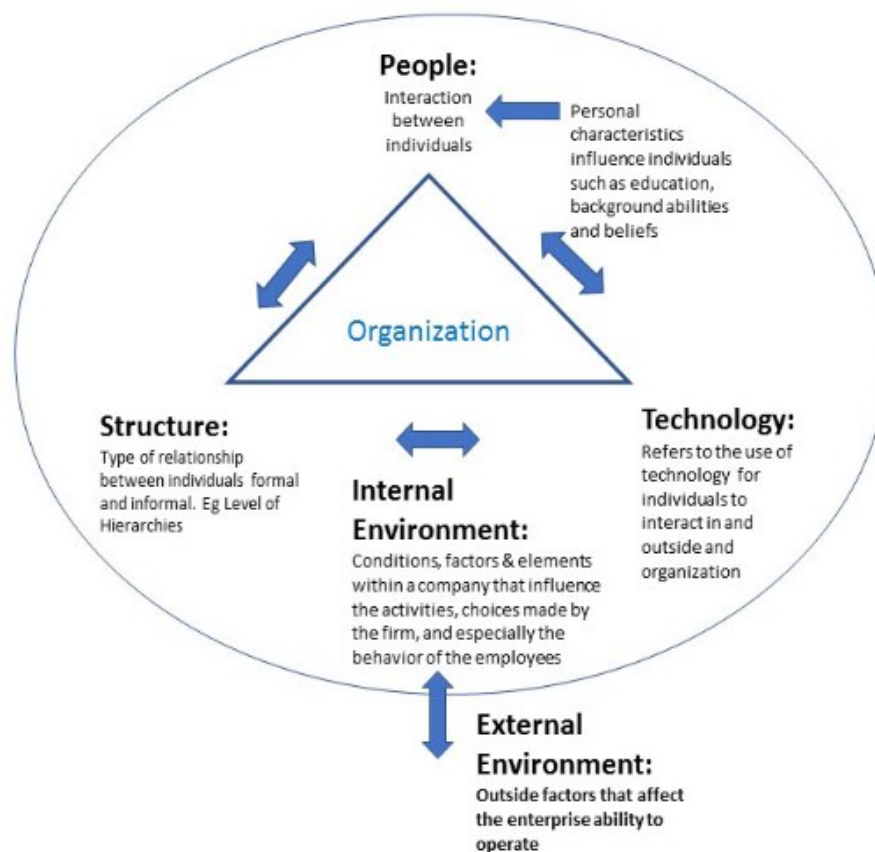

FIGURE 2. Factors affecting organisation behaviour by Foerster-Metz and al. (2018).

Westerman and al. (2019) outline a spectrum of digital and traditional practices pertaining to culture in companies embracing DT and those still adhering to the legacy approach. It shows how DT alters the clock speed of operations and emphasises the need for agile flexibility in all activities.

DIGITAL PRACTICES							
			TRADITIONAL PRACTICES				
Rapidly experimenting	**Self-organizing**	**Driving decisions with data**	**Obsessing over customers**	**Focusing on results**	**Acting with integrity**	**Seeking stability**	**Strictly conforming to rules**
Constantly and systematically experimenting, learning from the results, and quickly applying new insight	Collaborating fluidly across functional, geographic, hierarchical, and organizational boundaries to get things done	Collecting and using accurate data to make decisions and solve problems	Maintaining continual focus on meeting the stated and unstated needs of current and potential customers	Continually striving for measurable results instead of just processes and promises	Being honest, behaving ethically, and striving for positive outcomes for all stakeholders	Aiming for reliability and predictability in stakeholder interactions, operations, and employee work life	Seeking to avoid problems and maintain reliability through rules orientation

FIGURE 3. Spectrum of digital and traditional practices by Westerman and al. (2019).

The strive for self-organising comes through in much of the literature on DT. To be genuinely agile, employees and teams should be given more autonomy and power to make independent decisions on how organise their work and progress against set targets. This requires a shift in thinking on multiple levels, including de-learning of old fixes ways of doing things. Having said that, it is equally important to identify and keep traditions that promote integrity and stability, without compromising on the transformation itself. People should be made aware of the things that they need to change, but also made feel they can make a real impact – that they matter in the grand scheme of things.

At its core, DT is about the utilisation of data. New technologies and concepts, such as the Internet of Things and Services (IoTS) and Artificial Intelligence (AI), all run on data. Data in itself does not generate new business models or products - design and development are required to make the data output smart for the intended purpose. Another key concept of DT is interoperability over cloud computing, which has been driving the emergence of new functionalities in heavy engineering combining hardware and software. Autonomous systems, product digitalisation and data analytics all contribute to the need to rethink everything from product development to client experience.

This results in the challenge of going digital being all the more pronounced in industries where the product development cycles are often counted in decades instead of years: There is less room for experimentation and more a need for making sure the whole organisation is synchronised as the process of transformation takes place over time.

It could be argued, therefore, that timeframe and industry affect the definition of digital transformation. The sense of urgency often unpins any significant shifts in the business environment, but when DT restructures established heavy engineering companies, the changes happen rather more gradually than in, for example, the consumer market. This is not to say that the changes are equally fundamental, only that the lengthier timeframe affects the change management process. It is human nature to refocus attention and even engage in surplus activities when there is no daily reminder of the urgency of the need to transform.

In their study Ahlskog and al. (2022) wanted to test the hypothesis that DT can have different connotations in a company. They came to the conclusion that the main challenge when undergoing DT is knowledge. Vial (2019) in turn underlines, according to the literature, that inertia is the most significant barrier to DT. This can be a result of companies being so immersed in existing client relationships and having well-established and highly optimised processes that they fail to see the urgency and need to change. This can be especially relevant with old engineering companies with products that take years to develop and deliver. As with any change process, DT is met with resistance too, but what defines DT are the characteristics of speed and resilience: DT has to be adopted fast, but with a consideration to the fact that everything keeps on changing all the time. Therefore, DT requires focus and the ability to adjust.

Interestingly enough, Bordeleau and Felden (2019) have discovered in their research that there are no publications to date available on analysing business-wide transformations resulting from DT. According to them, studies converge on business models and processes, and propose less than helpful structured approaches to change management for a constantly changing context. Bordeleau and Felden (2019) argue that DT as a change process is largely seen through the perspectives of maturity models, structured step approaches to transformation, and capability development. What is lacking is practical roadmaps on DT implementation, covering all business areas. Consequently, Bordeleau and Felden (2019) introduce the interesting concept of 'dynamic improvisational capabilities', claiming that each transformation is different in nature and thus requiring different actions on different subject matter areas, such

as business processes and managerial practices. Moreover, they claim that DT needs to be analysed more through the concept of change management; there is a need for a model to support the change process in the context of a DT. (Bordeleau & Felden, 2019.)

One issue when talking about DT and global companies is the way in which the defined DT strategy can be implemented consistently across all locales. There are many things to consider, not least cultural aspects associated with leadership. The nature of DT is speed and autonomy to make decisions, both concepts that can be interpreted in various different ways, depending on the social norms and local culture. This is something to take note of when an IT consultancy works within a multicultural and globally dispersed context. Badasjane et al. (2022) propose that these challenges be mitigated with centralisation of key decision making and direction, along with formalisation of the responsibilities and roles of the local teams. They call this a coordination-oriented organisation structure.

There appears to be no or very little segmentation of DT in the literature in terms of heavy engineering. In fact, the division seems to be more across manufacturing and the client-centric industries, as also reviewed by Loonam et al. (2018). As a result of their literature review of ten case study companies, they identified four key themes to implementing DT: clients, strategy, operations, and technology. They grouped clients and strategy as being intrinsically externally focused, whereas operations and technology required internal attention.

What seems somewhat lacking in argumentation is the perspectives by which Loonam et al. (2018) categorise operations and strategy under what they call 'the strategic perspective' and client and technology under the 'operational perspective'. Such compartmentalising does not really make sense as all these dimensions should have unified goals. But as Loonam et al. (2018) state, at the end it is about these four themes being in constant conflict with each other due to competing values. Notably, finding common ground, alas values, is the key to having a successful DT.

Something that seems to be lacking in the literature reviewed for this thesis is any analysis of the impact DT has on the hierarchical landscape and power balances

within a company and organisation. Maybe it is taken as a given that DT means also the dismantling of the old management structures, but it should merit research. As shall be concluded in the research for this thesis, the notion of power – who gets to define how things are really done – plays a significant part in an IT consultancy team being able to successfully deliver on client expectations.

Another aspect that is not really addressed in the literature on DT is risk management. This is somewhat troublesome as DT is largely about taking a 'forced risk'. In other words, companies do not have the choice whether or not to take on DT, but they can define the risks they want to take in the strategies they choose to adopt. Kane et al. (2015) have found that business leaders see risk aversion as a major impediment to the successful implementation of DT. Moreover, with the notion of risk management comes the ability to accept mistakes and change course rapidly, both inherently important to DT. A dynamic company culture gives room to experiment, challenge and refocus, without fear of being held accountable for unintentional mishaps. There is, nonetheless, a fine line between dynamic and chaotic, and this is where the chosen strategy becomes so important.

So, when analysing DT as a theoretical background, it clearly does not paint a picture of a homogenous experience. Nonetheless, even for heavy engineering DT signifies major changes in product offering and operations: customisations, servitizations, the move to the cloud – to name a few. More importantly, as Kane et al. (2016) ascertain, soft skills trump technology knowledge as the driving force behind DT. They call for the imperative for companies to embrace digital congruence: culture, people, structure, and activities aligned with each other, strategies, and the continually changing DT landscape. Manoeuvring in this maze requires resilience, determination, and bagfuls of soft skills.

2.1.1 Industry 4.0

The concept of DT precedes Industry 4.0 by some decades, with the notion of 'digital' having changed over time to the current definition where data and interconnectedness are at the core of new emerging business models. According

to Nosalska et al. (2020) and Ahlskog and al. (2022), representatives of the German government were the first to introduce the term 'Industry 4.0' in 2011 to describe how digitisation, automation and new technologies revolutionise the organisation of global value chains. Industry 4.0 is ultimately about achieving new levels of industrialisation and competitiveness. Other similar concepts have recently surfaced, such as 'Industrial Internet of Things' along with 'smart', 'digital' and 'advanced' manufacturing.

Ahlskog and al. (2022) see the concepts of Industry 4.0 and DT as closely related and overlapping. Just the same, there seems to be an absence of consensus among researchers and practitioners on standard definitions for both abstract notions. Elibal & Özceylan (2021) underline that Industry 4.0 is more than just automated physical systems, but automated and smart decision systems. Ustundag and Ceviksan (2017, 5) define DT as establishing intelligent and communicative systems, including machine-to-machine communication and human-machine interaction. Ustundag and Cevikcan (2017, 31-32) have identified three layers of IoT value creation: physical, connectivity and digital. All of these layers require different technologies and skillsets for development.

Viewing these two concepts only through the prism of transformation altering a particular industry, Industry 4.0 as a concept could be reduced to the sequential activities of automation, interconnectivity, data analytics, and artificial intelligent. Transformation, however, has the in-built notion of transforming into something, which requires direction and guidance. This means that learning and adaptiveness is required from both management and workforce to gain all the benefits of DT while addressing the challenges in a timely fashion.

While Industry 4.0, also described as the Fourth Industrial revolution, is fundamentally focused on manufacturing, as a concept it can be associated with heavy engineering too; in the literature studied for this thesis no likened term specifically describing the digital revolution in heavy engineering was found to exist. Regardless, Industry 4.0 is described in literature in terms which could well be associated with heavy engineering too, altering everything from business models to social and structural constructs within a corporation. It could be argued, however, that in heavy engineering Industry 4.0 has more to do with rewiring the

traditional hardware to accommodate the application of software, making hardware intelligent, than rendering manufacturing more efficient or innovative. Figure 4 below is demonstrative of such an interpretation. It is true that clients expect more customisations, but most often the products in heavy engineering are designed to last decades, so the business opportunity lies any services attached. What clients of heavy engineering are looking for is being able to make full use of data with their product, which translates into more productivity and an edge over the competition. In short, clients want to expand the product's applications of use and ROI through technology.
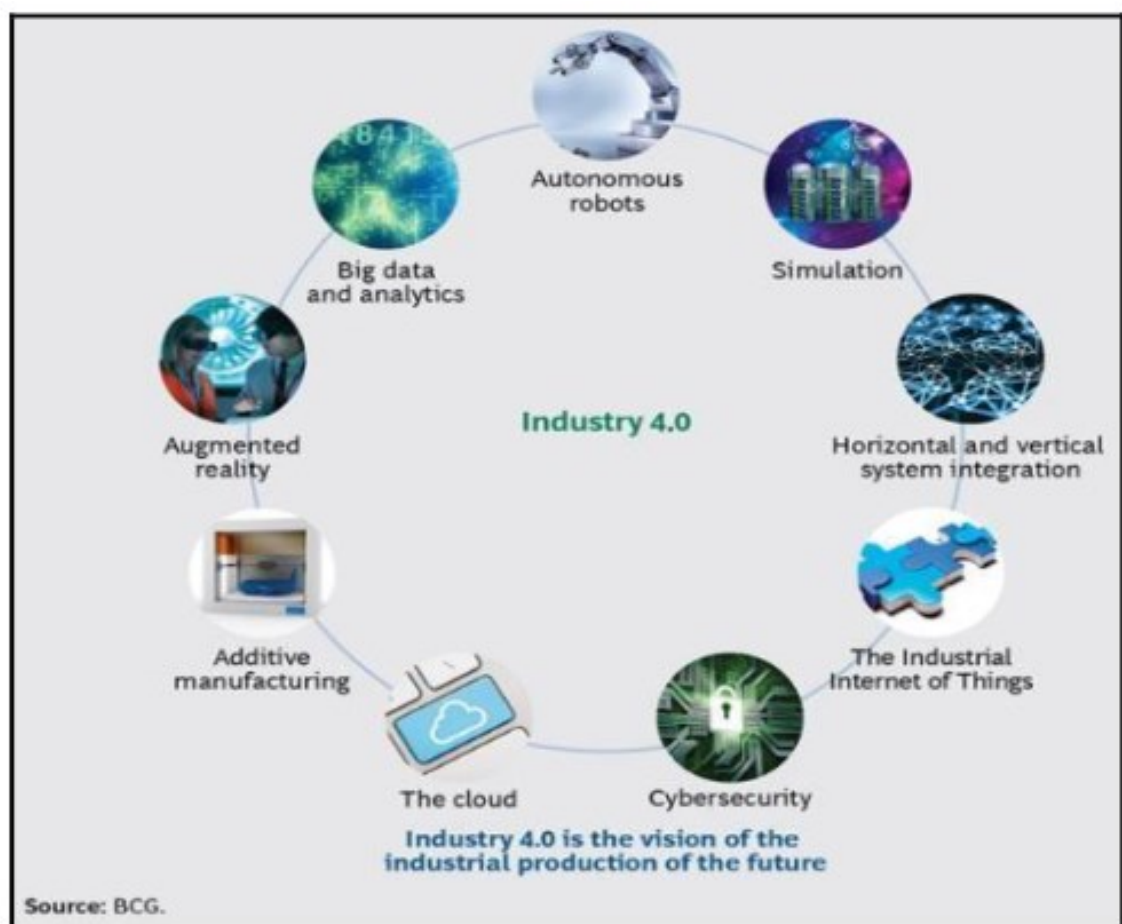
FIGURE 4. Pilars of Industry 4.0. (Gadre, 2020).

Nosalska and al. (2020) see there to be two distinct approaches to addressing the nature of Industry 4.0, technical and business. As seen from figure 5 below, new technologies can be utilised in multiple ways, but while being an enabler, it is the business aspects that determine survival. Consequently, the impact of Industry 4.0 on a specific domain cannot be analysed without considering the overarching change management process, which is present in all spheres of the

ongoing transformation. People need to be trained and not just in the new technologies, but in the impact the change will have on the whole value chain. Companies that do this successfully and innovatively will thrive, those that resist change, on a fundamental level, will lose the key to their future.

- Mechatronic systems and automation design and implementation: CPS, Modeling/ Simulation, Augmented and Virtual Reality (AR/VR), Digital Twin, Mobile Interfaces.
- IT and software-related issues: IT Systems, Algorithms, Analytics Software, Cloud Computing, Cyber Security, ERP, MES.
- Data science and data processing: Big Data, Data Mining, AI, Blockchain.
- New manufacturing technologies: Additive Manufacturing (3D Printing).
- Networking and connectivity: IIoT, Industrial Ethernet, Wireless Networks, M2M Communication, RFID.
- Robots: Industrial Robots, Collaborative Robots (Cobots), Automated Guided Vehicle (AGV).
- System management and services.

FIGURE 5. Industry 4.0's key technologies based on extensive literature review by Nosalska and al. (2020).

In 2015 and 2016 a comprehensive global research study in several countries and across various industry domains was conducted on industry attitudes towards Industry 4.0. The study discovered that only some 15% of the companies surveyed had already implemented systematic strategies related to Industry 4.0, with some 50% of respondents indicating that their goal was to be in the process of implementing strategies by 2020. (Stich et al., 2018). This goes to show what a momentous and far-reaching phenomena Industry 4.0 is, and how it is shaping industry and its context at a rapid pace.

Interestingly enough, there is some indication that the term Industry 4.0 is being challenged by a new term, namely Engineering 4.0. Based on a general read on the topic, it seems that this latter term is narrower in scope, focusing more on the impact of digitilisation on the discipline and science of engineering. Then again, some authors like Tafvizi Zavareh and Eigner (2021) seem to define Engineering 4.0 in a very similar way to Industry 4.0. They introduce the basic methods of Engineering 4.0 as being Systems Thinking (ST), Advanced Systems Engineering (ASE) and Model Based Systems Engineering (MBSE). For Tafvizi Zavareh and Eigner (2021), another key point of digitilisation is the horizontal and

vertical integration of intellectual, technical and administrative work processes with product life-cycle management. So, in summary, it remains to be seen how the concepts continue to evolve.

2.2 Maturity models

By being able to determine the DT maturity of a client organisation, an IT consultancy is better prepared to align its offering to the needs of the client and equip its team to cope with any potential challenges they will face in a particular assignment. To be able to generate a useful measurement matrix, it is important to first explore the current models in use. Notably, the purpose of this thesis is not to try and create or adopt a maturity model, but to potentially help the commissioning company to further develop a matrix for assessing the key dimensions affecting successful software delivery by an IT consultancy for a client company undergoing DT. Understanding the construct and elements of maturity models is a basis for practical analysis of clients' DT maturity levels, but it also aids in defining the team model too.

When evaluating maturity models, one should start by defining the concepts of 'maturity' and 'model'. Oxford English Dictionary defines 'maturity' as a state of fully grown or developed, in other words stable. 'Model' in turn implies conformity: The issue being measured or evaluated happens against set parameters. Maturity models have their history in Maslow's hierarchy of human needs and have been developed to represent the evolution of an organisation's capabilities along an anticipated and logical path (Röglinger et al., 2012).

When reading on the literature, it becomes apparent that maturity models for DT have two functions, which are often not explicitly expressed: One for simply assessing, another for providing a development framework. According to Pöppelbuß and Röglinger (2011), there are three purposes for maturity models: descriptive, prescriptive, and comparative. This amalgamated approach will used in the research and conclusion of this thesis.

Bumann and Peter (2019) have identified in a literature review altogether eighteen validated maturity models and frameworks. In a comparative analysis of some hundred dimensions, the most often cited were strategy, organisation, corporate culture, technology, customers, and people (Bumann and Peter, 2019). After a structural analysis of a large number of maturity models, Elibal and Özceylan (2021) categorise models into practioners', academics' and dimension-based models.

In their research, Bertolini at al. (2019) were able to conclude that when reviewing literature on maturity models, manufacturing was by far the area most commonly cited. Business design and information system were the other two relatively common subject categories. In terms of research areas, Bertolini et al. (2019) saw a large diversity of areas, with IT accounting for merely some 6%. So, it appears that the majority of research and application approaches for maturity models concentrate around the topics of digitilisation of business, products and services. In terms of industries, the literature review by Bertolini at al. (2019) show, somewhat surpirisingly, that maturity models are most often discussed in relation to healthcare and energy.

There is even a maturity model developed to cover product life-cycle management. It is called InAsPro (Integrierte Arbe-itssystemgestaltung in digitalisierten Produktionsunternehmen) and it considers the life-cycle phases of development, production, assembly, and after sales, assessing the digitilisation dimensions of technology, organisation, social issues and corporate strategy. (Siedler et al., 2021)

Schumacher and al. (2016) have found five maturity models with regard the domain of Industry 4.0: IMPULS, Empowered and Implementation Strategy for Industry 4.0, Industry 4.0 / Digital Operations for Self Assessment, the Connected Enterprise Maturity Model, and I 4.0 Reifegradmodell. They claim that IMPULS is the most thorough of all the models as it is based on a comprehensive data set and is scientifically transparent. (Schumacher et al., 2016). Ustundag and Cevikcan (2017, 63) list the same models as Schumacher and al., putting forward their proposal for an Industry 4.0 maturity model. Hoàng and Hong (2022) in turn has done a comparative study of 24 'well-known digital maturity models'. He

includes in this list also some of the qualitative and quantitative assessment techniques used in DT modelling and development, such as the Delphi Method and Monte Carlo Simulation (Hoàng & Hong, 2022).

Stich and al. (2018) for their part analysed the model created by the German academy of science and engineering, Acatech, and found that the skills relevant for having an agile, learning organisation can be divided into four structural areas: resources, information systems, organisational structure, and culture. This approach clearly underlines the importance of learning and being aware of the stages of transformation. The Acatech model is one of few that actually mentions the significance of employee behaviour as driving factor in DT. The Acatech model is operational in the sense that it offers three distinct phases for development: First identifying the current stage the company is at, then defining the needed capabilities, and finally determining concrete measures to be taken (Stich and al., 2018).

Several researchers have built maturity models to assess industrial capabilities related to the Industry 4.0 concepts and technologies. The model by Schumacher and al. (2016) is often referred to in literature, as is Colli's and al.'s 360 Digital Maturity Assessment (360DMA) model too (Colli et al., 2019). According to Santos and Martinho (2020), maturity models can be used to recognise the maturity level of a company in a certain domain, or a process related to a future goal. Santos and Martinho (2020) have taken as a starting point in their research maturity models commonly developed for specific knowledge areas, such as project management and software development. These models include ITIL, PMI, CMMI, ISO, and COBIT. Often somewhat rigid and confined, companies at times prefer to derive their own interpretation of a maturity model instead of drawing on the established ones (Santos & Martinho, 2020.)

In their thorough review of different maturity models, Bumann and Peter (2019) show how the various aspects of the models can address both internal and external dimensions and are often framed to a specific industry or geographical location. In their study Schumacher and al. (2016) consequently found 5 maturity levels and 4 to 16 dimensions, with assessment done either through self-

assesment or an external auditor. Radar charts appear to be the most used approach to representing the data.

Santos and Martinho (2020) evaluated several maturity models in their aim to develop a maturity model to assess the stage a company is at in terms of implementing Industry 4.0 technologies and concepts. What they found was an array of dimensions and transformation capabilities: organisational structure, culture, strategy, leadership, technologies, information systems, and so on. (Santos & Martinho, 2020).

Unterhofer et al. (2018) did a similar analysis with the purpose of creating an overview of structure and functioning of assessment and maturity modelling for Industry 4.0. They concluded that after some 20 years of focusing on Lean Management, the new approach to engineering management, namely Industry 4.0, is still lacking comprehensive tools to assess capabilities, which would help generate clear roadmaps for implementation. (Unterhofer et al. in IEEE Technology and Engineering Management Society. 2018).

For an assessment model, Unterhofer et al. (2018) opt for ISO/IEC 15504 as a base for constructing a maturity model. This allows an assessment of both capabilities and dimensions on the same grid. See figure 6 below.

FIGURE 6. Structure of a 'general' assessment model. (Unterhofer et al. in IEEE Technology and Engineering Management Society. 2018)

While researching the literature, Unterhofer et al. (2018) also amalgamated a general maturity model, which combined the most common dimensions found in maturity models as well as a weighted scoring grid.

Dimension	1.0	2.0	3.0	4.0	5.0	Score	Weight
Strategy						S1	W1
Leadership						S2	W2
Customers						S3	W3
Products						S4	W4
Operations						S5	W5
Culture						S6	W6
People						S7	W7
Governance						S8	W8
Technology						S9	W9

FIGURE 7. Structure of a 'general' maturity model. (Unterhofer et al. in IEEE Technology and Engineering Management Society. 2018)

Tafvizi Zavareh and Eigner (2021) present the VPE-EDMM (Virtual Product Engineering Engineering Ditilization Model) maturity model. Fundamentally the model does not seem to differ that much of the abovementioned. It does, however, outline a simple enough, but numeric system to defining different maturity levels, as seen in figure 8.
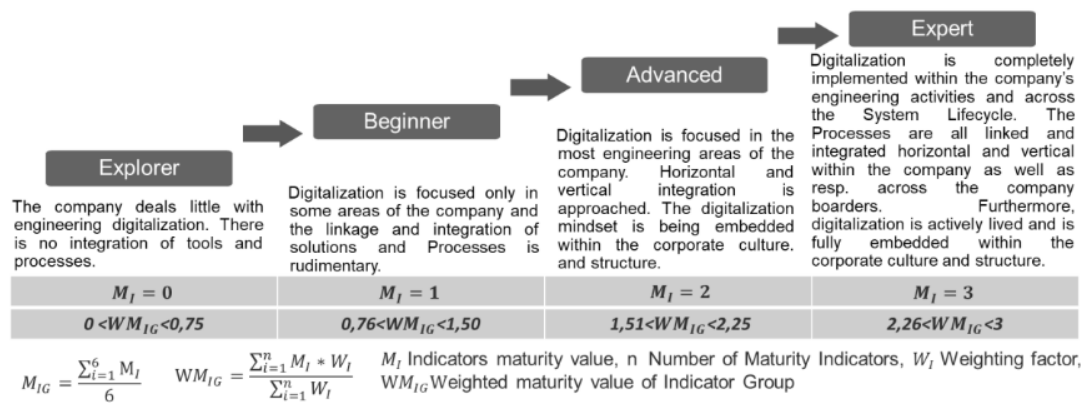

FIGURE 8 The four maturity levels of the VPE-EDMM maturity model. (Tafvizi Zavareh & Eigner, 2021)

Regardless of the model, every digital transformation has to begin with defining the goal. This can be more stable or challenging for heavy industry companies with long timeframes, depending on the perspective. DT maturity can then be assessed and measured against the goal. For an IT consultancy brought into the company to address specific needs, it is imperative for them to understand the level of maturity a potential client is at in terms of their digital transformation. Yet, the identification and articulation of the client's goal is of equal significance. The IT consultancy needs this information to level set expectations and form a team with the right competencies. In an ideal situation the IT consultancy would be able to adjust and customise upfront its offering to their client's digital transformation maturity level and goal of the DT process.

2.3   Team model in IT consulting

The team model is by no means a straightforward concept since it can have multiple dimensions: social, cultural, contractual, operational, competence-based, and so on. The following two chapters examines how the team model is specified for the intent of an IT consulting company.

2.3.1   Team model and software development

Mathieu et al. (2014) summarise that work on team composition can historically be divided into two: Individual-based models emphasising members' knowledge, skills, abilities, and other characteristics, and then team-based models where organizational constructs and comparative social psychology are in focus. Based on an extensive literature review, Mathieu et al. (2014) have listed some aspects of team composition that have been studied in more detail and found to be important to team outcomes: teams' personality mixes, demographic diversity, average cognitive ability, and attributes of core versus peripheral members. All in all, Mathieu et al. (2014) conclude that future models need to incorporate various aspects of both individual and team-based models. Also, they claim that different team compositional mixes will be present at different stages of team development.

It is only natural that what is emphasised over time in theories on successful team compositions are very much rooted in the expectations and trends of the given time period. Team profiling might have been the norm when software groups were first formed, but with the introduction of the agile method and the requirement to combine the autonomy of experts with aligning work within a team and across organisations, collaborating towards a common goal, the significance of social and organisational constructs has been brought to the fore. For example, Ravn et al. (2022) state how team autonomy is a key factor in employee wellbeing. It is this very autonomy which challenges traditional hierarchies, and which is a constant issue of contention with software development teams and the surrounding organisation. To say nothing of the challenges it poses in IT consultancy teams delivering software development for their clients.

Ravn et al. (2022) cite Stray et al. (2018:5) in listing barriers to agile (autonomous) team performance in software development: ambiguity about direction and goals, lack of trust, too much need for coordination, lack of organisational support, too much norm diversity. This combined with the often fluid nature of roles within software teams due to each team member having specific technological expertise, along with team members changing over to other teams and assignments and thus affecting team dynamics, makes the success of the IT team model much dependent on a multitude of drivers. It is not enough to make the model work in isolation, it has to be a fit that is able to respond to the challenges happening on the client front.

Ravn et al. (2022) claim that autonomy and buffering attribute the most to the success of agile software teams. In other words, an agile software team should have enough autonomy in relation to its environment and this is achieved by timely and adequate buffering, sheltering of the team from, for example, interruptions or counterproductive assignments. There are, among other things, technical interface solutions which control the balance between managing interdependencies and buffering across teams.

Whatever the method, it is always about trying to strike a balance between finding a joint rhythm between teams and being focused on delivering on the targets, which can be at times contradictory within the larger picture. One of the most important things for an IT consultancy is to agree with the client on the expectations and make the client understand the dependencies of a successful comprehensive delivery. This is crucial for the job satisfaction and motivation of individual experts too, who at the end of the day form the team working together.

Software development has been plagued by underperformance against expectations, which in concrete terms refers to software deliveries always being late and very rarely meeting the defined functional and quality requirements. It is without a doubt that the appropriate team model and the dynamics between the personalities involved in and with the team have a significant role in determining the output.

In their effort to create an effective team model for software development, Gilal et al. (2018) consider software team roles, personality types, and gender as predictor variables for team effectiveness. They make the troublesome argument that personality profiles of male and female developers can never be the same; according to them, interpretations of personality should always include considerations of gender.

Aside from such controversial notion, Gilal et al. (2018) propose an interesting classification technique to be used as a tool in defining team compositions. In their research they calculated how team performance is affected by the 16 personality types defined in the Myers-Brigg Type Indicator (MBTI) instrument. They then came up with an algorithm determining the decision rules by which team's effectiveness can be determined by combining the right personality type and gender with the assigned roles of developer or team leader.

Gilal et al. (2018) might be on the right course, meaning that there is a need to put more attention on individuals and so-called soft skills when it comes to forming software development teams. It might be somewhat farfetched to argue that the success of a team is by and large solely dependent on the team members and their interrelationships. No team operates in isolation.

There is no denying, though, that for an IT consultancy team, everything begins from how well the team works as a structured entity. Team cognition as a concept sees teams almost as organic constructs, for whom important knowledge is mentally organised, represented, and distributed in a specific way (van der Haar et al., 2015). Theories in team development include notions such as team mental models and team situation models, where members of a team develop mental representations and knowledge structures over time and in connection to a situation. Studies conducted by van der Haar et al. (2015), albeit not with software development teams, seem to conclude that it is important for individuals in teams to come up with similar situation models right at the beginning of team formation. It could be interpreted that teams where members work together right at the start of their cooperation to align understanding of roles, goals and the context - and are able to continue adjusting along the way - outperform those that adhere to more fixed situational perspectives.

In their study on digital innovation and teams, Hadjielias et al. (2021) found that teams depend on two cognitive states: team-specific cognitions required for digital innovation and digital project-specific cognitions. Team-specific cognitions are about shared perceptions of values and needs; in a way a common belief system on what is required to make things work. Project-specific cognitions have to do with the shared value and future impact of the project. Figure 9 demonstrates in practical terms how these two cognitions, when married with actual tasks and assignments, create socio-cognitive arenas. This cross-feeding setting then determines the performance of the team's output.
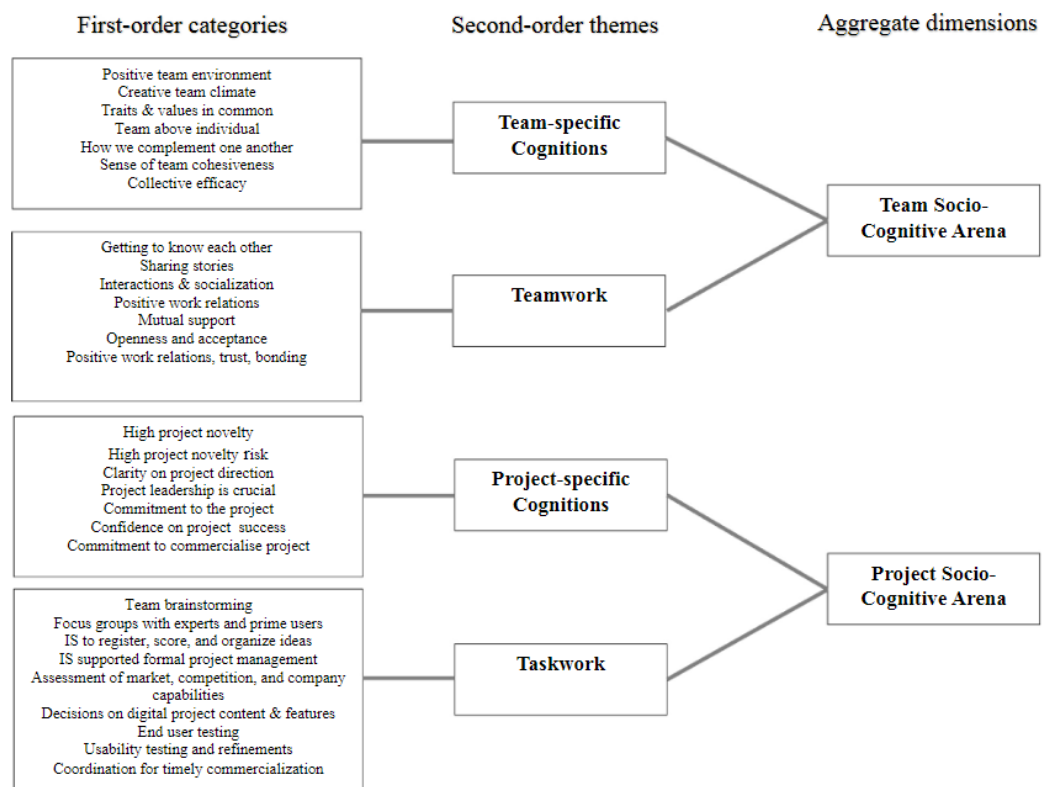

FIGURE 9. The team and project-level socio-cognitive arenas.(Hadjielias et al., 2021)

Teams working within DT require, without a doubt, technical skills, improvisation and agility to respond to the rapidly changing environment and technologies. As is with all skilled expertise, continuous learning is a core attribute of any successful team. Although focusing on innovation teams, in general terms the assessment by Hadjielias et al. (2021) that the success of a team depends much on the diversity of human capital, role complementarity, and the creation of a

strong team culture, cannot be discredited. Following along these lines, it is here that an IT consultancy can outtrump any internal team assigned to similar tasks: An IT consultancy has more leverage at making sure the right employees with the appropriate skills get to form the optimum team composition. An IT consultancy can tailor the team to fit the environment and situation, whereas a company often has more limited resources to work with.

In terms of team performance, Dyer (2020) has formed a theory of the 5 Cs: context, composition, competencies, change and collaborative leadership. As demonstrated in figure 10, these can be seen as rather self-contained elements, not incorporating the environment the team has to operate in. Even if there was a good handle on all 5 Cs, team performance can be crippled by an outside effect. While Context does refer also to the surrounding organisation, the exterior pressure can manifest through all of the Cs, not just through hierarchies or power structures. For example, the client company might have different views of the skills required from that of the IT consultancy, causing anything from a diversion of focus to complete breakdown in communication and trust.
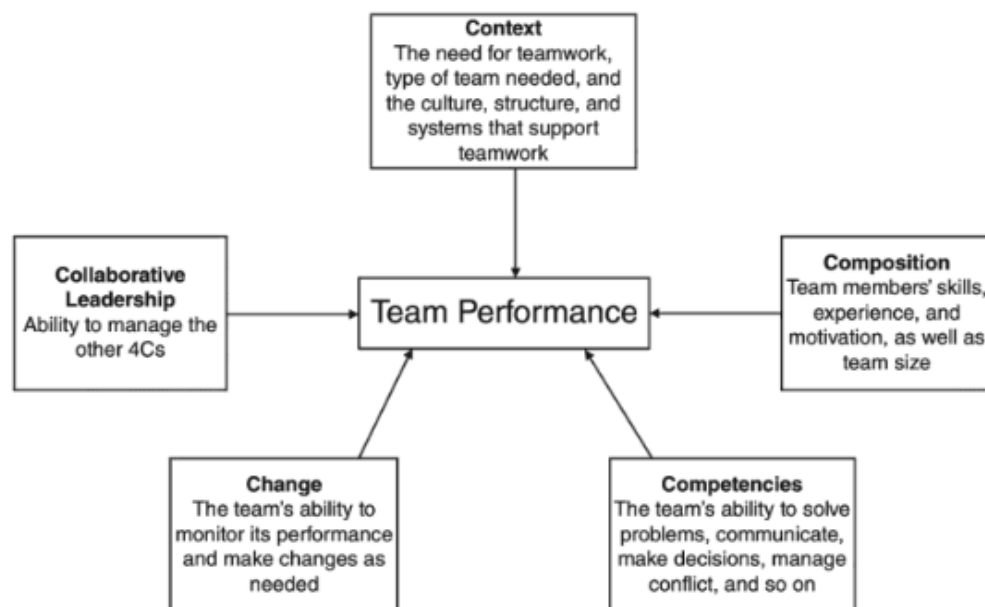

FIGURE 10. The team and project-level socio-cognitive (Dyer, 2020:10)

When looking into the future, Dingsoyr & Dyba, (2012) propose that more research is needed in defining how modern software teams really interact and

perform. The recent pandemic has only underlined the significance of providing better understanding of and tools for team collaboration in a virtual environment.

What is still missing from the equation is a real comprehension of the changed elements which comprise a successful IT consulting software development team. Dingsoyr & Dyba (2012) refer to software development as a sociotechnical system where the human and technical entities together can address and produce much more than the sum of individuals and technologies. While technologies become increasingly complex and automated, it is the social component that most often determines the success of an undertaking.

For this reason, both clients and service providers in the field of IT consulting have become increasingly aware that software development is not something that can commissioned or bought 'off the shelf'. Problem-solving and innovation requires team collaboration, meeting of the minds. Therefore, providing and purchasing an IT consulting team instead of individual experts demands both trust and commitment from the client and IT consultancy alike.

2.3.2 Team model as an offering component in IT consulting

While all organisations involved in software development are keen to address the challenges such work entails, IT consultancies and their clients approach the concept of a team model from different perspectives: For clients it is more about increasing the possibilities of success, while for IT consultancies it is a question of business sustainability. Clients want to understand how by relinquishing control they gain reliability, quality and output they would otherwise remain without, whereas IT consultancies see an opportunity to achieve predictability and traction in forecasting.

In its simplest form, the team model is a contractual and operational instrument to provide the IT consultancy with more decision-making leverage in how the team is formed. This being said, with the team model the client lays trust in the IT consultancy to lead the team and the work to their advantage, without a need to manage and oversee day-to-day operations.

One of the clear competitive edge the team model has over hourly assignments is that the client pays for deliveries, not for the time and effort spent. In return the client is not expected to request details on how the work is allocated within the team, or what the time is spent on. This leaves room for the consulting IT company to add capacity if necessary, meaning that there is flexibility within the team to arrange HR-related issues as they see fit. Having holidays when they prefer, as an example, can be paramount for distilling and maintain the motivation and wellbeing of its team members.

The team model the commissioning company of this thesis provides to its clients has the same fundamental principles, regardless of possible customisations. These principles of trust, motivation, focus, and competences are the building blocks of the team set-up offered, resulting in a client promise of consistent resourcing, maximized productivity and supportive team culture. Nevertheless, for the promise to be met in full, the client has to commit to certain requirements.
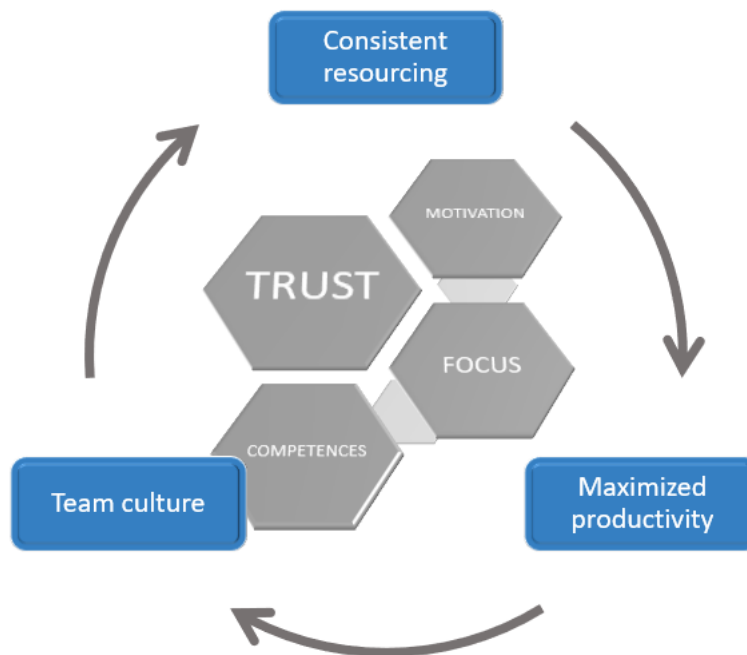

FIGURE 11. Building blocks of a team model.

The team model is based on the concept of trust. A team can only deliver successfully if all its members trust that everyone possesses the right competences and motivation to work together towards the same end. The IT

consulting company should be given full authority to put the team together as it sees fit. This means that the IT consultancy should have capabilities to judge not only the hard skills of its experts, but also assess how the strengths and personalities of each individual add to and not subtract from the team's productivity. So, there needs to be trust within the team and towards the management of the IT consulting company, along with trust the client has in the ability of the IT consulting company to act in its best interest.

A team should always strive to be more than the sum of its members, aspiring to enhance strengths and smooth over any weaknesses. The team model is designed to support, coach and grow its new and junior members. High performing teams never excel by relying on just star experts, there should be enough diversity too to allow room for innovation and idea creation. Besides, having a balanced mixed between newbies and seniors is an antidote to hybris.

The team model is both an insurance and an enabler for growth for the IT consulting company. The model makes it possible for the IT consulting company to bring in more inexperienced experts into the teams to learn and thus grow their market value. Followingly, the model facilitates job rotation, which in turn increases job satisfaction: Consultants get to gain new experiences and competences and are not cemented in the same assignment for years on end.

In addition to the people aspect, a variety of experience in the team translates into a more stable cost structure; if the team consisted only of the more experienced and thus more expensive experts, the business case for the commission could be untenable. The team model makes it also relatively easy to scale operations up or down. It is much easier to bring in new team members to an already established setting, where the dynamics of the particular team are already known to the IT consulting company. In return the client can have their needs addressed flexibly and fast.

Another key component of the team model is providing the team with clear targets and tools to support successful delivery. It is equally important that the team is given the opportunity to focus on adding value; this requires that the team is not overloaded with tasks and obstructions, which do not contribute to the goals they

are expected to achieve. The role of the team and the experts within it should be clearly defined against the surrounding environment and organisation.

Indeed, such definitions and boundaries should be respected without the need to compromise on agile methodology. Once again, this requires trust from all parties involved. The difficulty is that this kind of trust cannot be commanded, it has to be earned over time. The quality of deliveries in terms of substance and time are dependent on a multitude of factors, but the ones the IT consultancy can impact directly is the motivation and competences of its experts. In a modern IT consulting company, no expert is thrusted into an assignment without the expert's acceptance of the undertaking. By having a consistent dialogue with the employee and by giving opportunities for continuous professional development, the IT consulting company has the best chance of keeping their experts motivated and committed to the work at hand.

It could be argued that the hard part of implementing the team model at the client often stems from a reluctancy to let go of some visibility over the work itself, and how it is managed. Essentially conflicts often centralise over questions of trust and wielding of power. These in turn can be rooted in somewhat outdated notions of hierarchical management. It is therefore important to measure performance and employee satisfaction in several ways to gain insight and tangible data on progress, especially if there is a need for the IT consulting company, through its account management, to have some tough conversations with the client.

Measuring not only the progress against defined goals but also the wellbeing and motivation of the team and its individuals should be an integral part of the team model. In a market where IT professionals can basically choose where they work, it is in the interest of all parties that overall collaboration is followed and adjusted accordingly at the different stages of the project.

Sherstiuk et al. (2019) introduce the concept of team behaviour model as a tool for determining what they call 'project development trajectory'. Through a series of questions and observations, the model tries to track how the behaviour of the team impacts the progress of the project. The model marries the five Scrum values of commitment, focus, openness, respect, and courage with the model of

the 7 F's: Finding, Faith, Focus, Forcing, Functioning, Fruitfulness, and Forwarding. The behaviour model sees there to be these 7 stages within a project, each having a gateway question that should be addressed before the following stage of the project can be entered into. For example, at the stage of Forcing, if the question 'How shall we do this?' remains open, there is a potential for a conflict between those who seek innovation and those who are satisfied with the status quo. So, it is equally significant to not only to track numeric targets, but also the stages at which the team is operating in.

The benefits of the team model as an offering component in IT consulting centre around giving both the service provider and the client tools to establish a long-term partnership. IT consulting is in the business of providing its clients with know-how and resources they lack, or see as not strategically something they want to invest in. In turn clients must place genuine trust in the service provider. The IT consulting company is expected to have the skills to put together the optimum team, even if it means that the client does not always get to 'cherry pick' the most senior and sought-after experts. The strength of the team model is in the team and how the individuals work together, as opposed to purchasing expertise per CVs. Having a collection and gathering of the best experts in the world would still not necessarily get the client where they want to be if these experts did not function as a team – that is what it boils down to.

In terms of investment, the team model does require more effort from account management than the conventional approach. Account management needs to be on top of issues both in the team and at the client end, all the time. Also, any challenges in client satisfaction can have much more significant ramifications than in a more spread-out client base, where assignments are more isolated and short term. Yet the team model opens up more opportunities not just in sales, but in competence development too, since there is an expectation of continuous learning of new skills and technologies. A team allows the experts to learn from each other, continuously and on the job too. After all competence, in the end, is the capital of the IT consulting business.

To round up, the team model creates a positive cycle: It is a construct which builds on long-term partnership. Learning and evolving together let's both parties,

the IT consulting company and their client, to find optimum ways to work together. Trust follows after getting to know each well enough, over time. With trust comes new opportunities to grow, since success on one front often generates interest to expand in others.

2.4 Measuring digital transformation maturity

It is obvious from the literature that there is not one model that fits all company and industry perspectives, but that it is largely a matter of choice. After review, the claim can be made that for an IT consultancy the most significant dimensions when investigating the DT maturity of its client are the client's strategy, culture, people, organisation, and technology. While the customer is a vital part of any DT strategy, for an IT consultancy evaluating the maturity of its client, the customers of its client do not play such a significant role. The key issue is whether the client has internalised that DT is not about transferring something into different digital formats, but managing and utilising the input and output data in a way that is optimal for their business and can be acted on.

2.4.1 Strategy

Companies still new to DT tend to build strategies which focus on technologies and operational activities, whereas the strategies of mature companies are geared to reshaping business and making use of disruptive the opportunities (Kane et al., 2015). When it comes to strategy, the key question is not whether the client has a DT strategy in the first place, but whether or not the DT they are implementing is cross-functional and operational, or merely aspirational. What is equally important to understand is whether any defined DT strategy is a subordinate strategy to a company-level business strategy, or if DT underpins all strategical reflects and actions within the organisation. Regardless, the elements common to all DT strategies can be ascribed to four categories: use of technologies, changes in value creation, structural changes, and financial aspects (Matt et al., 2015).

Sebastian and al. in Galliers et al. (p. 134, 2020) have found in their study that leaders of DT articulate one of two types of strategies: customer engagement or digitized solutions. While customer engagement is about a seamless omnichannel experience for B2C clients, digitized solutions has more to do with making R&D anticipate, not just respond to customer needs. Sebastian and al. (p. 135, 2020) give the Schindler Group as an example of an old company employing digitilisation to far expand and moult its product and service portfolio. What is noteworthy is the fact that regardless of adopted strategy, the imperative for customer dialogue determines success: Being successful at implementing DT means that the offering is geared to customer needs.

2.4.2 Culture

The IT consultancing team often works only in a specified part of the organisation but is still influenced by the culture of the company. This can be very pronounced in, for example, cases where there are strong political drivers influencing how work is directed or managed. Culture can be described as being the soil that determines what can be grown and nurtured, at what scale and speed. Westerman et al. (2019) have identified in their research four core values of digital culture: impact, speed, openness, and autonomy. Without a doubt, culture is the biggest challenge legacy companies face when implementing DT. It could be stated that the concept of a 'common mindset' is of pivotal importance to any successful DT. Transformations in general always require belief and determination, which is nurtured by means of a common narrative. This narrative in turn is kept alive by a mindset that the culture upholds and fosters.

2.4.3 People

For an IT consultancy team, the interpersonal relationships of key people on the client side have a pronounced effect on how the team succeeds against targets. Therefore, people play an important role in how well the expectations are articulated and how the team sees there to be an alignment across what is been said and what actually takes place.

Fitsilis and al. (2018) quote Leinweber's studies (2013) when identifying four categories of competences, which are seen as mandatory when implementing DT: technical, methodological, social, and personal competences. While continually building on existing technical capabilities, it is equally important that people have such methodological skills as creativity, entrepreneurial thinking, decision making, problem and conflict solving, analytical and research skills, and efficiency orientation. Social skills and personal skills include, among others, the ability to cooperate and compromise, to be flexible and tolerate ambiguity. (Fitsilis et al., 2018.)

One thing for an IT consultancy to pay attention to when evaluating the DT maturity of its client are the competence development opportunities the company offers to its employees. Kane et al. (2015) emphasise, based on their findings, the significance of building up competences and skills to conceptualise how digital technologies change the present business landscape. DT is therefore more than just learning new technologies, it is the ability to 'connect the dots'. Ostmeier & Strobel (2022) have applied cognitive-affective personality system theory to explain how macrolevel development affects employee behaviour. Consequently, Ostmeier and Stobel (2022) validate the hypothesis that DT mature companies generate a sense of DT as something controllable and desirable, thus resulting in employees proactively developing their skills. These positive perceptions can be actively built through effective communications, focusing on the positive effects DT has on the organisation and individuals.

A mature organisation has conversations around the interconnections of phenomena, not just about the technologies alone. This can prove to be a challenge if there are employees in key positions who do not admit to having competences gaps, let alone are prepared to work to bridge them. These individuals can act as a bottleneck for IT consultancy teams too, especially if they are the decision maker.

Another aspect impacting the people perspective of DT is changing leadership practices. Over the last decade or so much has changed, with the recent Covid pandemic accelerating some aspects manyfold, such as working in and leading

virtual teams. New communication tools and approaches have changed quite dramatically the way employees interact with each other and their management, changing thus social relationships and company culture. The emphasis on new skills of cooperation in turn affect talent management and performance evaluations.

According to Schwarzmüller et al. (2018), there is a consensus that, at least momentarily, DT increases employees' influence in organisations. Employees expect to be able to participate in decision making through, for example, various communication tools. Employees also feel an increased sense of autonomy at work, having more leeway to make decisions independently. It is taken for granted that DT bring about more access to information and more transparency, and that hierarchies are flattened. Knowledge workers expect to be motivated and inspired by their leadership, whose leadership principles should all be based on mutual trust (Schwarzmüller et al. 2018.)

When an IT consultancy assesses the maturity of its client's DT, the abovementioned dimensions should be scrutinised: Is there a sense of trust? Does it extend to partners or is collaboration with external parties still guided by the notion that trust needs to be earned, it cannot be assumed. Schwarzmüller et al. (2018) talk about a relationship-oriented leadership, which they capture to mean heightened individualised consideration. Leaders need to foster personal relationships through, for example, coaching and networking, while also providing employees more autonomy. Long gone are the days when managers and leaders knew the subject-matter field themselves; today IT professionals work under continually increasing pressures and demands and leaders need to support their wellbeing and growth, more than anything. In old engineering companies adoption of this mindset among management and leadership can be a lengthy process, whereas in startups the experience and expertise to manage the people side of things is often overlooked. Autonomy should never trump support.

2.4.4 Organisation

Also, the way the company is organised demonstrates both intent and direction: A company's organisational structure encompasses all the strategical, political and operational aspirations of its leadership. An organisational structure both enables and restricts. For an external team commissioned to deliver on targets, it is crucial to have the skill to read and interpret both overt and underpinning tones of the hierarchical layers and social networks. The organisational structure does not, however, relate how real power to influence decision making is wielded within a company, which makes it challenging and a significant skill for outsiders to draw the right conclusions in various situations and settings.

Operational activities are dependent on the organisational structure. It is significant for an IT consultancy team to know how well the interdepartmental collaboration works within the assignment company. An external party will be severely handicapped if stuck between two rivalling organisations, resulting in not only poor performance, but a decline in working morale.

As mentioned earlier, although the customer of an IT consultancy's client rarely come in direct view, the whole notion of internal customers is important. IT consultancy teams need to understand the internal service structures, which teams or organisations the team or organisation they are working for serve.

Hanelt et al. (2020) claim that one thematic pattern of DT is malleable organisational design, which means that the organisational model a company adopts is easily influenced and changed. An organisation versed in DT can be seen as one which adapt rapidly to environmental opportunities and threats. In itself this notion poses a challenge for large organisations as each restructuring of reporting lines always has a bump-on effect on the whole organisation and takes often time and energy to take effect. Very much is dependent on the principles by which the organisational set-up is defined: efficiency, innovation, or adaptability. Common to all organisations implementing DT is the integration of data in the decision-making process, making data a key component in the way the company's organisation and operations are shaped.

Another thematic pattern of DT, which Hanelt et al. (2020) put across, is the concept of digital business ecosystems. There are various ways how this concept could be interpreted, but one definition refers to the deconstruction of old hierarchies such as established supply chains and the emergence of new partnerships and technologies in replacement. This means that when analysing a company, it is important to analyse the ecosystem is operates in too, as it uncovers dependencies affecting, for example, decision-making.

2.4.5 Technologies

Sebastian and al. in Galliers et al. (p. 137, 2020) claim, based on their research, that two technology-enabled assets are required for a company to deliver digital services successfully: an operational backbone and a digital services platform. Companies with an operational backbone are able to integrate automated, repetitive systems running on data. When undergoing a transformation, it is crucial that time and effort is not spent on firefighting and therefore the operational foundation has to be in place. Most commonly, according to Sebastian and al. in Galliers et al. (p. 137, 2020) the operational backbone has the elements of solid data management, seamless and transparent transaction processing, and standardised back-office services. What is interesting, though, is the observation made by Sebastian and al. in Galliers et al. (p. 140, 2020) how, with the migration of mainframe technologies to cloud computing, the technology differences between operational backbone and digital services platform are beginning to disappear. Regardless, old practices and thought processes built over time to manage these two dimensions still remain, which can hinder progression of DT.

	Operational Backbone	Digital Services Platform
Management Objective	Business efficiency and technology reliability	Business agility and rapid innovation
Architecture Principles	Standardized end-to-end business processes; transparency into systems; data access	Plug-and-play business and technology components
Data	Single source of truth for transactional data	Massive repositories of sensor/social media/purchased data
Key Processes	Roadmaps; architecture reviews	Cross-functional development; user-centered design
Delivery Method	Fast waterfall/regular software releases/SaaS adoption	Agile and DevOps;[17] use of MVP (minimum viable product) concepts and constant enhancements
Funding	Major project/program investments	Continuous funding by business owners

FIGURE 12. The fundamentally different management practices used in operational backbone and digital services platform. Sebastian and al. in Galliers et al. (p. 141, 2020).

According to Sebastian and al. in Galliers et al. (p. 141, 2020), the real challenge with technology implementation lies with companies applying different architectural principles to these two technology-enabled assets: While operational backbones are guided by traditional roadmaps and reviews to support standardised business processes and access to data, digital services platforms rely on cross-functional development teams to apply user-centred design techniques to produce plug-and-play business and technology components. In short, different goals and design principles lead to two different kinds of approaches to development. It appears, thus, that going forward DevOps capabilities will become a competitive necessity. (Sebastian and al. in Galliers et al. p. 141, 2020).

Another key thing to consider is the legacy of the different product development approaches each industry and client has. The outline can cover anything from lean manufacturing and process engineering to total quality management and value-driven design, for example (Stewart et al., 2020). Legacy can impact heavily not only the culture of doing, but the decision making as well. For a company with roots in process engineering, it is only natural that the sequential nature of the waterfall approach is much better understood that the holistic design

and systems-based approaches. In addition, with the rate at which technology evolves, it can be rather challenging for especially heavy-industry organisations grappling with DT to comprehend what to focus on when making decisions on technologies. It is here that the question of trust becomes all the more important: Companies need to feel secure that the consultation they place their trust in is solid enough to take them over the inevitable hurdles in the future.

2.5   Digital transformation and the IT consulting business

If software development as an area of expertise has changed quite a lot over the last decade or so, the same could be said about the IT consulting business. While in the past IT consulting might have been categorised into two main streams, namely consulting on high-level enterprise architecture and associated technologies and then the leasing of expert manpower, these days IT consulting is becoming more and more sophisticated both in terms of talent management and business modelling. Much has changed from only some ten years ago, when the business was seen as being 'suppliers' delivering resources for software projects.

The discourse also centred around the success and failure of software projects (Savolainen et al., 2012). Now IT consulting aims to provide partnership level services to their clients, helping clients make the right choices on their DT journey. The maturing business model not only requires IT consultancies to supply their professionals and teams with the right tools and competences to deal with the challenges their clients are managing, but also to help their consultants to deal with the issues the environment they are entering into might bring about.

But what kind of services do clients actually think they are purchasing from IT consultancies under the umbrella on 'digital transformation'? In most cases, clients look for solutions to a practical challenge they face. Very rarely do they in fact announce outright that what they wish to accomplish is a nudge forward on their path of DT. Maybe there is a claim to be made that clients often do not necessarily see the connection of specific projects to DT, but more as deploying new technologies to transform business. Bloomberg (2018) refers to this as

digitalisation, not DT. According to him, DT is not something that can be implemented as projects: DT is driven by the change in the client's customer needs and it impacts every level of the company, from organisational structures, roles, and the offering, all the way to culture. It is this challenge that an IT consultancy has to address and work together with the client to clearly define what it is that the client wants to achieve. It is through such collaboration that the IT consulting company brings true value to its client.

One of the great benefits of the team model is that it enables the IT consulting company to invest more in the management of the client account both in terms of operations and strategy. Dedicated roles, such delivery and account manager, can be appointed to have an open dialogue with the client on a regular basis. Emergent opportunities and value are created by the IT consultancy providing the client with an outsider's perspective on the process of DT, showcasing solutions to the problems the client is experiencing.

Despite all its advantages, the team model is not a turnkey solution: In customising the formula to its client's needs, the IT consultancy and its team must contend with many issues typical to change resistance. Ravn et al. (2022) collate the barriers teams face when undertaking DT: hierarchical leadership, poor alignment of organizational units, conflicts between existing and new business strategies, and resistance from employees. All this causes disturbance and disruption in teams. Ravn et al. (2022) is of the opinion that to combat such circumstances, new kinds of cross-functional and semi-independent teams should be set up to both ensure performance against targets and minimum external interference. This diversity within the team brings about its own challenges, but makes mitigation more contained as opposed to managing DT as an overarching process in a solid organisational unit.

When you add in the mix the fact that the team amidst such change is from the outside, an IT consultancy team, the challenges get even more complex and multi-layered. It is, therefore, important that the team has the roles of its members clearly defined and it is nimble enough to adjust to the environment they have been placed in. Another prerequisite for achieving the set targets is clear expectation management and respected autonomy on behalf of the client towards

the IT consultancy team. Time should be allowed for the team to get a handle on how the organisation operates and how the hierarchies influence decision making. The targets must be set so that they take into account the level of DT maturity of the organisation: The IT consultancy team cannot be expected to run before it is allowed to walk.

One way for an IT consultancy to have a window into the client's approach to DT is to study the leadership behaviour manifested throughout the organisation. In their study of complementary leadership behaviours, namely DT task-oriented and people-oriented behaviour, Weber et al. (2022) discovered, in contrast to prior studies, that people-oriented behaviour is mandatory, albeit situational. Their research shows that change cannot be achieved without DT-oriented leadership, but that people will not commit to change without people-oriented leadership. In other words, when an IT consultancy estimates the potential for success in the assignment, they can study the leadership practices and communication of the client. If just fact-based, the likelihood for facing additional challenges is greater.

3   RESEARCH METHODOLOGY

The research methodology used in the thesis shall be explained in this chapter. A description of the research setting and approach is followed by an outline of the methodology and process, which were deployed to gather the data for analysis.

3.1   Research setting and approach

Academic research on the topic of digital transformation and its practical implementation in business and companies is still scarce. Yet DT is what almost all companies are faced with right now and in the immediate future. This thesis looks at the topic from the perspective of the status as it is today, fully aware that DT is constantly evolving and will surely signify something altogether different in the future.

Research on IT consulting companies delivering holistic software solutions is almost non-existent. Consulting as an area of expertise has been studied, as is subcontracted software development and delivery, but the concept of a combination of the two is almost unheard-of. The commissioning company for this thesis is in the business of providing its clients with teams, which are capable of both consulting on the optimum solutions and technologies as well as delivering software development to clients directly. So, in other words, the research setting for this thesis has to draw from a multitude of approaches and previous research, extracting and connecting from various sources. Having said that, the conclusions rely very much on the data gathered from the semi-structured interviews and questionnaires conducted at the commissioning company.

The research approach for this thesis is deductive: It begins by understanding the theories behind key concepts and progresses to formulate hypotheses. The comparative case study is designed to validate and realign assumptions, so that recommendations for action can be proposed. While the research in this thesis

could be seen as both exploratory and conclusive, in other words having specific research questions to answer, but using somewhat non-formal and small data sample collection methods, the purpose is to apply standard research approaches and methods to validate the findings.
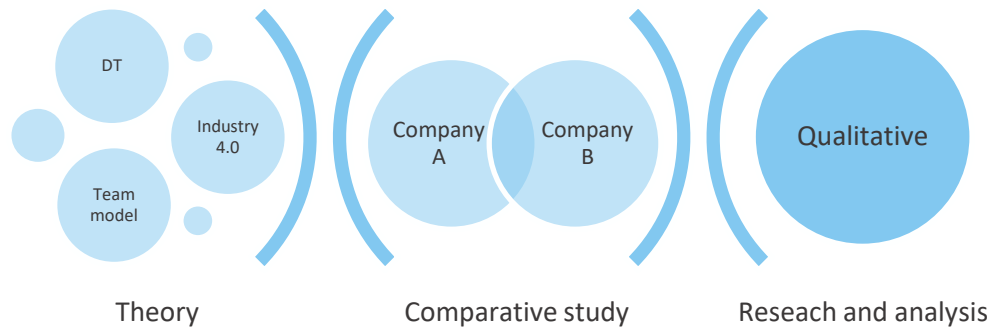

FIGURE 13. Overview of research setting

3.2 Methods and research process

The methods in this thesis include a systematic literature research review, expert interviews and questionnaires, conceptual modelling and tooling. The development procedure consists of the following phases: research, data gathering, analysis, and recommendations.

The research started off by gaining a solid understanding of the key concepts associated with Industry 4.0 and digital transformation. The framework of IT consultancy runs through all of the different phases. Understanding of the business context was followed by a study of the various maturity and team models. After the analysis phase, the work investigated how measuring DT maturity can provide information by which an IT consultancy company could align its offering to its client in the form of a team.

The interviews were semi-structured. They were designed to gain insight into the main underlying challenges faced by the IT consultancy teams while working on their assignments at the client companies. After all of the interviews, the reoccurring issues and issues highlighted as most troublesome were categorised

to help construct pertinent questions in the form of a questionnaire. The questionnaires were sent to the participants so as to complete the picture on the findings of the initial interviews and validate conclusions.

As indicated in the figure below, the research process continued from the interview phase to data analysis and the formulation of a DT maturity index as a tool for measuring and acting on. Subsequently the research was concluded by examining the team model as an operational construct utilising the maturity index. The research was rounded up by reviewing the initial research questions and finally, conclusions and recommendations were composed.
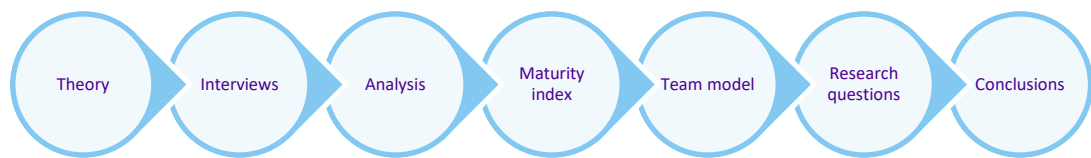
FIGURE 14. Research process.

3.2.1 Qualitative research

Qualitative data collection methods were chosen for the research so as to uncover underlying interconnections and motivations of the businesses, organisations and individuals involved. Successful software development is as much about processes and agreed ways of working as it is about human interaction and organisational practices and culture. Qualitative research methods were considered to be the most suitable for studying the respective aspects of the research questions.

Silverman (2020,3) challenges the notion that the task of qualitative research is to primarily find out about experiences, what people consider important. It is as if qualitative research is about meanings as opposed to facts, the attributes associated with quantitative research. As a result, special focus should be placed on the research questions and what is asked from the interviewees. Instead of formulating questions which give the respondents the opportunity to 'explore their emotions' on the topic addressed, attention was paid to get behind the issues

raised, seek responses focused on not only the 'what', but the 'how'. Silverman (2020, 5) argues that qualitative research is much more about social practices than experience. Keeping this in mind, the research methodology was inspired by the presupposition that social patterns can be uncovered and consequently influenced. Unlike subjective experiences, social practices are tied to the context of power, culture and organisational structures, all part of the dimensions affecting the implementation of DT.

3.2.2 Comparative case study

Since the thesis uses applied research methods, it was felt that practical use cases would help ground any conclusions and argumentation for further actions within the commissioning IT consultancy. In their book on case study research, Bartlett and Vavrus argue that comparative study is heuristic by nature; it does not strive for set rules or a recipe as an outcome, it is an approach to gain further insight and justification for the research results (Bartlett & Vavrus, 2016, 15). The added dimension a comparative study brings to this thesis is that it allows to reflect on the theory of DT and place these two companies under study on an DT maturity axis.

As the commissioning company has relatively similar team setups at two different clients, doing a comparative study was also considered helpful in providing data on commonalities, differences, painpoints and merging trends. Prior to the research, there were some common assumptions on, for example, the reasons behind some of the challenges the teams face at the two client companies. The purpose of data gathering was to collate these assumptions against the hypothesis that DT maturity plays a significant role in the issues the teams have to deal with, on a daily basis. The expectation is not really to find any turnkey solutions to the present challenges, but to help the commissioning company, through more insight, potentially adjust some practices and further consider issues related to team composition and talent acquisition.

3.3 Data analysis

In his literature review on DT frameworks, Bumann (2019) found a relatively wide array of dimensions, which are seen as affecting the maturity level of the transformation. These are listed below in figure 15. He collated over twenty dimensions, as seen in the table below. Based on the research conducted within the scope of this thesis and for the purpose it set to lay out, the claim is made that the most important dimensions are strategy, culture, people, organisation, and technologies.

FIGURE 15. Comparison of existing Digital Transformation Models and Frameworks. Bumann et al. (2019, 23).

These five dimensions were thus selected as the ones to mirror the findings against and to seek answers to the research questions. They provided the framework for a critical analysis of the data. The questions in the semi-structured interviews were open-ended, with the intention to let the interviewees' thoughts flow freely, but within the dimensions mentioned above. After the interviews, the responses were analysed to find two things: the emphasis and common themes. Once defined, one specific question was asked which combined both each of the DT maturity dimensions and the results of the interview data analysis. The aim of the questionnaire was both to confirm and give opportunity to refute the observation results. Based on the conclusions, the work on the DT maturity index could begin.

It is important to note that this thesis does not aspire by any means to propose conclusive evidence to support any of the recommendations it puts forward. To begin with, the body of data is far too limited and scarce in volume. Further, the data gathered and used as a backdrop is there to form an aggregated perspective on a topic that has, as far as is known, never been studied before. Namely, how a team model used in IT consultancy can adjust to the challenges a client company is facing when implementing DT in heavy industry. The conclusions of this thesis are based on the juxtaposition of data and theory, with the purpose to provide an outcome of an applied study.

4 FINDINGS

This chapter outlines some presuppositions before entering into data collection and analysis. The theoretical framework discussed earlier shall help formulate an overall picture of the situation between the two client companies under study, but the aim is, nevertheless, to gain insight that can be used to steer decision making and management of IT consulting teams working on client assignments. The notion is that through a comparative analysis of similar, yet different contexts, commonalities and conclusions can be drawn, which can be translated into operating guidelines, both for the benefit of the IT consulting teams and their clients. Subsequently, a rudimentary tool for measuring the DT maturity of a client company is delineated. To finish, the analysis reverts back to the team model and assesses how it can be used as a means to manage the relationship between the IT consultancy and its client companies.

4.1 Comparative study of two case companies

The two companies, named hereafter as Company A and Company B, were selected for their similarities in terms of both being in heavy industry and the relatively similar size and competence base of the teams the consulting company has contracted them with. Yet the underlying presupposition was that there are marked differences in the DT maturity of the case companies and that this affects the assigned teams too.

Based on observations and discussions with experts and management within in the commissioning IT consulting company prior to the research for this thesis, some of the assumptions have been listed in table 1.

TABLE 1. Presuppositions of key differences between Companies A and B.

DT dimensions	Company A	Company B
Strategy	Clear DT roadmap and vision on digitalisation leading product development. It is no longer about the physical machinery, it is about the enabling services.	DT is seen more as an extension of product development. Heavy machinery remains at the core of the offering, although data is being understood as an increasing revenue opportunity.
Culture	Somewhat insulated culture, which is rooted in being a world leader in their domain. This results in both 'we know best' thinking and an underlying fear of 'how to keep up'.	The legacy of process-led heavy industry still impacts decision making and people management. Compared to Company A, much less workforce diversity.
People	People are trained by latest leadership practices, in cutting edge technologies and methods. Performance management has a heavy influence on motivation and activities.	DT is acknowledged as a must, but the company is struggling on the scale and impact, both internally and with its conservative client base. There appears to be a division between the old and new guard.
Organisation	Hierarchical structure, but also well versed in modern software development methods, such as agile. Decision making is governed by strict quarterly planning, which is reflected in how work is commissioned from external IT consulting companies.	As a result of embracing DT, restructuring of the organisation is imminent. Internal power struggles affect decision making, making it important for the IT consulting company to know how to manoeuvre with different interfaces.
Technologies	Structured approach to selected technology, not open to being challenged.	Ambiguity over technology portfolio, especially in terms of cloud services. Keen to benchmark and look for options, which manifests itself in a sense of uncertainty about choices and decisions.

One of the key separating factors between the two cases is that whereas the commissioning IT consulting company has long-established teams working for Company A, with Company B the client relationship is still relatively new. In other

terms, there is a marked difference when it comes to established procedures and client understanding between the two accounts.

4.1.1 Interviews and questionnaire

There were several informal discussions with managers and experts in the commissioning IT consulting company on the topics covered in this thesis before the research questions were narrowed down. These discussions laid the groundwork for the specific issues that were investigated in more depth in the semi-structured interviews. Three experts and management representatives from both client cases were interviewed in more detail, after which they were presented with a set of specific questions in the form of questionnaires. In conjunction with keeping the data gathering focused as well as probing, this approach made it possible to find the reasons behind the answers instead of taking responses at face value.

The two main themes, which rose to the fore, centred around organisational maturity in terms of agile software development and the team model as an operating entity. The many facets to the issues raised can all be analysed against the beforementioned DT categories of strategy, organisation, culture, people, and technologies.

Quite a few of the discussions were about workload and roles: Despite the team model, often certain experts were seen as indispensable to the performance of the team, so much so that they became almost inadvertently bottlenecks to progress. Personification of expertise leads to biased perspectives and even paralysis. In worst case scenario, the client becomes to believe that everything hinges on this one key expert, leading to the expert being overworked or losing sight of the goal the team is trying to achieve together. This tendency seems to be more prevalent in companies where power is hierarchical and personified as opposed to models where power is attached to the role, not to the person.

This personification can be mirrored in software development too, where the concept of the lone hero saving the whole project from crisis and ruin, or reliance

on individual heroic acts altogether can be seen as problematic and not sustainable, as explored by, for example, Smolander et al. (2021). Personification means that there is a tendency to lock expertise to a specific individual, which makes the implementation of the team model all the more challenging. It follows that some team members are taxed more than others and workload is not distributed evenly.

One simple explanation to the challenges of being overworked can also be found in requirement management: Either the client does not fully comprehend the workload associated with a given requirement, or the dependencies of the requirement to the work of other teams. An exhaustive and systematic management of requirements should be well controlled so as to avoid situations where an isolated requirement 'jumps the queue'. This appears to happen when the client has commitments to its own customer base, which generate pressure to deliver.

The question to consider is whether there are sufficient controls in place to ensure that no individual party can, through whatever means, disrupt ongoing work by pushing their own agenda. This is a very common challenge in software development and only companies with enough maturity understand that there needs to be a dynamic relationship between processes and agile reactiveness. Some sort of gateway mechanism is mandatory to safeguard the work of the team, however overpowering the demands might appear.

Behaviour where individuals pull rank and put unduly pressure on an IT consultancy team seem to be more prevalent in Company B, which can also be characterised as being more prone to letting persons influence the process, as opposed the other way round. Such practices can be traced back to both company culture and organisational set-up.

An interesting perspective to examine is how the positioning of the customers of the client influence such activity; in other words, is the link and access to the client's customers remote or close. A closer connection, such as in the case of Company B, seems to bring about more volatile reactions to individual requests. In Company B the output of the team is directly available for the client's

customers, often signifying that team receives feedback and change requests without a filter. When the customers of the client are more at arm's length, or internal as in the case of Company A, the team's work is more shielded from interruptions.

The notion of control is crucial when estimating the potential of the team model succeeding in a distinct context. As an offering concept, the team model relies on team autonomy in terms of resourcing, for example. The flipside of control is trust. The need to control conveys a sense of inexperience and insecurity, whereas trust emanates maturity. In the interviews, differences between Company A and Company B and their relationship to control were obvious. Company B wants to keep close tabs on everything happening in the team, seeing issues such as sick leaves as not something to be managed within the team and by the IT consulting company, but by the client too. In contrast, Company A does not even feel that it is necessary for them to be involved in the process of selecting new team members. They see that it is the responsibility of the IT consulting team to manage all and sundry when it comes to resourcing and are only keen to be kept informed on a strategical level of any realignments.

It might be an oversimplification to claim that some of the challenges observed in the case companies, more so in Company B though, derive from the linear thinking of process-driven product development. Company A appears more advanced in understanding how the circular design and systems thinking affect modern software development. It could be argued that the introduction of agile development frameworks such as SAFe (Scaled Agile Framework) indoctrinates an organisation in the principles of software development, as has been in the case with Company A.

This is not to say that Company B has not embraced design as a fundamental element in the overall process, but what they seem to miss is the understanding of including the team from an external IT consulting company in the integrated planning of their work. Inclusion provides vision and comprehension on the long-term targets. Company A, in contrast, is strongly driven by its quarterly planning cycles. The roles of product owner and scrum master are fundamental in having meaningful planning sessions first with the team and then with the aligning larger

organisational unit. Company B is more focused on check points and the so-called gateway approach, which, in most likelihood, stems from its legacy in manufacturing. It seems that for higher management in Company B especially, understanding the dependencies between application and platform software development is not easy to comprehend.

In general, the approach to structured and systematic planning is an indicator of an organisation's DT maturity. Planning enables forecasting, data-derived decision making and pre-emptive actions. Systematic and predictable planning creates a culture and software development model which relies on facts and data. Interestingly and in contrast, the interviews on Company B emphasised the importance of network building, getting to 'know the right people'. Company A in turn does exhibit some deviation from the standards by playing down the importance of the role of the product owner in software development with the attitude that one PO can handle multiple projects at the same time.

These examples demonstrate how culture affects the modus operandi: Every working environment has its own belief systems, values and set ways of doing things. By accentuating the importance of personal relationships and articulating attitudes towards certain roles, the culture undermines any formal agreements of ways of working.

One of the benefits of the team model is that it provides a framework while not being too restrictive; the team model can be adjusted to the client need. What is important to agree is the division of responsibilities and roles. For example, the client assigns a product owner whose task it is to guide the work and act as a shield to external interruptions.

In the end, nevertheless, one of the biggest changes brought about by the team model is that contrary to providing services billed by the hour, now the team is expected to deliver on features and functionality. The contracts are drawn up on the premise that team performance is evaluated against commonly agreed targets of delivery, not hours billed. This gives the IT consulting company much more leverage on how the work is organised and managed, but it also places more pressure on demonstrating results.

There is evidence that metric outcomes, such as number of features delivered, not hours spent, are closely monitored by both companies being compared. Having said that, team performance is not measured similarly in the two case companies. Company A is interested in measuring formal hard numeric data like the throughput of features and bugs, leaving the tracking of team motivation and soft skills to the IT consulting company itself. Company B prefers to run its own performance evaluations in the form of questionnaires, the results of which are then analysed together with the IT consulting company.

As established, being clear about roles and responsibilities is essential for purposes of performance monitoring too. Feedback helps to motivate and direct improvement actions appropriately and is, in general, one of the most powerful leadership instruments available. The significant advantage of the team model is that feedback and performance measurement is directed at the team, not at the individuals. Instead of putting an individual expert under scrutiny, be it for the right or wrong reasons, any improvement actions can be managed within the team. According to one of the interviewees, such an approach is one of the most compelling ways to influence motivation and team culture. Rather than fostering a culture of blame and scapegoat hunting, measuring team performance promotes a culture of togetherness. '

What is interesting is that the topic of technology did not really come up in any of interviews. Considering that it is one of the main issues in any analysis of DT, its absence indicates that technology choices are down to strategy. It is in execution where the make or break happens.

The challenge resides in decisionmakers in business and R&D understanding the implications of the choices made. They should educate themselves on the fundamentals of software development and its components. Quite often the spotlight is far too much on one slant of technology at the expense of another; technology dependencies are not only about, say, cloud services, but how they integrate into the larger ecosystem of application and platform development, not to mention systems development like DevOps. In the interviews on Company B, it did emerge that because the customers of the client had such a variety of tech

solutions, it did define indirectly and directly the work of the team. Be that as it may, such issues should merely be treated as a set of requirements to be managed, not as denominating the entire workflow.

To use one word to describe the main difference between the companies compared, it would be 'reactiveness'. Both companies have frameworks, models, processes and ways of working established to enable effective software development, but it is the way they operate in that environment that sets them apart. Company A is restricted by its rigid budgeting cycle, which determines what and how much they do, and when. Everything is governed by fiscal numbers. Even though some decisions do not always 'make sense', at least everyone understands the reasons why.

Although fiscal planning is never overlooked in Company B either, there seems to be more drivers affecting how the work is managed. The opinion of a single vice president, or the pressure from a key customer, for instance, can have a direct and sometimes substantial impression on the work of the IT consulting company – to say nothing of the entire organisation. Heavy industry companies of the size of these two never act on a whim, but Company A does appear more standardised, albeit also more inflexible, whereas Company B can be frustratingly disorganised in its focus on the short term and lack of understanding of DT, but more open to review things from an alternative perspective too. In short, Company A might claim to have mastered DT on all levels, but Company B has acknowledged it is still learning the ropes – even if they like to hold onto some of their manufacturing legacy.

4.1.2 Case study analysis

To draw sustainable and fact-based conclusions, and to identify general points of contentions, the results of the semi-structured interviews and following questionnaires can be analysed in a comparative framework of Company A vs. Company B as seen in table 2. Five key observations surfaced from the data, which can all be seen as centring around the question of organisation vs. individual, or the formal and agreed as opposed to the personal and exercise of

power. Personification of expertise is essentially indicative of a culture which glorifies champions. Consecutively, the issue of control tells a tale of trust: Does the client trust that what has been agreed works, or do they need to assign roles to track other individuals. The same goes for how power is distributed within the organisation and what decision-making constructs the client relies upon. Finally, the concept of a team is at the core of the service the IT consulting company provides, and if the team is not allowed to build its identity as a team, but remains an auxiliary to the larger organisation, it will never grow from the executing mode to value-adding, committed and innovative performance.

TABLE 2. Key observations from the research comparing Companies A and B.

Key observation	Company A	Company B
Personification of expertise	In general, the client does not interfere with changes in the IT consulting team.	The client wants to interview every new candidate to the IT consulting team. Strong personalities, who are seen as raising the profile of software development within the client company, are seen as an asset.
Control	Being confident in their chosen strategy and adopted development model leaves room for systematic planning. There is no need to micromanage the IT consulting team because requirement management is done in a end-to-end manner.	The tendency to keep the IT consulting team on a short leash. Relatively strong and immediate reactions to even minor changes in the IT consulting team. The IT consulting team is in direct contact with the client's customers, which can tilt focus and lead to being overworked.
Power and decision making	Power mechanism is structured, tied to roles and not individuals. Decision making is almost solely driven by financial determinants, quarterly budgeting. The IT consulting team does not have the sense that they need to be fully aware of long-term plans, but are satisfied with defined boundaries.	Strong personalities get to shine through. External consultants are not provided with the 'whole picture' of what is being planned, making it difficult to align and give the client the best possible advice and service. Overall decision making is at times less than consistent, somewhat reactive instead of systematic and proactive.
Organisation	Software development is an established, core part of the overall development, operations and delivery of the company.	Software development is still trying to find its feet in the larger organisational set-up of the company. Power struggles can be observed.
Team dynamics	Since the client does not interfere in how the team is set up, the IT consulting company can concentrate on optimising the mix of personalities, competences and experience.	The team is dependent on the choices the client makes.

4.2 Digital transformation maturity index

Based on the research and observations, but above all to help the commissioning IT consulting company to better align its operational model to the DT maturity of its clients, this thesis attempts to create a DT maturity index. It can be used to identify and address pre-emptively the issues that have been found to influence the success of the team.

The matrix is built on the key themes deriving from the theory of DT in Industry 4.0 and the research data. The chosen definitions are personification of expertise, control, power and decision making, DT and the organisation, tasks and targets, and finally, technological execution. The table 3 below shows the definitions of the metrics for these themes.

Three levels of maturity are defined and given the simple numeric values of 1, 2 and 3. High scores indicate that the level of maturity is already well-established, and low scores send potential red flags flaring. On an important note, this index is designed to be used at the assessment phase, when the IT consulting company is negotiating with its client on an assignment. It is at this stage that the scores can help guide the formation of the team model so that it best suits both parties. The challenge is data gathering: If the IT consultancy is not familiar with the client, it might prove hard to find substantiated information on say, power hierarchies. Nevertheless, the matrix can be used as a tool to ask pertinent questions during the negotiating phase and also bring value to the client by highlighting how the team model can address some of the challenges.

TABLE 3. DT maturity index.

Themes	High (3)	Moderate (2)	Low (1)
Personification of expertise	Company has established roles and strategy for managing DT.	Company is organised around a vision of an integrated DT future, but practices are still wanting.	Company's decision making is highly influenced by key individuals, even hero-thinking.
Control	Company is open to dialogue and not placing exacting demands on, for example, team set-up.	Company places general, but not specific requirements on team formation and interaction with the organisation.	Company makes specific demands on how the team is formed and managed.
Power and decision making	There are clear power and decision-making structures and cycles in place.	There are clear goals and roles defined for decision making, even if some of the more formal processes are wanting.	Decision making and planning appear reactive. Personalities and changes in organisation have significant and immediate impact on priorities.
DT and the organisation	DT is an acknowledged and defining northern star: "If we fail in execution, we fail as a company."	The importance of DT is expressed and underlined, but software development is still seen somewhat as an extension of enterprise IT.	DT might be alluded to, but it is not clearly articulated on an operational level. There remains a sense that the real core product or service has foundations in the legacy of the company.
Tasks and targets	The company is good at defining clear delivery targets, and realistic and not too specific on the expertise required from team members.	The company is open to investing time and effort to find an optimal team set-up, even if initially they appear not fully sure what they are after.	The company is either too vague or too specific on the expertise required from team members.

Themes	High (3)	Moderate (2)	Low (1)
Technological execution	Clear roadmap in place, making it possible for consultants to focus on a specific set of technologies.	Consultants are expected to master a mixed variety of technological practices and toolsets.	Technological landscape is varied or open. Consultants are expected to address external requests and requirements from, for example, client's customers.

By calculating the score, one can get a rough idea of the DT maturity of the company. High numbers indicate that the client possesses a clear execution roadmap and is looking for a team to provide a specific service. The lower the score, the more likely it is that client is still trying to figure out how best get to where they believe they should be. However, such scoring is by no means a reflection on market position or current success of the company: it is just an indication of where they stand on their DT journey. The better the IT consulting company understands their client's DT maturity, the better they are equipped to deal with the evidential challenges.

Having said that, the DT maturity index only provides a rough idea of the level the company is at – it does not detail where the main obstacles lie. Placing the results on a visual chart provides an overall view of the situation in one glance. This can be demonstrated by the chart below in figure 16, evaluating companies A and B. As can be seen right away, there appears to be challenges in a similar area for both companies, namely with issues of control. This finding on its own already gives an indication where to place efforts and attention when further developing the team model. The evaluations are done based on all the data gathered in the interviews and questionnaires, but are naturally still, to a degree, open to debate. In addition, despite its possible flaws of oversimplification, such visualisation could be developed to include more companies as well as add other visual input regarding chosen team model variations. But that is outside the scope of this study.
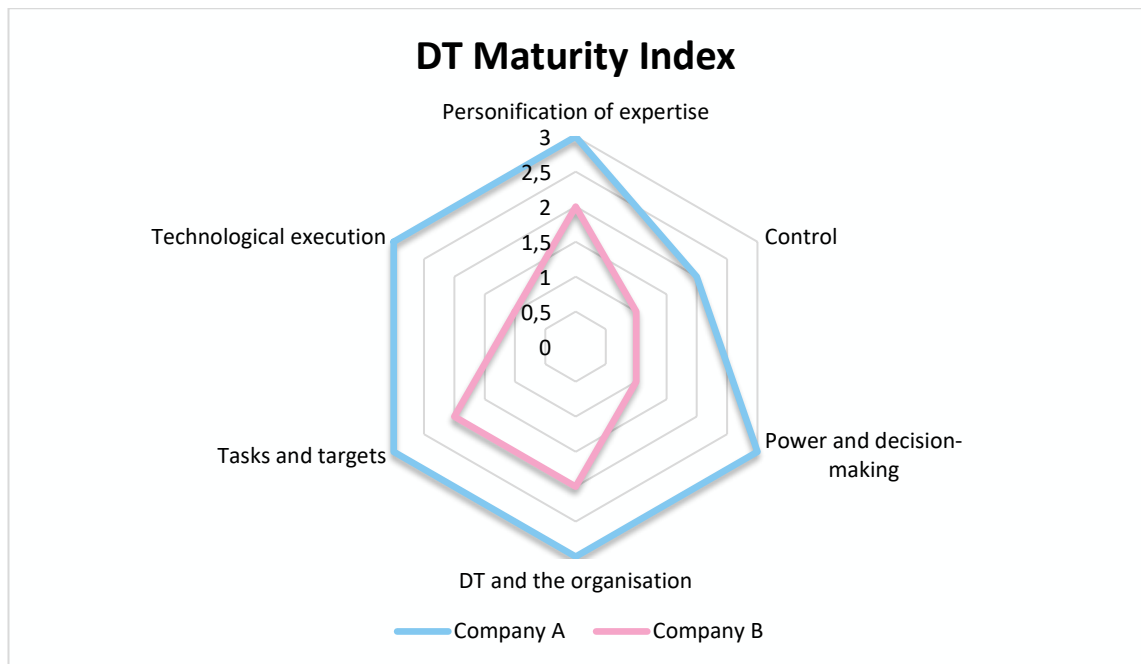
FIGURE 16. A visual representation of a DT maturity index.

To sum up, the table provides the definitions for the scoring, but the visual representation paints the picture. Once established, the focus can turn to the ways to proactively address the issues.

5   RECOMMENDATIONS

For an IT consulting company to understand the client environment they are entering into, there are two components to analyse from the start, namely the functional enterprise architecture of the client company and the maturity of their DT goals. Functional enterprise structure describes how operations are aligned with research and development, thus enabling DT to be inseminated across all dimensions (strategy, organisation, culture, people, technology). The figure below by Sebastian and al. in Galliers et al. (2020, 143) expresses one interpretation of functional enterprise structure.
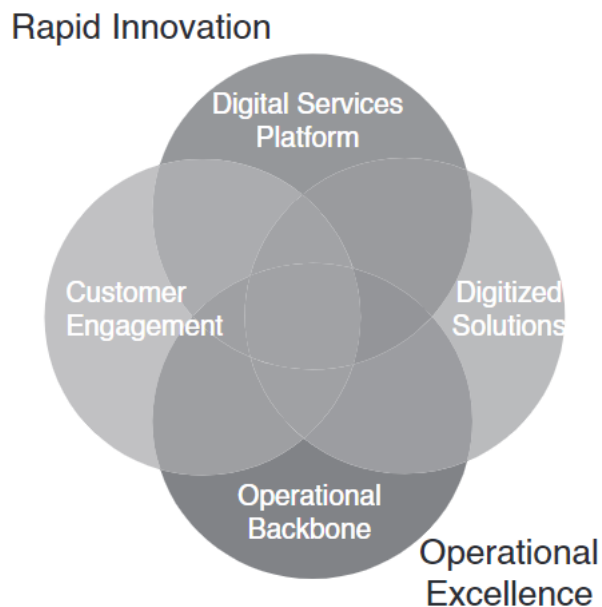

FIGURE 17. Elements of digital transformation at a large, established company. Sebastian and al. in Galliers et al. (2020, 143).

Consequently, Bordeleau and Felden (2019) propose the concept of 'dynamic improvisational capabilities' for the same purpose, claiming that each transformation is different in nature and thus require different actions on distinct subject matter areas, such as business processes and managerial practices. The Acatech model introduced earlier in this thesis is operational in the sense that it offers three distinct phases for development: First identifying the current stage the company is at, then defining the needed capabilities, and finally determining concrete measures to be taken (Stich and al., 2018). Analysing the client through all of these different perspectives, together with the maturity index explained in

the previous section, helps an IT consultancy to form an estimation of framework adjustments to the team model. Often an outsider looking in can articulate with much insight how, for example, a process-driven mindset can hinder DT in heavy engineering companies. IT consulting companies are experts in agile software development, especially since the professionals have often had the opportunity to have worked for several clients battling similar challenges.

5.1 Team model and managing client expectations

The team model implemented as an operational resource formula can be used in two ways: To manage client expectations and to optimise the chances of successful delivery, including the growth and wellbeing of the individuals forming the team. To be able to achieve these aspirations, the model has to emulate the level of the client's DT maturity.

The team model consists of the principles of trust, motivation, focus, and competences, which aim to fulfil the client promise of consistent resourcing, maximized productivity and supportive team culture. Even if IT consulting is very much a numbers game on paper in general, the team model has been developed precisely to act as a holistic formula that produces the optimised end-result to all concerned: the client, the IT consultancy, and the experts.

For the formula to function, certain parameters need to be adjustable. These parameters can be divided into the categories of expert, team, and the social. The parameters in question can be thus modified to make a better fit to meet the demands set by the client's DT maturity. Figure 18 below shows the relationship of the parameters and how they need to be addressed in the confinements of a set context, illustrated in the figure by the thick ring. Such isolation refers to the need to ensure a level of autonomy, which enables the team to remain focused and able to deliver. The arrows represent the different stages of development, which affect many aspects of the team model, starting with team dynamics and how performance should be measured. These stages can pertain to the entire program or product development, but also smaller increments too, if relevant.
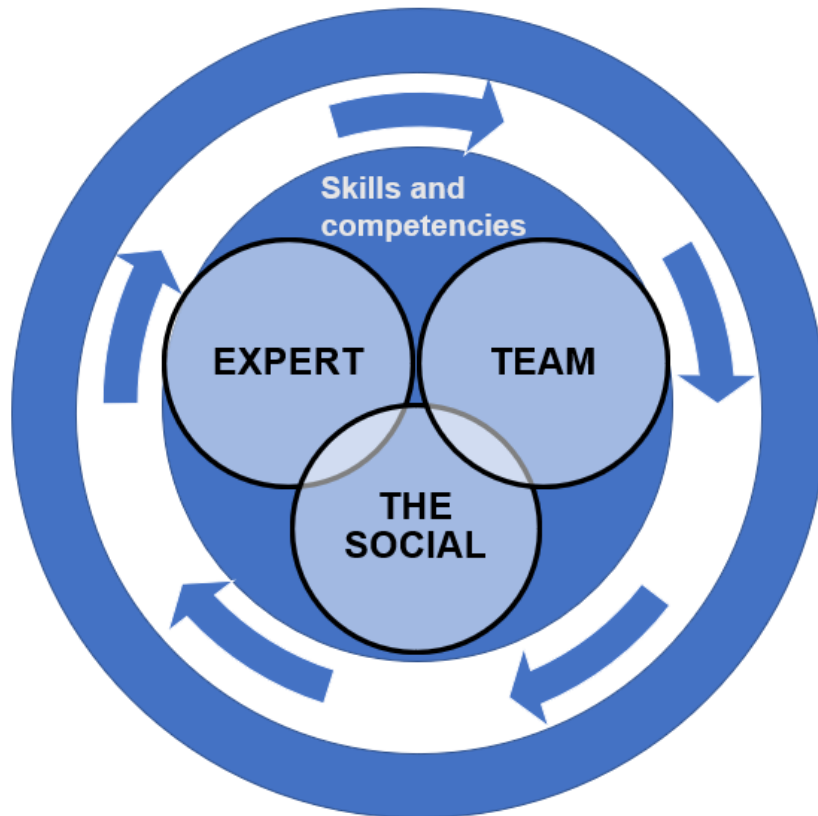
FIGURE 18. The adaptable parameters of the team model.

The formation of the team starts with the individual expert and their personality, experience, skills and competences. The ideal team has a variety of these dimensions, facilitating optimum output and an environment of peer learning. Moreover, the expert should be motivated by the assignment to ensure commitment. When experts are considered for a team at a specific client, it is essential that the manager forming the team fully understands what motivates the individual. When the work meets the expectations, the expert is more willing to also take on the points of contention. For example, if the expert is motivated by mastering a new programming language and feels that the assignment is the ideal manner to gain such expertise, they are more likely inclined to deal with the challenges posed by a client with low DT maturity than someone who is motivated by progressing in their work against a clear roadmap with deadlines and performance targets.

Once the team has been put together, the IT consultancy is still faced with convincing the client of the choices made. It is at this point that the role of account management becomes pivotal in managing client expectations. It is another thing

to know what the client needs and how to best meet those needs with a motivated a team to making the client see what is for the best, especially in the long run. At such stage of the client relationship the value creation truly begins. There are various contractual methods at account management's disposal, such as price restructuring, to help sway the client into accepting the proposal without modifications, but these should be used sparingly since they most often come with consequences.

After agreement has been attained and work commences, the experts and the team enter into the sphere of 'the social': The team begins its journey as a living entity within the confinements of the client's culture, policies and processes. While being introduced to all the practicalities, the individuals get to know each other and start creating their own value and belief system. It is at this stage that most mental models get fixed, in the worst-case scenario becoming roadblocks in the future. It is important, therefore, that the IT consultancy pays significant attention to monitoring the team sentiment, taking necessary action if needed.

There are three aspects defining how the team model should be adjusted once the team is up and running: The development stage of the programme, team autonomy, and how performance is measured. First, an IT consulting team is almost always called in by the client to develop something that is part of a much larger development system or product family. Consequently, the team can be joining a development process at any stage, anything from a stable product with its legacy technology requiring an update to a massive technology migration still in its infancy.

The development stage signifies that the context the team is entering into places different demands on the ways of working and general interaction. The team should be appropriately equipped to deal with the demands of the particular stage. For instance, when the client's programme is at a maybe somewhat disjointed early stage, the IT consulting team should be active in networking at the client to help formulate a solid overview, based on which they could create suggestions on processes and practices – thus adding value. In contrast, such self-study would be more introspective in the case of an established programme,

where the attention would be on how to adjust the team for maximum benefit, both for the client and for the team members.

Secondly, the aspect of team autonomy is key in making the team function successfully in the client's environment. This is very much tied to how performance is measured, what is the expected output of the team. Autonomy is defined by client's trust, not only by their trust in this external team's ability to perform, but also the client's trust in its own abilities to meet the targets it has set for itself. So, to gain the autonomy, there has to be a good working managerial relationship between the two companies. Boundaries need to defined and respected.

Lastly, it is not enough to agree on and impose specified targets, it is equally important to measure how those goals are achieved. Clients of IT consulting companies are becoming increasingly aware that the so-called soft measures actually determine the success or failure of an enterprise, not the systematic approach of measuring just hard metrics. Yet there is some work to be done to make the tracking of and acting on team wellbeing and motivational measures meaningful at both the client and the IT consulting company. Too often still clients stick to hard metrics only, not necessarily seeing how the people side of management is, if not their responsibility, in their interest indeed. In fact, one of the attractions of purchasing subcontracted services is not having the deal with the sometimes 'messy people stuff'. It is part of client expectation management to make the client see the value of working jointly to keep the team motivated.

Part of the team model portfolio could be a handbook that the IT consulting company would share with the client on such responsibilities. The purpose would be to spell out the requirements, roles and responsibilities of both parties for the team to thrive. For instance, it makes a significant difference whether project management responsibilities are at the client's end or incorporated in the IT consulting team. In the same vein, the IT consultancy would be well advised to invest in an engaging format to showcase and elucidate the team model itself, since it is not a familiar concept for most clients.

5.1.1 DT maturity index and the team model

The parameters of the team model could be evaluated against the DT maturity index to examine the various ways in which to adjust the team model in different circumstances. Given the unique nature of each client context, it is doubtful whether such scenario building would serve its purpose, though. Nevertheless, a general overview of which of the parameters would be most affected by the maturity levels of each theme in the DT maturity index can act as a proposal for further experimentation.

When it comes to the theme of personification of expertise, the parameters of the expert and the team are most clearly affected. It would serve the IT consulting company well to carefully consider whether it is a good idea long-term to assign the top guns, so to speak, to a client scoring low on this theme on the DT maturity index. The situation is made especially volatile if the expert is not motivated in staying with the client for long, since their departure would potentially damage the client relationship quite significantly. Also, depending on the individual, such added pressure can become a burden or a trading pawn, putting both companies in a difficult situation, regardless. It goes without saying that such hero thinking does impact team culture too. At the same time, in an immature setting a lead figure can bring much needed stability. So, it is a matter of evaluating the situation appropriately.

As far as the theme of control is concerned, all the three parameters of the expert, the team and the social are impacted. Contractually it would be crucial to agree on how little say the client would have on the details of team formation. Practices might vary, but the aim is for performance measurement being the only instigation for action – as long as the team performs to expectations, the client should not involve themselves in the management of the team.

In the case of the team, the members, together with account management, can internally agree on common practices and policies, which could lessen the impact of the control exercised over the team. Together with account management, the team can identify the most troublesome issues affecting their work and propose solutions to alleviate the situation. Strengthening of team cohesion - the social

context of the team within the client environment - can create buffers to manage potential confusion and frustration caused by the control applied by the client.

As for the individual, the role of people management in the IT consulting company becomes paramount in cases where the client directly or indirectly puts pressure on an expert to perform in a certain way. First and foremost, the people leader of the IT consulting company needs to shield the individual from any unduly demands and try and find a solution to situations causing stress and agitation.

Power and decision making in the DT maturity is largely about hierarchical structures and fiscal cycles at the client. If the roadmap does not appear methodological and reactiveness rules, the team and the social can be realigned to have the capabilities to operate under such circumstances. The same goes for the question of how well DT is manifested in the organisational operating modes of the client: Establishing an understanding within the team of the level the client is at on their transformation journey helps bring into focus what can be expected from the client in terms of direction. If lacking, the team has to have the capability to be more independent and proactive themselves.

Essentially the same can be said about the theme of tasks and targets: With a client having low level of DT maturity, the expert and the team need to have the flexibility to accommodate their work accordingly, while at the same time making sure they do not digress and get side-tracked. In general, teams with junior members might require more guidance in such situations. In the same vein, clients with high levels of DT maturity in terms of technological execution are welcoming environments for more junior experts to concentrate on a defined technological framework. Conversely, senior experts might cherish being placed in a setting which consists of bit of this and that. Hence the importance of knowing what drives an individual expert is so important.

To sum up, a pre-emptive analysis of a client's DT maturity helps in providing the right kind of team model. The more information there is available beforehand, the more value the team model can give to everyone concerned.

6   CONCLUSIONS

The objective of this thesis was to better understand how the DT maturity level of companies in heavy industry affects the external IT consulting teams working within these client environments. The thesis began by exploring the concepts of DT and industry 4.0, and then continued to outline how a specified team model can be modified to address the issues discovered in the research. The ambition was to see if it was possible to provide the IT consultancy commissioning this thesis with guidelines or even tools to better form and adjust the team model for the benefit of both clients and the IT consultancy.

One of the major challenges from the onset was discovering that DT is still very much a nascent topic in academic research. What proved even more difficult to attain was any literature on IT consulting in general. In keeping with the objective of the thesis, which was to gather practice-oriented conclusions and proposals, the scarcity of academic literature was not seen as a hindrance, but as providing some freedom in experimentation; it made the orientation of the work focus even more on the practical and applied than might have initially been the intention. As a result, the thesis progressed in a logic order from theory to data gathering, analysis, and finally to proposing a practice in the form of a DT maturity index used as a tool for setting up and reshaping IT consulting teams. The end result is a fairly compact, yet comprehensive view on the topic. As is often with interesting work, it feels almost like a beginning, not an end.

6.1   Answering the research questions

The thesis began by studying the key concepts of DT and Industry 4.0. Keeping in mind the clients of the commissioning IT consulting company, the hope was to get a sense of the challenges of DT for companies engaged in heavy engineering in particular. It became apparent very soon, though, that the literature on Industry 4.0 was based largely on manufacturing. While manufacturing in general and heavy engineering have many similarities, there are marked differences too. This was something that needed to be noted when starting work on the research questions.

The first question the thesis pursued an answer to was the identifying hallmarks of DT maturity in the process-oriented heavy manufacturing industry. This called for a relatively scopious literature review, which concluded with the selection of the abovementioned five dimensions of DT as a basis for the analysis part of the work. The selection was a result of some generalisations, but nonetheless, the systematic approach produced a structured formula for measuring DT maturity in heavy engineering companies. Moreover, the outcome of the research ensured that the results can be applied for the purpose of taking action, which was one of the main objectives of this whole study – provide practical tools for the commissioning company for further improvement.

To continue from measuring to impact, the second big question the thesis undertook was the issue of DT maturity and the team model: If and how the DT maturity of the client moulds the team model. Or conversely, can finetuning the team model help the team perform better and remain motivated, despite the challenges posed by the DT maturity of the client environment? The answer to this was achieved by defining the parameters of the team model. They were a conclusion of all the research and data gathering extracted.

6.2 Research validity

Research validity of the thesis was founded on a systematic and logical approach to literature review, data gathering and analysis, and tooling. This piecemeal approach aspired to establish a methodical and dissecting chain of thought, from the research questions to conclusion.

Regardless, without a doubt the author's biases and subjective view also had an effect on how this chain actually was constructed. For example, before commencing the research, the author has already formed some preconceptions from the many prior discussions on the companies used for the comparative study. The presuppositions, albeit covered in the thesis itself, surely directed some of the emphasis in the semi-structured interviews. The following questionnaires did try to narrow the scope and mirror the observations against

the body of academic theory, but for a truly objective view, this phase would have benefited from including an external reviewer in the research process; there is always a risk that some observations are conceptualised incorrectly.

The study did, however, apply standard research approaches and methods to validate the findings. The deductive approach proved to be advantageous in drawing up a rounded view on the research questions and conclusive solutions. Comparative study as a method of inspection and validation demonstrated its usefulness and versatility: Through comparing two companies in a similar context imposed objectivity that might have remained undiscovered had the research drawn conclusions solely on the basis of data gathering.

One of the weaknesses of qualitative research, as stated by Silverman (p.5, 2020), is that claims are made on very little data, which often simply support the researcher's hypothesis. Thorough research always studies opposing claims and contrary cases too. So, to argue that this thesis has been able to lay the foundation for measuring DT maturity in client companies of IT consulting companies would be presumptuous. It has merely aimed at formulating a perspective and tested its validity in the form of comparative study of just two companies. The companies chosen have, nonetheless, proven interesting subjects due their similarities and differences, in equal measure. Therefore, some conclusions can be drawn in a relatively solid manner and used as a background for further research.

If all qualitative research is somewhat restricted by the inadvertent biases of its researchers, so too are observations of the interviewees. But this is known challenge of any qualitative research. Another handicap of the research was the fact that only representatives of the commissioning IT consultancy were interviewed. This decision was deliberate for the simple reason of research scoping: The main object of study was the team model, an instrument in the business portfolio of the IT consultancy. Also, for to have included representatives of the clients in the data gathering would have meant expanding the study quite considerably. So, it is acknowledged that the results of the thesis are to be reviewed, first and foremost, from the perspective of the IT consulting company.

Since the methodology used was exploratory, it excused some of the limitations caused by the lack of preceding academic research. It might well be, though, that some pertinent papers might have been overlooked. Also, comparing only two companies can be seen as a beginning, by no means as a conclusive final analysis. In addition, the non-formal and small data sample collection mean that further research would definitely be required to evolve and ratify the conclusions made in this thesis.

Then there is the question of cultural context to consider: The research was conducted on companies in the heavy engineering industry, operating in a highly technology-driven Nordic society, where the employees are very digitally savvy. The working environment is influenced by low hierarchies and gender equality, to name just two attributes which skew the results, at least to a degree. So, the conclusions of the research results should be reviewed against the cultural and societal environment the companies function in, even if they sell their products worldwide.

6.3 Future research

DT is a fascinating subject of study and at the same time, a constantly moving target. The work undertaken by this study could well be seen as an invitation to expand various aspects raised by the research and outcome: The team model, DT and its evolution in heavy engineering, IT consulting – just to name a few. It is as if only the surface has been scraped and that the issues raised in this thesis lends themselves to much further investigation.

One of the most obvious statements to conclude with is the fact that the DT maturity index should be developed further. Moreover, it should be implemented, tested and measured to obtain solid data on its usefulness. Nevertheless, a general overview of which of the parameters would be most affected by the maturity levels of each theme in the DT maturity index can act as a proposal for further experimentation. The parameters as well as the themes should be challenged, but with an understanding of the basis by which they have been

selected. Especially the themes of the DT maturity index are ones that might vary quite significantly, depending on the industry and other contextual elements.

Another aspect lending itself to more scrutiny bringing the clients' perspective into view. It would be a logical next step to study the client's notions and then crosscheck them against the initial findings. A deeper understanding of the relationship between the concepts of DT and heavy engineering is also in order. The reliability and generalisation of any conclusions rests on both expanding and deepening of the research data and analysis.

One reoccurring claim made in this thesis has been the significance of people management. Retention and talent management form the cornerstones of any solid business approach to offerings involving professionals, but in the case of IT consulting, the importance overrides any other component. People management has to move with the times, which means that even if certain fundamentals always remain, expectations change: The team model has to be adjusted to the needs of the experts too. As the backgrounds of experts diversify in terms of gender, age and experience, the team model should accommodate such latitudes. In sum, further research into the team model should take into account even more variables and dimensions.

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