The Means Justifies the End? Digitalization and Sustainability as a Social Challenge. A Plea for an Integrative View

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1 Initial Situation

It is still not so long ago. Even in the second half of the last century, there was no shortage of forecasts predicting a bright future for workers in the developed world as a result of the use of new technologies, especially automation: higher productivity with considerably less working time and, of course, more time for the essential things of life. Whatever that was. Anyone who dares to take a look at only slightly earlier prognostic efforts will not be able to avoid a smile in view of the visionary omnipresent use of the internal combustion engine. And we haven't even mentioned the role models assigned to the meaningful use of efficiency and time gained. Be that as it may, this much is certain: where technical possibilities lead in interaction with economic and social developments has always been surprising in the end.

The fact that the social sciences have become aware of this phenomenon at all is, in any case, relatively new in its breadth. This has not only to do with the acceleration of technical development per se, which is perceptible within less than a generation, but also with its scope and with the increasing technical and social complexity. The first decades after World War II brought reflection on the importance of technology to a wider audience, which eventually found expression in political movements. Before then, it did not seem generally required, nor was it widely known, to reflect on, for example, "the limits to growth" (Meadows et al., 1972) and to perceive global developments as the result of human action, not human design, in the context of man-made technology as phenomena affecting everyone. However, today it seems

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that we are less in control of the situation than ever before. The nuclear physicist and philosopher Carl Friedrich von Weizsäcker saw one of the reasons why man is a spectator of development and a technical actor at the same time in the fact that modern technology is—still—"untechnical": because it has not sufficiently understood what technology actually is, namely a *means to an end*. He justified the danger emanating from technology in the atomic age in such a way that until now technology had been an end in itself or a means to an end of particular interests, of economic or political power. And he concludes from this in general: "A culture cannot be robust whose means are by a scale better developed than the consciousness of their ends" (1977, 104, own translation). This statement is perhaps more relevant than ever today, at the beginning of the digital age, when *sustainability* is one of the most important issues worldwide.

However, technical development has not only accelerated even further since then. Digitalization as applied IT—technology!—brings with it a completely new dimension. It has exponentially increased the technical possibilities at all levels. And this can be experienced directly. Digitalization permeates every niche of our perceived reality. It is not for nothing that it is mentioned in the same breath as the term transformation—and it is immediately apparent to everyone that the two terms are indeed inseparable. No digitalization without transformation. The pandemic of 2020 has made it abundantly clear that life without digitalization, at least in the developed economies, would simply no longer be conceivable. However, this fact is by no means self-evident.

2 Digitalization, Digital Transformation and Sustainability—An Attempt at Definition

It has long been recognized that digitalization and digital transformation are among the greatest challenges facing business and society today. But do we even adequately understand the processes triggered by this technology? Are we sufficiently aware of the interrelationships of various social subsystems that are undergoing radical change as a result of digitalization? Do we know how to use the potential of digitalization in such a way that it serves the long-term good of our societies and does not take on a life of its own in the service of particular interests? Or is this technology by a scale better developed than our consciousness of its ends? This question is neither aloof nor is it trivial. People around the world are more aware than ever of the fact that they are facing a whole series of challenges globally, challenges that have been caused by humans as technical actors, but which have not been planned by anyone. Just think of the threats to our natural environment, biodiversity and climate. Efforts for sustainability, the preservation of our natural habitat with all its diversity or climate protection are high on the agenda worldwide. If digitalization denotes such a technical option that potentiates the possibilities within different technical and economic fields and thereby changes societal partial systems, then it is of greatest general interest

to gain clarity on how to work towards sustainable development. Thinking about digitalization must include thinking about sustainability.

What does this mean exactly? There is actually no single definition for sustainability. It is a purely relational concept that can in principle be applied to all kinds of object areas when goals of certain actors have to be brought into a long-term, balanced relationship with the goals of other actors. Economic goals, such as the profit intention of companies, can accordingly be evaluated in a context with, for example, social goals, environmental goals or governance goals (ESG-goals). In this context, the term goes beyond conceptualizing the circle of stakeholders as broadly as possible. Nor is it a matter of considering competing goals as complexly as possible, but rather—also quite selfishly—of integrating the temporal horizon of all stakeholders as thoroughly as possible: it must be in the interest of every company to still be able to generate profits the day after tomorrow. The enormously rapid development of technology, as we have already briefly theorized above, has made this view increasingly problematic in times of ever more intense competition and leads to tensions in managerial decisions (Wasieleski et al., 2021, 6). Sustainability is hence always about values, organizations, and institutions (see Dedeurwaerdere, 2014, 1). Sustainability is about awareness (see e.g. Hildebrandt, 2020). And "Sustainable development" is therefore not by chance an inflationaryly used pair of terms in the course of the observably massively accelerated global development since the 1980s at the latest. In the well known "Three Bottom line"-framework sustainability means a harmony of economic, environmental and social objectives. However, achieving precisely this harmony between three three fields is a challenge in practical implementation, because it also involves harmonizing the different motivations and interests of various stakeholder groups (see e.g. Wissenschaftliche Dienste des Bundestages, 2004). In this context, leadership can prove to be an important competence to achieve this harmonization. It does not seem inappropriate to us to take up the concise definition of the International Institute for Sustainable Development here as a working definition: Sustainable development means to meet "the needs of the present without compromising the ability of future generations to meet their own needs" (IISD, 2020). That sounds nice, and it makes the problem blatantly obvious: a high-tech start-up of three people will not be able to include all future generations in its daily struggle for survival; a conglomerate constituted as a stock company will not always want to. Neither the one nor the other is completely avoidable—but the fact that digital technology will provide even more acceleration and change in this context is undisputed. So it's obvious: digitalization actually only makes an understanding of the possibilities and necessities of sustainable action even more urgent. But where to start? If we want to find a meaningful approach, we first need to be clear about what digitalization actually means.

However, this project still faces considerable difficulties. Even though the current inflationary use of the terms "digitalization" and "digital transformation" documents a strong awareness of the problem, they remain vague on the one hand, and on the other hand there is no uniform nomenclature at all or an appropriate definition that would enable understanding across disciplines. The relationships between the

terms remain unclear. The only thing that is agreed upon is that they are particularly important matters. Rather, there is merely a framework of different views and partial aspects to be differentiated from one another. While digitalization is understood to mean the introduction of new solutions based on digital technologies, digital transformation addresses the implementation induced by digitalization and the associated challenges as well as the changes resulting from digitalization compared to the initial situation, which ultimately determines the consequences for the stakeholders also beyond the implementation issue (Herberger & Zoll, 2020; Hess, 2019). Consequently, digitalization and digital transformation as terms can be placed in a chronological sequence: digitalization (e.g., of a process module step) is the first step, heralding the change of a state. Digitalization is followed by digital transformation in the form of a transformation process that ultimately leads to fundamental changes in a business model (e.g., by replacing activities previously performed by humans with IT-based processes) and in extreme cases, it can even lead to the obsolescence of the business model. This, of course, inevitably leads to spill-over effects on societal systems (Herberger & Zoll, 2020).

How intensively a business model competes in an industry can be illustrated based on Porter's "Five Forces"-model (Porter, 1980). The question here is how digitalization, digital transformation and sustainability are taken into account in this model. It originally describes the intensity of competition in an industry, which is determined by the influence of the "threat of substitutes," "intensity of competitive rivalry", "threat of entry", "bargaining power of suppliers" and "bargaining power of buyers/customers". Intuitively, it would be quite obvious to integrate e.g. digitalization into the model as a "new" sixth force as a possible extension of the original model, since digitalization and the ability of companies to adapt to it as part of the digital transformation have a lasting impact on the intensity of competition in this industry. However, this would overlook the fact that digitalization is not a player (force) in its own right in the competition within an industry or emerges from the interaction of players (forces) as an independent force. Rather, digitalization is a factor by which all forces or players are equally affected. It is the same with sustainability and corresponding efforts.

Let us first look at the five forces successively. Digitalization as a form of technical change is accelerating change both on the supplier side, with a view to the faster development of new products, and on the customer side. Customer behavior is changing faster, and the Internet is making markets more transparent. In addition, uncertainty is growing in every industry, because superior substitute products can be expected not only from the best in the industry, but also from companies completely outside the industry as digitalization progresses. The "threat of substitutes" is growing exponentially and disrupting all conventional concepts of industries. Moreover, sustainability considerations are increasingly coming under time pressure.

The industry-disrupting power of digitalization is clearly visible to customers, as there are more and more diverse products from new companies. This clearly shows that not only has the "intensity of competitive rivalry" grown considerably, leading to price reductions in many areas and the shrinking of certain industries; the parameter of the "threat of entry" also has a completely different dimension than it did just a

few years ago: For tech-giants as google or apple, the automotive industry seems to be 'just one click away'.

The parameters of the bargaining power of suppliers as well as the bargaining power of buyers/customers are also undergoing fundamental change across industries: new dimensions of market transparency, substitutability and the sheer growth of digitally well-positioned players are putting tried and tested concepts from theory and practice under pressure. In the age of the platform economy, supplier-customer relationships are sometimes based on a completely new foundation.

The fact that this is not merely a shift, but a qualitative change, is made abundantly clear by the strategy types of differentiation, cost leadership or focus developed in Porter's approach: none of the strategies is conceivable without meaningful use of digitalization. A digitally well-positioned company will master all strategy types, even if it is foreign to the industry.

Therefore, digitalization, digital transformation and sustainability in economic activities (e.g. industry competition) are not to be interpreted as "new" forces in their own right or as an expression of existing forces (e.g. threat of substitutes), but rather as cornerstones of a canvas in front of which competition takes place. The reason for this is that all three concepts influence the existing forces in equal measure and thus change the industry as a whole and also the competition there at the same time, which is ultimately also due to the fact that both the existing forces and the canvas are interrelated.

In order to successfully counter these fundamental background changes within an industry as well as the social spill-over effects, special management areas such as change management (e.g. Lewin, 1947) and the corresponding leadership effects (e.g. Kotter, 1996) are receiving increased attention.

3 Our Interdisciplinary Approach

This volume is basically the result of a multi-day international conference held in Budapest, Hungary, in the fall of 2020 with the generous support of the Hanns Seidel Foundation at the Andrássy University. In times of pandemic, the conference became a tangible example of its own subject matter: it took place online, contrary to the original plan. On the one hand, the conception of the event was aimed at gaining clarity about the phenomenon of digitalization and digital transformation, and on the other hand, it had the goal of helping the discourse reach a higher level of constructiveness in light of the increasingly urgent need for sustainability.

This is a concern of particularly high social relevance. After all, societies can only achieve sustainability if the awareness of their means is better developed than the means themselves. However, since digitalization is changing the most diverse areas of the economy and technology and thus also has an overarching impact on all social subsystems, this also had a direct impact on the discourse-oriented design of the event. It is not possible to proceed nominalistically and work through individual problem areas on the basis of a synthetic concept of digitization. In order to make

progress here, two things are essential: On the one hand, it is necessary to adopt a cross-disciplinary perspective in order to capture the complexity of the phenomenon and to develop meaningful insights from there. On the other hand, it is imperative to include practice as much as possible to open the protective zone of academic work to initiate a problem-oriented, fruitful conversation. Accordingly, these two aspects have been the guiding principles of the present volume, and we hope that it will not only reflect the vital exchange across borders of the conference, but also further promote it.

Accordingly, by presenting a selection of the papers submitted for the conference, this volume aims to address the opportunities and risks of digitalization and digital transformation for our global economy in a structured manner, taking into account as many aspects as possible. In concrete terms, this means including micro and macro level and combining practice and theory in a meaningful way. This also means creating space for disciplinary different approaches as well as for both, scientific or practice-oriented contributions. Experts from the field identify and critically analyze areas of tension and development potential in connection with new business models and sustainability efforts in our society. This claim results in the structure of the volume, which covers four subareas:

First, the possibilities offered by the new technologies and the challenge they pose to public regulation are discussed. Jona Stinner and Marcel Tyrell focus on the emergence of crypto-currencies, their technical basis, their perception and their role in relation to traditional currencies. The contribution of Piotr Kasprzak deals with tokenization of residential real estate assets as an element of the process of a financial paradigm shift.

The second part deals with the possibilities of digitalization for public welfare. Martina Eckardt uses an Evolutionary Economics approach to information and communication technologies for discussing the impact of ICT on policies, politics, and polities. Jens Geißler's contribution brings globalization, digitalization and sustainability in his focus on the role of Digitalization in Providing Health Care and Health Insurance Coveragein developing countries together.

The third part focuses on management challenges arising from the current changes. This concerns the key competence of leadership, new requirements and possibilities for Corporate Social Responsibility and the transformation of public management. As already indicated above, digitalization is always a very concrete challenge for management. We have tried to take this into account as much as possible by providing one section for "Managerial Issues in Theory" and one for "Managerial Issues from a Practical Perspective". The first section opens with Erik Pelters' contribution. Entitled Corporate Digital Responsibility, Understanding & Applying, it examines the ethical dimension implicit in the term "sustainability" from a practical perspective. Katja Posselt discusses the transformation processes taking place in the field of public administration and includes the challenge of the COVID-19 pandemic in her review. Sonja Sperber analyses the connection between managerial influence and innovation, which is central to competitiveness in the global economy. The section "Managerial Issues from a Practical Perspective" provides concrete impressions and considerations from a consistent practical perspective. The object areas discussed here are again

oriented to the overall concept and come on the one hand from the area of academia (Jürgen-Matthias Seeler et al.), in which without a doubt a profound change is taking place, and on the other hand from the practice. Angelika Kölle discusses the latter and focusses on the question of "Digital Sustainable Leadership".

Although the fourth section is the last, it should not be understood as the concluding or closing section. It, too, seeks to express the cross-cutting impact of digitalization, digital transformation as well as sustainability. This is also what its title strives for, addressing the multidimensionality of "analytics" in the age of digitalization. The first contribution by Zoltán Bánhidi, Imre Dobos and Madina Tokmergenova is devoted to the problem of measuring and ranking the phenomenon of digitalization—and directs attention to a part of the globe that one associates only to a limited extent directly with digitalization: Russia. Tim A. Herberger and Christoph Litke explore the "Impact of Big Data and Sports Analytics on Professional Football" by means of a "Systematic Literature Review from a Sports Management Perspective" and thus also establish the connection between academic systematics and a section from practice, which inspires masses with an analog game. Daniel Lorberg and Holger Janusch take an overarching, political scientific perspective with their contribution "Digitalization, Transnationalization and the Transformation of the Global Economy: A Historical Explanation" and also contribute an ingredient to the interdisciplinary recipe of this volume.

As the very essence of this volume, all subsections ultimately contribute to the creation of an expedient interdisciplinary basis for further research into the concepts of digitalization, digital transformation and sustainability. It becomes apparent that these terms do not simply run parallel to one another but are mutually dependent and ultimately also need to be orchestrated together. Who is the conductor? Ultimately, this should be all of us, all stakeholders in societal systems, because ultimately, we as humans will always be the analog anchor and thus the interface between the digital and analog worlds. The latter, after all, must be managed in a particularly sustainable manner.

References

Dedeurwaerdere, T. (2014). *Sustainability science for strong sustainability*. Edward Elgar.

Herberger, T., & Zoll, F. (2020). Das Immobilienmanagement der Zukunft: Ein Überblick zu neuen Anwendungen im Kontext der Digitalisierung und Digitalen Transformation. In T. Herberger (Ed.), Die Digitalisierung und die Digitale Transformation der Finanzwirtschaft; (1st ed., pp. 197–237). Tectum Verlag.

Hess, T. (2019). *Digitale Transformation strategisch steuern* (1st ed.). Springer Fachmedien.

Hildebrandt, A. (Ed.) (2020). Klimawandel in der Wirtschaft: warum wir ein Bewusstsein für Dringlichkeit brauchen. Springer Gabler.

IISD = Institute for Sustainable Development. (2020). Online: https://www.iisd.org/about-iisd/sustainable-development. Last access January 21, 2021.

Kotter, J. (1996). *Leading change* (1st ed.). Harvard Business School Press.

Lewin, K. (1947). Frontiers in group dynamics: Concept, method and reality in social science; social equilibria and social change. *Human Relations, 1*(1), 5–41.

Meadows, D. H., Meadows, D. L., Randers, J., & Behrens, W. W. (1972). *The limits to growth. A report for the Club of Rome's project on the predicament of mankind*. Universe Books.

Porter, M. (1980). *Competitive strategy: Techniques for analyzing industries and competitors: With a new introduction* (1st ed.). Free Press.

Wasieleski, D. M., Waddock, S., & Shrivastava, P. (2021). *Management and the sustainability paradox: Reconnecting the human chain*. Routledge, Taylor & Francis.

Weizsäcker, C. F. v. (1977). Der Naturwissenschaftler, Mittler zwischen Kultur und Natur, in: Idem: Der Garten des Menschlichen. Beiträge zur geschichtlichen Anthropologie (pp. 91–106). Carl Hanser Verlag.

Wissenschaftliche Dienste des Bundestages. (2004). Nachhaltigkeit, 06/2004. Online: http://webarchiv.bundestag.de/archive/2008/0506/wissen/analysen/2004/2004_04_06.pdf. Last access March 24, 2021.