

TIM BOTTKE

DIGITAL
TRANSFORMATION
PAYDAY

NAVIGATE THE HYPE

LOWER THE RISKS

INCREASE RETURN ON INVESTMENTS

WILEY

Digital Transformation Payday

Navigate the Hype, Lower the Risks,
Increase Return on Investments

TIM BOTTKE

WILEY

Preface

The Quest for Financial Impact: Four Years of Research Behind the Book

The original idea to write this book came to me four years ago in a private conversation with one of my clients, the CEO of a leading listed company. Thanks to a longtime trusted advisory relationship he asked me a very tricky question: “Tim, you know my contract with this company ends in two years and for me this is just a platform to move on to a bigger task. Tell me, am I not better off spending a few millions on a digital incubator, investing in one or the other cool start-up, starting to wear jeans and trainers and ‘digital wash’ my annual report and internal communications, instead of doing what we both know needs to be done—investing half a billion or more to transform my outdated legacy backend over the next five to 10 years to truly differentiate in the market and make my company more resilient for what is yet to come? On a journey likely to be full of pain, failures, and high cash-outs putting a lot of pressure on our stock price and my nerves while I am still here? Who will thank me for that? Will there be a measurable return on invest and positive stock price impact?”

I should not admit it now as a typical strategy consultant, but I had no answer—at least not one with the necessary facts behind me. This I was not willing to accept. So, I started searching, but still could not find it. I talked to experts in my firm and beyond in my network, and I tried to read every piece of practitioner advice out there. Believe me, there is much more than you can digest. Literally hundreds of books, articles, and presentations on digital transformation. Most are terrible and repetitive or self-refencing, but there are also quite a few good ones. So, in the end, in this complex digital world, where you cannot afford to miss a single great idea, I decided to read most of them to make my own experiences. If you would do the same, I am sure you would share my disappointment, as most of them have one of three major shortcomings.

First, there are many inspiring ideas out there but the advice is mostly based on subjective experience, interviews, and conceptual thinking (Brynjolfsson and McAfee 2014; Gale and Aarons 2017; Mazzone 2014; Raskino and Waller 2015; Rogers 2016; Schallmo et al. 2017) with some traits of an almost religious common belief system. For the followers of this system, recent and soon expected disruptive technological advancements generate significant challenges and opportunities that need to be urgently dealt with. In this declared “Digital Revolution” (Rogers 2016), “Second Machine Age” (Brynjolfsson and McAfee 2014), “4th Industrial Revolution” (Schwab 2017)

or “5th Information Revolution” (Nazarov, Fitina, and Juraeva 2019) traditional management practices are supposed to no longer suffice to thrive or even survive (Gale and Aarons 2017; Mazzone 2014; Raskino and Waller 2015). Not surprisingly, all authors immediately propose predominantly prescriptive playbooks to achieve digital leadership. They are often also providing many interesting ideas to help differentiate from the numerous companies that fail doing so (Andal-Ancion, Cartwright, and Yip 2003; Bock et al. 2017; Charan 2016; Davenport and Westerman 2018; Gartner 2018; Kane et al. 2017; Rogers 2016).

Second, and potentially as critical as a shortcoming, the digital transformation recipes are typically inspired by famous digital-born companies, singular transformation examples, and successful digital platform strategies (Bughin and Catlin 2017; Rogers 2016). If ever focusing on the larger bulk of established corporates, they leverage anecdotal case examples and anonymous surveys with subjective company responses (Kane 2016; Kane et al. 2017, 2018), which provide great qualitative insights but obviously also face many admitted limitations (Kane 2019). Opposing concerns that, without a specific context understanding, the digital transformation journey should not be universally recommended for every firm in any context, industry, or size are far and few between (Andriole 2017; Davenport and Westerman 2018).

Third, even though the “planned digital shock to what may be a reasonably functioning system” (Andriole 2017, p. 20) is considered to be “no [. . .] sure salvation” (Davenport and Westerman 2018, p. 3), there seems to be almost no focus on proven financial outcomes for corporates (or any other companies) with the exception of the analysis on EBIT and profit margins by Westerman (Westerman et al. 2014). Quite the opposite; some authors even proclaim that traditional value metrics do not make much sense (Gale and Aarons 2017).

Therefore, and further amplified by the digital transformation surge due to COVID-19, it became very clear to me that there is an urgent business need to develop a more objective, scientifically supported view of digital transformation payback. We needed a new method *to navigate the hype, lower the risks of falling into the digital hype trap, and increase return on investments* beyond the prescriptions of managerial books and practitioner journals. I thus turned to academia and joined a high-ranked global business school as a researcher to gain access to leading-edge academic know-how. With some shock, I quickly realized that science also has so far put inadequate prominence on the digital transformation theme. The few available publications provide only very limited answers. There is little to find of any use other than some initial tries of empirical value/performance analysis, and, therefore, the worry about a “digital paradox, i.e. being unable to capture value from [. . .] digital investments” (Parida, Sjödin, and Reim 2019, p. 14) remains.

In addition, given the turbulent history of multidisciplinary research on technology/IT/IS value impact for capital-market-listed companies, nicely summarized by Kohli and Grover (Kohli and Grover 2008), astonishingly little transfer work has been conducted to reach a similar level of understanding for digital transformation value. The same is regrettably true for the findings of innovation value research (Brockhoff 1999; Salomo, Talke, and Strecker 2008; Strecker 2009; Vartanian 2003) and recent corporate finance research (Damodaran 2013, 2017). Only in few cases do researchers provide some depth and positive results, but, rather, focus on subtopics like observable digital strategy and innovation (Beutel 2018; Mani, Nandkumar, and Bharadwaj 2018) or economy-level entrepreneurship impacts (Galindo-Martín, Castaño-Martínez, and Méndez-Picazo 2019). Others apply qualitative text analysis of statements on digital transformation in voluntary and obligatory reporting (Kawohl and Hupel 2018) and then stop there, or focus on text-analysis-based subjective digital maturities (Zomer, Neely, and Martinez 2018) as a baseline. Except for some recent work linking text analysis and analyst recommendations (Hossnofsky and Junge 2019), and early-stage analysis looking deeper into the firm value and performance implications of non-technology companies investing in digital technologies (Chen and Srinivasan 2019), not once was a broader, end-to-end view of the digital transformation process and its value impact found.

So I had no choice; I needed to embark on a journey by myself to solve this puzzle. To provide answers which, years later, hopefully my client still would want to hear, now that he has moved on and is—no surprise—facing the same question only six times bigger. Based on the focus of my experience and interests, I put my emphasis on the value implications for large-capital market-listed incumbent firms with a sufficient size and history to assume a transversal transformation rather than greenfield digital start-ups or smaller firms. Nevertheless, for this book, I will also discuss implications for smaller companies in a small excursus on this topic in Part II of this book.

I developed a more objective, scientific understanding of digital transformation and its (shareholder) value impact. The main contribution of the research behind this book was the first-ever combination of a structured transversal digital transformation framework with an in-depth empirical analysis of financial impact implications enhanced by a unique, Natural Language Processing (NLP) supported dataset (> 20,000 observations) of large, listed corporates. Good news for you: As you will be able to see later, based on this approach, some advanced statistical analysis, and causal machine learning, there are means to better predict the likelihood for a statistically significant market value payday for your digital transformation efforts, depending on the context of your company.

Navigate the Hype: How to Read *Digital Transformation Payday*

Obviously, you can read only parts of this book based on which topics interest you the most (the chapter titles try to tell you what's inside). Still, I believe you will benefit much more if you follow it in sequential order. Like digital transformation, this book is an end-to-end process where every element needs to have its place. However, there is one thing you must be aware of when doing so. What you will not find in this book are explicit company names when describing the practical examples used to illustrate the ideas. This is for a good reason. The payback mechanisms of digital transformation are one of the best-kept secrets, and the likelihood of reading the true story, when this is based on externally sharable information, is close to zero or way behind the fact. Therefore, this book takes a different route and combines up-to-date hard data of what is publicly reported in thousands of annual reports over the past 10 years with a few deep but fully sanitized real-life experiences. Furthermore, you must be aware that this book was developed with the ambition to be scientifically sound (in the end it is based on almost four years of doctoral research). This is meant to end the times of unreferenced rephrasing in digital transformation and implies that there will always be sources and no faked originality by renaming where others before me have already laid the basis in meaningful thoughts.

This book is structured in three parts, 15 chapters, and a series of appendices:

In Part I, *Chapter 1* serves as an introduction. *Chapter 2* will give you more background on the seminal research on technology, IT, innovation, and corporate finance, which, for all the wrong reasons, is so far not reflected in current digital transformation practice. It also argues what your benefits of undoing this mistake are and provides initial learnings of relevance for your transformation programs. We will then dive much deeper into a key and heavily advertised methodology in the market, namely, the numerous concepts of “digital maturity.” This section is meant to help you to de-mask this widely misused tool and all its related indexes, benchmarks, and assessments. *Chapter 3* introduces the approach you have been waiting for, digital transformation payday, a new five-element framework enabling you to manage your digital transformation toward accelerated payback by always clearly understanding the complexities of digital transformation benefits and associated cost.

Part II explains the digital transformation payday framework in more detail in eight chapters. *Chapters 4 and 5* elaborate on the complex field of supply- and demand-side digital transformation catalysts, which must be understood far beyond digital technologies. *Chapter 6* raises the issue of transformation scope and the ultimate objective of transforming your core

business as a key success factor. *Chapter 7* demystifies agile as a universal tool for any digital transformation process and introduces hybrid as a potential solution to mitigate the downsides of wrongly implemented agile approaches. *Chapter 8* continues by explaining the different subjective and objective angles of measuring digital transformation outcomes to better understand payback and return on invest implications. *Chapter 9* strongly reemphasizes the importance of a strategy to win for your digital transformation success. *Chapter 10* provides two examples of how our framework fits together end-to-end and *Chapter 11* provides a short excursus on implications for smaller companies.

Part III leverages the extensive empirical research underlying this book to help you better recognize the predictors in your business that influence your digital transformation payday and the efforts required to make a difference as a manager, executive, or investor: In *Chapter 12*, the general relationship between digital transformation and value is assessed. *Chapter 13* covers the implications of the industry context you are operating in. *Chapter 14* explores your financial strengths and weaknesses. *Chapter 15* covers the sentiments you create in your capital market communication on what you are doing in terms of digital.

The *conclusion* provides a warning from oversimplification, a high-level payday checklist to keep your paydays coming and an outlook on exponentials—the upcoming next wave of shifts, which will impact you even more in the future than digital transformation currently does.

The appendices add more information on the unique research and dataset behind the book, plus they provide more detailed tables and additional literature recommendations for you to read in case you are interested in diving in even deeper.

CHAPTER 7

Reaction Mechanisms/Process

Agile Done Wrong Can Be a Very Effective Tool of Value Destruction

Instead of working on the required ingredients of a clearly defined winning strategy (Lafley and Martin 2013)—which will be elaborated later—or getting a clearer understanding of the previously discussed reactants/scope, I have recently seen practitioners shifting more and more to focus on reaction mechanisms, that is, the transformation process.

No matter what you may hear or read otherwise, without a clear strategic vision, target state, and scope in mind, this is definitely not a winning idea. All too often, the business buzzwords of the day, like *agile*, *hybrid*, *dual-speed*, or *bimodal*, which originated from software and IT development practices, are applied and implemented without proper understanding and without consideration of their potentially dangerous and digital transformation payday decelerating implications, when rolled out incorrectly or incompletely. I can only recommend ensuring you have carefully understood their strengths, limitations, and most importantly their prerequisites for success. Only then can you prevent the root of value destruction from strangling your digital transformation program from the outset.

Waterfall Is Not Dead Yet, But It's About to Be Retired

Before we dig deeper into these process buzzwords, let me make one thing clear based on experience: What is often disrespectfully denounced as

waterfall in digital transformation practice today has for a long period rightfully been the most-used approach to manage large and/or complex projects in mature organizations. (Smaller firms can get additional specific guidance at the end of this part, in Chapter 12). Even today waterfall has under certain circumstances lost nothing of its former relevance, even though admittedly such circumstances are often very limited. Life-critical applications that need a formal proof of being error-free (e.g., using mathematical methods) are such an example. There also might be parts/elements in large-scale projects that are implemented using these formal waterfall methods, whereas the rest is done iteratively.

So, do not feel pressured to manage everything based on agile methods. Transformations that have “naturally many interdependencies”, “require [a] large amount of coordination” and fit best to mature IT governance frameworks “such as ITIL, CMMI, or COBIT” (Barlow et al. 2011, p. 33). Waterfall elements should not be discarded too early and too arrogantly. On the contrary, certain ingredients of plan-based approaches to steer large-scale digital transformations still have not lost all their appeal when team sizes are large, and the nature of project interdependencies is fully sequential. Still, I have seen many organizations and projects fail despite the fact that all have been certified on Capability Maturity Model Integration (CMMI) Level 5 or higher. Also, some tasks, such as a major revamping of your business application portfolio with significant implied hardware and software changes, might still require a “big bang”. For such projects, you cannot just iterate across your typical agile sprints. On the other hand, waterfall approaches obviously quickly show their weaknesses, when interdependencies become more reciprocal (which is the reality of any digital transformation) and smaller team sizes enable higher flexibility (Morton, Stacey, and Mohn 2018).

As the accelerators and decelerators of waterfall transformations should not be news to you based on years of experience, they are only quickly summarized in the following sections and in Table 7.1.

TABLE 7.1 Waterfall transformation payday drivers.

Drivers	Less Tangible	More Tangible
Accelerators	<ul style="list-style-type: none"> • Prerequisite for large-scale big-bang changes • Limited change, communication, and reskilling cost 	<ul style="list-style-type: none"> • Budget control and plannability • Must have for error-free requirements
Decelerators	<ul style="list-style-type: none"> • Slower time to market • Plannability of large-scale programs only exists in theory 	<ul style="list-style-type: none"> • Double investments in legacy and to-be systems

Waterfall Transformation Payday Accelerators

The first and foremost digital transformation payday accelerator and the single most important reason that the waterfall concept was originally introduced is still valid: In large-scale sequential big-bang settings with a clear target, you can hope for better ability to plan and manage budget control, lower external and internal communication cost, and more manageable reskilling requirements.

Waterfall Transformation Payday Decelerators

Obviously, all these benefits come at a price. Waterfall requires you to control a large-scale project with hundreds or thousands of team members up-front by doing a proper analysis, planning, and execution. What is missing from this equation are the uncertainties, the changes that occur over time (driven by internal and external factors), and the unmanageable complexity of such projects. No matter what, waterfall approaches will progress slowly until any impacts of what you do become measurable. Even worse, you may end up investing in a target state that is no longer differentiating from competition once you reach it or you will have to invest twice to make that happen, once in your legacy and once in the new technology implemented. Also, in reality, the hope of being able to plan often turns out to be a naive dream. The results are many failed commitments, unrealistic timelines, and false expectations based on planning with very little knowledge.

The Light Side and the Dark Side of Agile Transformation

So is agile the lighting in a bottle you can use to shake-up a long, slow-moving waterfall? The original idea of agile in software development first introduced iterative development, frequent customer feedback, timely releases, and rigorously testing (Cao et al. 2009). In the broader digital transformation context, agile concepts were first leveraged in the context of agile organization discussions (Roberts and Grover 2012), “organizing for agility” (Kane 2019, pp. 169–178), or agile strategy (Morton, Stacey, and Mohn 2018), where iterative testing and prototyping (Rogers 2016) are usually a defining element. Other proponents see agile thinking as success critical to increase the responsiveness of the IT function (Haffke, Kalgovas, and Benlian 2017), improve business/IT alignment toward a business IT (Briggs 2019), and recommend it

TABLE 7.2 Agile transformation payday drivers.

Drivers	Less Tangible	More Tangible
Accelerators	<ul style="list-style-type: none"> • Better value-based prioritization • Quicker reactions to market-driven scope changes • Faster time to market • More manageable risk because of more intermediate checkpoints • Simpler decision processes but most importantly 	<ul style="list-style-type: none"> • Reduced development times at higher quality and therefore less cost
Decelerators	<ul style="list-style-type: none"> • End-to-end agile concept and target operating model invest • Invest in new funding mechanisms and governance processes • Agile vendor management approach 	<ul style="list-style-type: none"> • Training and reskilling cost • Recruiting cost • External expert cost (consulting, agile coaches) • Communication and change management cost

at least for smaller teams in reciprocal interdependency environments (Barlow et al. 2011).

While nowadays, agile methods and thinking (e.g., release planning sprint, planning, and daily scrums) have become a standard element and vocabulary of daily transformation practice, many organizations are still struggling to reap the benefits when not all accelerators and decelerators are carefully taken into consideration early on. These are summarized in Table 7.2 and the following sections.

Agile Transformation Payday Accelerators

The advertised, digital transformation payday accelerating benefits of agile are clear. I am sure they have been presented to you in flashy presentations many times. If done the right way, you can expect reduced cost, reduced development times, higher quality, and faster time to market, and you will enjoy a more manageable risk portfolio because of more intermediate checkpoints and simpler decision processes, but most importantly, you leverage the opportunity for a much better value-based prioritization with quicker reactions to market-driven scope changes. This is especially true when agile acts

as an amplifier together with the previously described reactant/scope choices. Obviously agile is easier to implement at the edges of your business, that is, in frontier or adjacent business models (e.g., a new product) or functionally (e.g., in front-end website design).

Agile Transformation Payday Decelerators

While all this might sound like a no-regret decision to implement all over the place in your digital transformation, problems typically materialize when agile is taken from such a generic concept to a real-life program at scale and beyond the edges of your organization. Sadly, if not set up correctly from the beginning, most agile transformations will be doomed to fail before they even start.

First and foremost, you cannot start your agile transformation on the go. People often think they can transform the organization and their staff just by doing the program in an agile way. The concepts initially seem to be so simple that this must be possible. But it is not—it requires a paradigm change that has to be managed on its own, and, more importantly, it has to be seen as a real change effort. You must invest heavily in your customized end-to-end agile target operating model up-front or you can be sure of value-destroying breakwater barriers popping up whenever agile methods and traditional management and governance principles still in place coincide. This can be a beautifully designed DevOps concept in IT being hindered by traditional business-requirement thinking on the business side or the other way round—an agile product design process in business hitting the wall of traditional legacy release trains in IT. And all that at substantial governance cost to steer around such inefficiencies. At the same time, if your agile team is not set up properly, you can expect to face dramatic productivity declines.

If you do not set the scene in advance of establishing new funding models beyond classical business-case thinking (as already explained in the catalyst section of this book, Chapters 4 and 5), classical return-on-investment (ROI) discussion will make agile development speeds much less fertile. Stakeholders on all levels must be educated to let go of some up-front certainty and agree on investments as an iterative test-and-learn approach, in which proof-of-concept, prototype, minimum viable product (MVP), and regular iterations are standard.

Agile also requires a far more professional, timely, and customized risk management compared to a waterfall environment. In a waterfall transformation, monthly risk meetings and the typical risk-impact matrices, combined with a mitigation list and log are typically enough. In agile, the risks need to be addressed much faster—in days or hours—if you do not want their implications to be felt in real-life production immediately thereafter.

It is critical to ensure that everyone in your program and in your firm is adequately skilled in the language, methods, and implications of agile. This will definitely require sizable investments in building up and freeing resources with sufficient dedication to be staffed on your transformation. Factoring in a potential major disruption in your business-as-usual becomes inevitable. This needs to be mitigated early with investments in backfilling of resources. You must build new staffing mechanisms that assign and properly onboard cross-functional experts to agile sprints. It also needs to ensure continuity from one sprint to the next and from one project to the other for stability and regular velocity. This often also requires inflexible role boundaries to be removed. If you still structure roles into very strict categories, then you will never have an agile team who can problem solve by itself.

To make these siloed agile teams perform, you will need to continuously invest in agile coaches and training, change management, and—assuming a limited agile expertise in your workforce—recruitment of agile specialists on all levels. No matter what you believe today, you will likely end up paying sizable sums for onboarding external agile skills over the course of your transformation. The same is true for new tooling and automated solutions now available—for example, automated build and deployment tools or better work organization software.

All in all, there are fun elements of agile such as constant prioritization of requirements and quick adaptations. These usually get implemented very fast. But there are also hard things like the commitment of teams (no overruling . . . no pressure!), a more democratic organization (yes, you need to talk to each other), and open communication and transparency (something to learn from). The last one, in particular, will help you avoid the dark side of agile methods, which can encourage errors or weaknesses to be hidden for as long as possible, potentially compromising the entire undertaking. The more difficult aspects of agile are not implemented and this omission occurs with a relaxing of traditional methods of planning and execution. The result is chaos. The more difficult elements of agile often are the corrective elements with respect to planning and progress.

Obviously, as a downside of the discussed flexibility, outcomes are also much less predictable and never reach any long-term stability, even though you could argue that the predictability of waterfall processes often turns out to be a myth. Even if you see this statement of clear predictability in a presentation, this luring sense of security of outcomes is not necessarily tangible. Predictability is often merely perceived, whereas agile clearly states and communicates that things can change. This is hard to accept in traditional management, in which we need clear goals, a working plan, and people who make other people stick to this plan—but it is not real. In every “waterfall” project, the plan gets adapted once people can no longer avoid it. But then, months later than it was clear to everyone—you plan countermeasures and backtrack

on measures, things that could have been done months before. This means higher communication and change management cost to explain and achieve new ways of working at scale.

All this does not even consider one specific reality of many agile transformations: They do not happen in isolation. They involve a wide range of vendors and partners working together in the same team. This will definitely create an agile tower of babel between suppliers, in which substantial investments must be planned to align everyone on the same language and install new agile vendor-management principles, as classical steering methods will no longer work. You might be chained into fixed-price or fixed-outcome contracts, or your partners might not yet be adequately trained in agile delivery models. Working with vendors who are unwilling to or incapable of joining your agile transformation can be a serious risk. You will need to ask for new contracts or even switch your suppliers.

Hybrid Transformation Is Complex, But You Must Face It as Reality

As usual, the first approach taken to address the weaknesses of two opposite concepts in practice is trying to define a compromise. For digital transformation practice, this is usually summarized under the name of “hybrid” or “bimodal” (Haffke, Kalgovas, and Benlian 2017). I would usually recommend it in all cases, when large team sizes and complexity meet a rather reciprocal and volatile catalyst-driven environment and plan-based methods that only have limited stability. Hybrid practices can amend the shortcomings of pure agile methods reintroducing some key elements of the “waterfall” approach. This includes principles like up-front design, channeled customer feedback, flat hierarchies with controlled empowerment, and so forth (Barlow et al. 2011). Plan-based approaches remain part of the solution, because just expanding IT’s and business’s mandate to more flexibility “does not reduce the need for it to continue its operational responsibilities for delivering reliable, scalable, secure and efficient enterprise systems” (Haffke, Kalgovas, and Benlian 2017, p. 103). For such a hybrid digital transformation process, managers need to have both exploration and exploitation of their firms’ resources in mind (Hess et al. 2016).

However, compromises hybrid methods do not only provide means to accelerate your digital transformation payday, they also come at a cost in terms of decelerators. These are summarized in Table 7.3 and are explored more fully in the following sections.

TABLE 7.3 Hybrid transformation payday drivers.

Drivers	Less Tangible	More Tangible
Accelerators	Best from agile and waterfall	Increased control
Decelerators	All decelerators of agile plus additional complexity cost	

Hybrid Transformation Payday Accelerators

Compared to fully “agile” approaches, “hybrid” transformation would admittedly slow you down, but it gives you some more control than pure agile. It also works at much better speeds than waterfall and includes all the benefits of easier communication and somewhat better ability to plan. This is because when you can provide at least a high-level roadmap with some lighthouse milestones over a multiyear digital transformation program, you give everyone—not only your teams but also your external stakeholders—a fixture they can relate to in an often seemingly chaotic agile transformation development with many small successes and failures.

Hybrid Transformation Payday Decelerators

Any hybrid approach makes your agile transformation elements ultimately less clean, and thus adds complexity cost in terms of interfaces and so on, which is the number-one reason for slower speed compared to pure textbook agile transformations. Agile is hard to implement effectively, and often a hybrid approach is more acceptable for managers to try it. And actually, the issues can be overcome. The real hybrid nature of agile is implicit in the process. There is no need for everything to be agile around an agile project. There are proven ways to interconnect an agile method with a traditional waterfall environment, and because agile is flexible, it can quickly adapt to any shortcomings of waterfall projects used to deliver the agile project. It’s as simple as shifting the milestone. Unfortunately, hybrid does not mean that you save on any of the decelerators (training, change, and communication cost, just to name a few) explained in the agile and waterfall sections. Quite the opposite, the additional layer of complexity will amplify many of these negative effects and add additional breakwaters at interfaces whenever the two methods are playing together.