

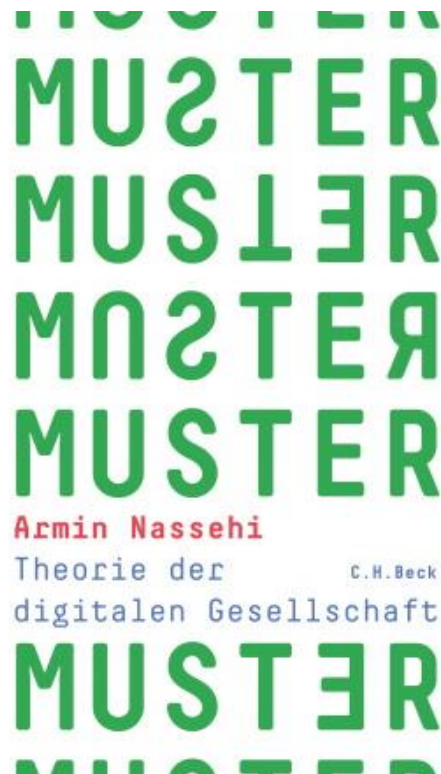
Translated excerpt

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**Armin Nassehi**  
***Patterns. Theory of the Digital Society***

Translated by David A. Brenner



## Introduction

This book aims to present a sociological "theory of the digital society." Were I to see a book with such a title, I'd probably be skeptical – had I not written it myself, that is. For there's a long tradition of linking diagnoses of a society to a *single* feature. At the same time, it's easy to see that there aren't only risks in a "risk society", that people are active even in a "society of sensation", that people occasionally travel by plane or subway in an "automobile society," that people sometimes have to wait even in an "society of speed," and that people are often left without choices in a "multi-option society." It's really never helped to link society with just one characteristic. Most of the time, the solution proposed is a makeshift one or designed to attract attention. In any case, it seems to make things simpler if a diagnosis is made based on just one feature. Often it isn't even the authors who come up with eye-catching titles but rather those who understand how to generate interest on the book market.

In the case of the present book, it's a little different. Of course, the society we live in isn't a digital one in the sense that everything which happens in it could be inferred from the digitality of its technology. And yet: in the course of this work, I will maintain that modern society is already digital in a certain sense, even without digital *technology*. More specifically, it can only be understood by digital means. I'll even go a step further: I'll contend that modern society has always already been digital, and that digital technology is ultimately little more than the logical consequence of a society that is structured *digitally* at its core.

The first time I introduced this thesis was at my "Hegel Lecture" of 7 December 2017 at the Free University of Berlin. There I argued that in order to understand digitization – that cultural phenomenon which may only be rivaled by the two great inventions of printing and the steam engine – one must not simply take digitization for granted. Most discourses on digitization always already (seem to) know what digitization is all about. I'd like to begin by putting that knowledge aside in order to answer a (more) central question:

**For which problem is digitization a solution?**

This question has been formulated with a precise methodology in mind. It sets out to answer what the function of digitization is. It doesn't specify what

digitization or digitality are but instead approach the phenomenon by asking for which problem digitization is a *social* solution. It is therefore about the *social* function of the digital. And once that has been clarified, it can be understood better what the technological dimensions of digitization are. If we don't simply want to talk about something that we really only know from user interfaces, then we have to start by posing a question that is methodologically informed.

### **How to Think about Digitization**

If we look at the discourses on digitization, we see that they take digitization for granted in ways which are already well-informed. Either they are technical discourses which illuminate everything the digital world can do, ranging from phenomena such as search engine optimization and big data to augmented reality and the Internet of things. Or they work out the market consequences of digitization for labor, products, and attention, diagnosing shifts in the capitalist (re)production of added value and the concentration of economic power, thereby forecasting more or less strong disruptions. Or they focus on the everyday practical effects of what digitization does to its users.

Besides a general motivation to critique capitalism with respect to the digitized economy, what seems to interest social and cultural scientists about the topic of digitization is a particular blend of critical attitudes and everyday descriptions – something which, in any case, is one of the most accessible forms of development and stabilization of topics within sociology. Not that one could exclusively claim that the same motivation is predominant here, let alone that there is a consensus in terms of content. Nonetheless, it is striking that a special sociological access to digitization is emerging under the headings of "subjectivization", "technologies of the self," "optimization," and "self-control." The starting point here appears to be that practices of self-tracking – or of representing one's own self or self-control (in textual or visual form) – subject themselves to a dictate of self-fashioning. That dictate is entirely connected to the data processing of those traces which are left behind by our own practices and which lead us to fashion ourselves in terms of numeric practices that are mostly metric and comparative. It is particularly attractive to diagnose this as a neoliberal regime of technologies of the self that not only optimizes the interface between self and the world but that also transforms public control into a self-monitoring, one that can be observed by actors from both the (public) state and (private) markets simultaneously.

A few examples will suffice to illustrate this popular way that social and cultural scientists are approaching digitization. Over twenty years ago, Sherry Turkle already posed the question of identity in light of new forms of Internet communication. Deborah Lupton, in her *Digital Sociology*, is more recently assessing the importance of digitization for sociology and accepting the challenge that sociologists have to access data in completely new ways. However, she too ends up primarily assessing the consequences of digitization for lifestyle and security. In *Data Revolution*, Rob Kitchin fixates mainly on data infrastructure and how it is formed politically, organizationally, and technologically. Shoshana Zuboff's content-rich study, *The Age of Surveillance Capitalism: The Fight for a Human Future at the New Frontier of Power*, chiefly reflects on the excess of control associated with digital media. And *Digital Sociologies*, edited by Jessie Daniels, Karen Gregory, and Tressie McMillan Cottom, likewise insists on the consequences of digitization for specific aspects of activity. The same line is taken by German-speaking counterparts such as Steffen Maus in *The Metric We [Das metrische Wir]*, a book with a wealth of content. Digitization shows up there as an aspect of behavior that is ultimately working through an excess of control. A similar approach is taken in the technologically up-to-date research of Dirk Helbing. The radicality of the digital in the social structure isn't at all noted in media-theoretical works that have already become classics; these include Friedrich Kittler's *There is No Software [Es gibt keine Software]*, Sybille Krämer's *Symbolic Machines [Symbolische Maschinen]*, and cultural-scientific works that defamiliarize the technological infrastructure and its practices as forms of modeling, collecting, envisaging, and quantifying. Accordingly, the fundamental problem of such culture-changing practices would have to be discovered in a society's complexity. A comparable study is Felix Stalder's very valuable *Culture of Digitality [Kultur der Digitalität]*, which also takes a media-theoretical perspective on digitization.

Such perspectives should not at all be rejected, at least not in principle – and not yet (!) at this stage of thought. Nonetheless, these are perspectives which are ultimately not really interested in the issue of digitization itself, but which already presume it as a technological, social, and cultural infrastructure. Here, at least in outline, it should be remembered that Western forms of middle-class life were already being shaped in the pre-digital world by forms of self-tracking, self-control, and disciplinization. It would appear that many social-scientific perspectives on digitization do not really allow themselves to be unsettled by digitization itself. Instead, we are finding all other kinds of social features designated as phenomena of digitization from gender issues to issues of equality, all the way to the aforementioned critique of self-optimization strategies.

The situation is quite different in Science and Technology Studies (STS). French sociologist Dominique Cardon deems it too easy to make interest-directed (particularly business-directed) critiques of the power of algorithms. For these critiques ultimately don't discern that a new way of thinking is being established when algorithms are produced. By appealing to Gilbert Simondon's approach, Cardon is stressing that technology as such has to be taken seriously if we are to understand the algorithmization of social processes. The (mostly) criticized practices then turn out to be secondary consequences of the problem more than its point of departure. I concur with his assessment, though not with limiting the inquiry to those practices which in much of the STS research are (mostly) analyzed ethnographically. Instead, my impetus is to question the *social function* of what the term *digitization* is used to support.

### **An Intuition from the Sociology of Technology**

At this point, it should be observed that one can think about digitization issues without thinking about digitization, i.e., without asking what we're talking about when we talk about digitization. It should be noted that something similar also transpires in another field, i.e., when we think about society without asking what we're talking about when we talk about society. I am assuming that there's a systematic relation between these two diagnoses: *the social forgetfulness of talking about society runs parallel to the digital forgetfulness of talking about digitization*. It is precisely this relation that I'd like to develop systematically here, and in an explicitly sociological manner; this should not be surprising inasmuch as it is already a sociological perspective to use talking about society as a measure. In any case, I'd like to highlight in this initial assessment that I don't wish to pose the sociological question of digitization in the style of presupposing "digitization" as an independent variable, only then to answer the question of which other variables it affects.

For it's not my intention to make another contribution to the debate on the problems posed by digitization and those practices that promote the digital infrastructure. I'd instead like to conceptualize the basic problem: the social problem of the digital. At issue for me is the question of why a technology that has obviously not been developed for what it currently does could become so successful in such a radically short time – and why it has ultimately been able to penetrate almost all areas of society. Rather: it turns out that one of the factors behind the success of this technology is its technical nature.

If we set up the inquiry this way – by asking what effects digitization has, had, and will have on society – then that would actually render digitization an independent variable. By contrast, I am allowing myself to be guided by an intuition from the sociology of technology. Accordingly, technology and society aren't different factors; rather, technologies (and techniques) can only be successful if they are connectable enough for the structure of a society. Or to put it another way: the fact that digitization could be so successful (like printing, the railroad, the automobile, the radio, the atomic bomb, or the technologization of medicine, etc.) can ultimately only be explained by the structure of expectations or processing capacity of that society in which it is occurring. To present just one example: the creation of broadcasting and its technology already assumes societies in which there are potential listeners. It assumes an idea of accessibility just as much as the centralist structures of modern statehood that complement it. Broadcasting and its technology presuppose a reservoir of what can be said as well as the ability to deal with the heterogeneity of a pluralistic audience while presupposing a homogeneity of addressees. It's thereby expected that what is broadcast on the radio makes a difference, one that captures enough attention and one that especially motivates millions of people to buy a radio receiver. Mind you: the audience is not already present; however, there must be a complex situation there that does not make something like an accessible audience seem highly unlikely. Similarly, the steam engine did not prevail only when the industrial conditions for it already existed; rather, the conditions to accommodate were very much present. And the role played by the railroad in the development of North America is an eloquent testimony to how technology can meet a need that it has generated itself but for which preconditions are required.

Something similar would have to also be demonstrated in the case of digitization. The question would then be: *Which disposition of modernity sensitizes it to a technology that is like that of digitization (if something like digitization can at all be thought as a resilient concept)? What was it about modernity – if anything, about social modernity – that was already "digital" beforehand, such that digital technology was able to begin within it that triumphal march which cannot actually be traced back to the intentions of the makers of the technology (just as the triumphal march of earlier technologies can never be explained as a matter of intentions)?* The causal chain "idea → realization" is too short-sighted, even if one is attempting to assemble long causal chains.

This isn't the place to enlighten readers about the history – or flaws – of functionalism. Only one thing should be said: it's not about working through some set of definitive problems for which solutions must then be sought. Rather, it is

about understanding and determining more precisely both the *problem* and the *solution*. Specifically: which problem digitization is a solution for is something that I can only determine if I am sensitive to both the solutions and the problems – and especially to how the two sides are related to each other.

Once more: the functionalist way of thinking has to be expanded considerably in order to answer the question of *which problem is digitization a solution for*. And the question must then be asked in such a way that neither the problem nor the solution can be presupposed. That is, there shouldn't be either an existing list of problems or an overly clear list of solutions, such that the items might simply be compared. An appropriate functionalist procedure must set both sides as contingent; it must be interested in the configuration itself. Seen formally, the issue in functionalism is: if  $y$  is a function of  $x$  such that  $y = f(x)$ , then both  $y$  and  $x$  must be set contingently – and that prohibits setting one of the two sides absolutely. This is the precise problem being dealt with in critiques of functionalism.

With respect to our topic: if the basic problem, i.e., the problem-solution constellation of the digital, is to be determined, we actually have to start on both sides. If my initial intuition is correct that technologies can only prevail if they can be connectable in their social context, then that implies they are solving a problem. So we have to set both sides as undetermined, i.e., *which problem and which solution?* Incidentally, solving the problem only means that processing can continue, that connectivity is being established. Thus, it's not about what digitization is but rather about what it does and how problem and solution are related in that process.

That's exactly where the first chapter of the present book commences, including what is perhaps its most important thesis: *that digitization is directly related to the social structure*. For that's what makes digitization so oddly disturbing: it is alien because it refers to the familiar in a radical way that wasn't previously known. I go on to claim that digitization is not just a social phenomenon but also even *a sociological project*. Much of what digitization does is virtually a way of thinking sociologically: it makes use of social structures, it makes social dynamics visible, and it produces its added value from these forms of pattern recognition. Its stakeholders are of course not sociological ones; they are businesses and states, law enforcement agencies and media providers, communications agencies and military services, and urban and social planners, as well as scientists. In any event, the sociological aspect is to recognize or generate latent patterns of order and to do something with them.

## Early Boosts in Technology

In the present work, I'll be showing that modern society had a digital structure before digital computer technologies were ever being used. I'll explain below just what that means. However, the use of direct digital technology is still a relatively young phenomenon. Although it might add little to our knowledge, I myself was born in 1960 and presumably belong to the last generation to have completed a university education without the benefit of any digital technology. In 1979 I completed my *Abitur* in Gelsenkirchen and then started university in Münster, where I majored in education and philosophy with a minor in sociology. I had to do a lot of writing in the course of my studies, as was and should be required. At first, I had a mechanical typewriter, a gift from my parents, which was very difficult to operate. I don't remember exactly when it was – it may have been my third semester – when I got my first technology boost as a student. I purchased a used *Robotron 202*, an electric typewriter produced in East Germany, manufactured at the VEB Robotron factory in Karl-Marx-Stadt. To call that machine cumbersome would have been an understatement. It was very heavy, and its housing was made of metal two millimeters thick – something that seemed quite wasteful. The machine's motor could not have been developed originally for typewriters; in fact, it was better suited for moving more solid assets than my essays for classes in education, philosophy, psychology, and sociology. And it really come as no surprise: the machine was extremely loud. That was true of its motor as well as its typing levers, which hit the paper and the roller with enormous force. I still remember how the carriage return caused the table next to my desk to shake. And I remember even more clearly that every typing mistake had a direct impact on what was written – an effect that was practically irreversible. It was precisely what is called an analog technology, i.e., a technology that provides something like a one-to-one transmission of cause and effect, signal and reaction, control and implementation. Even when I fixed the mistakes with correction strips, they were still visible afterwards; the text of my paper may have been healed, but the scars could still be seen by everyone.

In 1985 I completed my degree in education by taking a timed exam. By contrast, my sociology concentration required me to write a master's thesis. Since we were given a lot of time in those days to complete such a qualifying work, the entire thesis turned out to be around 350 typewritten pages. I first wrote the work by hand and then typed out a clean copy of it using my Robotron machine. "Clean



copy" implied a form that could serve as a master for a professional service that would then typeset it into something that could be bound and submitted. That master copy wasn't bad at all, but it analogously contained irregularities, errors, and corrections that I'd made in the handwritten version. Its scars thus confirmed how tedious it had been to piece together thoughts into a linear and legible text. The typesetting office whose services I made use of would advertise that you'd get proofsheets on which you could still correct errors before the final printing – as long as your corrections didn't affect the final page break. Technologically speaking, these corrections were managed using a very up-to-date typewriter; the process was quite expensive and something I could only afford with the help of my parents. Hence, it had suddenly become possible for a printed text – i.e., an analog protocol of a one-to-one relationship between production and product – to be replicated as well as altered. And those alterations were no longer visible: no more scars! That in turn affected the reality status of the text, which was suddenly something different than before. The only analog feature was the result, not the process of producing the text.

After completing my master's degree, I applied for a doctoral fellowship and imagined myself doing in the future just what I'm still doing three decades later: working as a social scientist and putting the results of my research into (primarily) textual form. My education was exclusively carried out (at least on the technological side of its means of production) using analog technologies. Even my bibliographic searches were done without databases, using a card catalog system that was very similar in materiality to my Robotron machine. I still remember the noise at the university library in Münster when the boxes with the cards were generally pushed back into their cabinets with a veritable bang. Incidentally, it was worth my effort in those days, despite the poor rail connection, to travel the approximately 100 kilometers to Bielefeld. That university not only had a much better-stocked library for social sciences, but it also had a microfiche system to facilitate the research. But that system too was radically analog – even though you couldn't really use microfiche without a device that consumed electricity.

Immediately after completing my graduate studies and with sights on a career, I set out to find an affordable computer, one which would actually serve as a work tool, unlike Commodore's very successful C64 computers (with their multiple leisure-time programs). What I needed, then, was already known as the industry standard of the era, i.e., a device compatible with the Microsoft Disc Operating System (MS-DOS) and technologically corresponding to the classic IBM-PC. Back then there was only one IBM retail outlet in Münster, but an original PC from IBM (sold since 1981) would have been prohibitively expensive.

For that, too, one had to go to Bielefeld, where there was a shop run by computer hobbyists who offered the inexpensive components for an IBM-compatible computer with an 8088 processor at 4.77 MHz, one corresponding to the original IBM-PC. That first computer of mine did not have a hard disk but only two floppy-disk drives, one of which was always in use for the operating system and application programs. So, while the first floppy disk was booting up the DOS, you had to insert another floppy disk with a word processing program; at the time, I was using WordPerfect. As soon as you needed to use a special function for the first time, such as italics, you had to insert another diskette containing the tool. And when the text was finished, another floppy disk was needed onto which it could then be saved.

The computer was accompanied by a dot matrix printer, which in no way produced fewer decibels than the noise made by the Robotron machine. The entire system was expensive, but ultimately cheaper than the IBM Selectric typewriter which then had represented the world standard and which was something of a Cadillac compared to the Wartburg symbolized by my Robotron. Such "type-ball" machines like the IBM Selectric were no longer an industry standard, but they were available in every university administrative office to serve a generation of professors who wrote almost exclusively by hand. For the word processing "programs" of those professors were human beings sitting in front of such IBM typewriters – programs that were "compatible with" the idiosyncratic manuscripts of those (almost exclusively male) professors.

One year later, I bought a hard drive, something it had become possible to do in Münster. I was then faced with a difficult decision of whether to buy one with a 1 megabyte capacity or one with 5 megabytes. I chose the 1MB hard drive because it seemed hard to imagine myself filling up 5MB of storage in one lifetime. Since then, my life has been a completely and conventionally digital one: Microsoft Windows arrived on the scene and then there were more robust computers and more powerful peripherals, as well as the Internet and permanent access to my data regardless of where I might be. The transition from Internet downloading to Internet uploading played a major role and, after it, the transition from stationary to mobile Internet. New research opportunities accompanied the Internet, making the Bielefeld microfiche seem positively prehistoric. And so on and so forth. I have written and rewritten the present book (like others before it) on electronic files stored in a commercial cloud of a word-processing provider; I was able to continuously edit and refer to it in its updated form on all of my (and others') devices from stationary computers to smartphones.

In my first three semesters as a student, from 1979 to 1981 (when the IBM-PC first came on the market), I had also been earning good money on the side by fixing cars: the VW Beetle and VW Bus, the Citroën 2CV and GX, the Renault 4 and 5, the Opel Kadett, the VW Polo and Rabbit I, and even the old "Stroke-8" Mercedes Diesel. Repairing cars back then was as illegal (though the statute of limitations has expired) as it was feasible. For in that era cars were actually analog machines that one could fine-tune. Within a short time, though, even though cars were still machines that converted fossil fuel into kinetic energy, they came to be increasingly controlled by electronic circuits and then by computer technology. Today I am only really able to change the tires and the wiper blades on my car (a fairly digitized successor to the old Stroke-8 Mercedes). The profession of auto mechanic – probably the most sought-after apprenticeship, at least for boys – was consequently renamed "auto mechatronic" in 2001, a long time after the training profile had itself changed.

### **Original and Copy**

What I am getting at should now be clear: I and those born in the 1960s can possibly be described as the first "digital generation." The first PC was thus more than just a better typewriter. It was a medium that essentially altered the reality status of its results. In his famous 1936 essay on *The Work of Art in the Age of Its Technological Reproducibility*, Walter Benjamin argued that the experience of art had changed radically due to the possible replication of artworks. Specifically, he was suggesting that the work of art would now have to prove itself to a completely different audience, and to an audience that was no longer embedded in the bourgeois practices of enjoying art. The result was something like enjoying art *en passant* – which of course can only be lamented if art is only appreciated for its distinguishing function. Nonetheless, what mattered to Benjamin was what he called the "loss of aura," that is, the loss of that kairological uniqueness which could now be extended chronologically – precisely owing to the reproducibility of the experience. Whoever cites Benjamin doubtless has in mind Theodor W. Adorno's caustic claim that Benjamin was turning the work of art into a fetish. However, that seems to me a typical reaction to new forms of media, to valorize past forms in order to highlight the monstrosity of a new technology and its repercussions – whether it was the Socratic privileging of conversation in contrast to the detachment of writing or whether it was the critique of television as a leveling when compared to genuine experiences of the world.

The everyday use of digital technologies has produced something quite similar – and I am now speaking not of the major cultural changes of the digital age but of the minor ones involved in the production of a text by a young scientist or the boy who wanted to become one. The computer as a writing device did not merely simplify or speed up writing; it wasn't a question of scale. The computer as a writing instrument has dematerialized writing. Before text is put on paper in an analog manner, it exists in a virtual state. That virtuality consists in remaining permanently changeable without having to be changed in its entirety. Making insertions, reformulations, or revisions leaves behind no traces; the text, as Benjamin might have said, has lost its aura. Up to the end, everything is capable of being revised, while at the same time versions that are only preliminary look aesthetically as if they were complete. Thanks to the functions of a word processing program, completely unfinished writing could at once be presented as if it were already text – something that people had previously refrained from doing, especially on a Robotron 202. For doing so would have entailed making considerable efforts to rewrite everything anew. In the present book, then, I will not be relating even one of the popular stories about the effects of digitization on everyday practices. Such stories comprise the majority of the sociological literature on the subject. Instead, my example above is only intended to show how the diffusion of digital technology was small-scale and suitable for everyday use, nearly unseen and yet effective, unspectacular and yet radical – and just how rapidly transition from analog to digital society came about.