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The Digital Trinity—Controllable Human Evolution—Implicit Everyday Religion

Characteristics of the Socio-Technical Transformation of Digitalization

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Abstract How can the ubiquitous digitalization in the early twenty-first century be grasped and characterized? A media-change perspective that focuses on innovation-driven, complex co-evolutionary processes distinguishes two phases of digitalization and points to the following characteristics of its second phase: digitalization is an intertwined bundle of socio-technological transformation processes that reveals itself as a trinity of datafication, algorithmization and platformization. On the industry and politics side, this co-evolutionary trinity is driven by the belief in a scientifically and technologically controllable human evolution, reflected in the pursuit of nano-bio-info-cogno convergence, and accordingly linked to a transhumanism standing for this belief. On the users' side, the digital trinity is characterized and driven by the convergence of digital technology and religion in the form of an implicit everyday religion. These hallmarks of digitalization lead to a digitally transformed social order, shaped by the interplay of governance *by* and *of* this digital trinity, and challenged by growing complexity.

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Digitale Dreifaltigkeit – kontrollierbare menschliche Evolution – implizite Alltagsreligion

Kennzeichen des soziotechnischen Transformationsprozesses der Digitalisierung

Zusammenfassung Wie ist die im frühen 21. Jahrhundert allgegenwärtige Digitalisierung zu fassen und zu charakterisieren? Eine Medienwandel-Analyse mit Fokus auf innovationsgetriebene, koevolutionäre Prozesse unter den Bedingungen von Komplexität unterscheidet zwei Phasen der Digitalisierung und verweist auf folgende Merkmale der zweiten Phase: Digitalisierung ist ein koevolutionär verflochtenes Bündel an soziotechnischen Transformationsprozessen, das sich uns dreifaltig als Datafizierung, Algorithmisierung und Plattformisierung offenbart. Diese digitale Dreifaltigkeit wird auf Seiten der Industrie und Politik durch den Glauben an eine wissenschaftlich-technisch steuerbare menschliche Evolution angetrieben. Das spiegelt sich im Streben nach Nano-Bio-Info-Cogno-Konvergenz wider und ist mit einem für diesen Glauben stehenden Transhumanismus verbunden. Auf der Nutzerseite ist die digitale Dreifaltigkeit durch die Konvergenz von digitaler Technologie und Religion in Form einer impliziten Alltagsreligion gekennzeichnet und getrieben. All diese Kennzeichen der Digitalisierung schlagen sich in einer digital transformierten gesellschaftlichen Ordnung nieder. Sie wird durch das Wechselspiel der Governance und von digitaler Dreifaltigkeit gesteuert und verlangt aufgrund Besonderheiten und gestiegener Komplexität nach neuen Strategien und Ansätzen.

Schlüsselwörter Digitalisierung · Datafizierung · Algorithmisierung · Plattformisierung · Transhumanismus

1 Introduction

Discussions about digitalization are omnipresent. They are driven by science, politics, industry and civil society. They cover all areas of life, focus on various technological innovations in the internet environment, promise solutions, address risks, and are accordingly ramified and controversial.

This article looks behind the sober technological facade of digitalization from a media-change perspective that understands change as an innovation-driven, co-evolutionary process under complex conditions (Latzer 2013a). Such a perspective focuses on the evolution of hybrid socio-technical constellations, understands innovations as co-evolutionary processes (Frenken 2006), and sees the commonalities between biological and technological evolution in complexity theories with a selection paradigm (Ziman 2000). Technology is interpreted as an institution (Reidenberg 1998) and consequently as a governance mechanism, as an intermediary, and as an actor in the context of a distributed agency between humans and technology (Rammert 2008).

As digitalization is not a new phenomenon, it will first be placed in the context of the twentieth-century digitalization debate in order to highlight continuities and changes. This is followed by a presentation of its main characteristics, summarized as the co-evolutionary digital trinity of datafication, algorithmization and platformiza-

tion, the belief in controllable human evolution, reflected in transhumanism and the pursuit of nano-bio-info-cogno convergence (NBIC), and the convergence of digital technology and religion toward an implicit everyday religion. These features are reflected in the specifics of an emergent digital social order of society, and summarized in the final section.

2 Two Phases of Digitalization

Digitalization and its public discussion can be divided into two phases, the first in the second half of the twentieth century and the second in the early twenty-first century. This article focuses on the second phase, but starts by pointing out some formative similarities and differences. What has changed are the central socio-technical innovations, the character of change, and thus the expected consequences. From a technological perspective, the first phase is characterized by the spread of digital computer technology, by the eponymous transition from analogue to digital technology in telecommunications (telephony, data communication) and broadcasting, and by the beginnings of mass internet penetration following the launch of the World Wide Web (WWW) in the early 1990s.

In science, politics and industry, these developments are conceptually understood as media convergence (Latzer 1997, 2009a, 2013b). This can be depicted as a self-reinforcing, co-evolutionary spiral movement of technological, economic, political and social innovations that culminates in a convergent societal communications system called mediamatics (Latzer 1997, 2014). Digitalization is the central innovation at the technological level of media convergence. It leads to a uniform digital code for traditionally separate communications subsectors, it unbundles technology and the content, thus creating a highly flexible digital construction kit for the development of new applications—while simultaneously bringing about massive cost reductions compared with the analogue era. Altogether, this fundamentally changes the economic conditions. These are accompanied by corporate convergence in traditionally separate subsectors, with firms now offering bundles of services across subsectors (broadcasting, telephony and internet). The co-evolutionary innovation cycle is also spilling over to the political level. Policies take account of the changed economic conditions in digitized and convergent markets by pushing and coordinating liberalization of telecommunications and broadcasting worldwide (e.g. the harmonized opening of telecommunication markets to competition in the European Union (EU) at the end of the 1990s). With this politically promoted competition in communications markets and the resulting intensified technological innovations in devices and services, the self-reinforcing co-evolutionary innovation cycle is closing and has been spiralling into more and more areas, driven by the internet as a complex, adaptive system, as an innovation machine (Latzer 2013a).

In essence, the twentieth-century digitalization debate primarily relates to the change from analogue to digital technology in telephony and broadcasting. It remains largely limited to communications policy and, on the provider side, primarily concerns the (traditional) players in the information and communication technology sector (ICT), i.e. in telecommunications, electronic media and computer sector. The

politico-economic effects discussed in the context of digitalization concentrate on the liberalization and (partial) privatization of formerly nationally closed, monopolistic communications markets. The risks for users are mainly rationalization effects and privacy restrictions (Latzer 2014).

The beginnings of mass internet distribution at the end of the twentieth century heralded the *second phase* of digitalization. With the digital internet, a prime example of convergence in the communications sector became established, challenging decades-old demarcations and categorizations in academia and politics, such as those regarding telecommunications/(mass) media, public/private communication, sender/receiver or producer/consumer.

The short but intense internet hype cooled only briefly around the turn of the millennium with the bursting of the internet bubble on tech stock exchanges. It quickly resumed on the basis of the second generation of WWW-based services, described as Web 2.0 (O'Reilly 2007) and marked by increased possibilities for interaction. Characteristic of this is the increasingly mobile, app-based internet use made possible by internet platform companies founded around the turn of the millennium (including Amazon in 1994, Google in 1995, Facebook in 2004, YouTube in 2005 and Spotify in 2006). These new types of companies shape the digitalization of the twenty-first century, displace incumbents with disruptive innovations and trigger intense pressure for reform across sectors towards digital processes and products (e.g. Apple in the music market) (Christensen 1997; Latzer 2009b). Functionally, these platform companies, whose business models skilfully exploit characteristics of multi-sided markets (Rochet and Tirole 2003), often assume roles of traditional media (e.g. social media providers such as Facebook and Twitter), but classify themselves as information technology (IT) companies in order to avoid sector-specific regulatory constraints (Napoli and Caplan 2017).

For their applications based on algorithmic selection (Latzer et al. 2016), companies such as Google and Amazon are also driving another wave of artificial intelligence (AI), which they use primarily for image and speech recognition. AI had already formed in the mid-twentieth century, but soon lapsed into an "AI winter" owing to the lack of success of expert systems in practice (Floridi 2020) and therefore did not play a leading role in the first phase of digitalization. In the second phase, however, it is celebrating a spring reawakening in a prominent position, especially with advances in machine learning, although it is still a "weak/narrow AI" that simulates human intelligence to solve delimited, well-defined application problems in a rule-based way (OSTP 2016).

In summary, the second phase of digitalization differs from the first. It is no longer limited to the communications sector but now permeates all areas of life. Structurally similar to the first phase, a co-evolutionary spiral movement based on two convergences is also characteristic of the early twenty-first-century digital transformation: the NBIC convergence and the convergence of digital technology and religion, as described below. In order to better understand and analytically grasp the core of this socio-technical transformation of digitalization, the metaphorical concept of the digital trinity is proposed.

3 The Digital Trinity: Datafication—Algorithmization—Platformization

From a media-change perspective, the digitalization proclaimed by all sides in science, politics and business in the early twenty-first century reveals itself in threefold form as (a) datafication, (b) algorithmization and (c) platformization. This trinity metaphor does not refer to theological (Catholic) interpretations of God the Father, Son and Holy Spirit, but primarily to its co-evolutionary and complex character. However, the religion-like functions of digitalization described below lend further weight to this metaphor. In their co-evolutionary interaction, these three socio-technical transformation processes result in a powerful unity. The interplay intensifies in a spiral and can be briefly characterized as follows: datafication creates big data—a new asset class—and thus reproduces areas of life. Algorithmization automates selection processes and assigns relevance to these data in order to extract economic, social and political capital from it. Platformization restructures markets and business models, also increasingly commercializing the social sphere and thus creating optimized organizational forms for further-reaching social datafication and algorithmization.

The cycle of this threefold digital transformation is *spiralling* deeper and deeper through modern societies, following a genuine logic and displaying several peculiarities:

a. The online offer and with it the promise of digitally enhanced well-being is increasing, together with the online use and the data traces accruing along the way. Personal data are generated by voluntary—if not always conscious—individual data disclosure in the course of the non-monetary exchange for online services (e.g. search terms and results), as well as in the background through metadata of use (e.g. location, type, duration). A significant expansion of *datafication* results from the internet of things (IoT) driven by the use of sensors. All objects can now also be identified and addressed, which makes independent observations to which all the other people and things in the network can react. This in turn makes complex decentralized systems possible, such as self-driving cars that rely on comprehensive indoor and outdoor surveillance.

   In sum, datafication produces (big) data and thus delivers seamlessly documented, individual online everyday life in real time (Weyer 2019), it reproduces areas of life in terms of data, even entire cities and living environments by means of the IoT. Datafication is a specific form of doubling the world on the basis of digital data, which differs from previous media doublings in its particularities and possibilities, for example, from those afforded by the introduction of writing (Nassehi 2019). What remains the same is that the patterns found by digital data—as was already the case with written or audiovisual doublings in newspapers, in books and on the radio—are not one-to-one representations of the world (Nassehi 2019). The intentional and unintentional omissions in the datafication, which not only document power constellations but also subsequently lead to systematic distortions in the constructions of reality based on them, are of particular importance in this doubling.

Companies, politicians, states and private individuals seek to extract economic, political and social capital from the raw material generated by datafication. Ownership of and access to big data are contested in national and international power politics—and there is no recognized model for enforcing the ownership claims of the original data sources (especially by private individuals). The dominant strategy for monetizing digital data collections is to influence the behaviour of individuals. Datafication in the form of close-knit digital data surveillance (van Dijck 2014) creates the preconditions for this, which in turn diminishes privacy. This data surveillance as a source of big data differs from traditional surveillance in that it happens continuously, without any special reason and with real-time processing possibilities.

b. *Algorithmization*, more or less automated problem-solving or data-processing procedures, is employed to make economic, political and social use of (big) data resources. This also results in new social inequalities, in power asymmetries due to unequal ownership of or access to big data and to elaborate algorithmic procedures that are increasingly based on AI. Moreover, trust in algorithmization presupposes a specific basic ontological understanding of a world that can be comprehensively calculated and measured. The shortcomings of big data used in analytics and internet services (Manovich 2011; Boyd and Crawford 2012), their biases, quality deficiencies (garbage-in-garbage-out) and non-representativeness (e.g. Twitter data) are also often ignored. The epistemological approach regarding how insights are obtained using big data has also changed. In extreme cases, it is assumed that theory-free correlations are sufficient for the algorithmic exploitation of big data (Wiegerling et al. 2018). However, the end of theories proclaimed in the early big-data euphoria (Anderson 2008) is not convincing, as correlations only make sense in the context of theories and cannot be interpreted causally without it (Baecker 2020). But in the practice of big-data processing and in the interpretation of algorithmic predictions and recommendations, a theoretical grounding is often missing.

On the one hand, the ideologies (Mager 2012) behind datafication and algorithmization consolidate commercial, capitalist tendencies and extend the commodity character to the social. On the other hand, they tend to weaken the canon of Enlightenment values, which brought with it a secularization characterized by strengthened critical rationality—trust in people's reason and a turn away from the unquestioned belief in God as the guiding authority for action. Digitalization is increasingly acquiring religious characteristics (van Dijck 2014), tending towards unquestioned faith in the power of action-guiding machines and big data as well as universal computing operations (Kelly 2010), and thereby relying on a mythological level of big data (Boyd and Crawford 2012), on dataism (van Dijck 2014) and on data religion (Harari 2016).

Critics of this development, such as the economist Shoshana Zuboff (2015), speak of a Faustian pact in surveillance capitalism, i.e. a devil's bargain that we enter into daily with Google and co. by yearning for digital convenience and buying it with our digital data soul. The political economist Vincent Mosco (2017) also recognizes a myth, a new technology religion in the current digitalization and de-

nounces the threat to a democratic, decentralized internet through a loss of privacy and heightened market power.

Algorithmization also means algorithmic constructions of individual realities and changed social order that differ from traditional mass-media constructions of realities (Just and Latzer 2017).

c. The third manifestation of the digital in the early twenty-first century is the *platformization* of all kinds of markets that is spreading across sectors. It creates the optimal conditions for growing datafication and algorithmization and drives them forward according to the organizational success logic of multi-sided markets. As a special feature, the platformization by social media companies such as Facebook also permits the monetization and restructuring of social interactions within the framework of a "like economy" (Gerlitz and Helmond 2013). Behind this is another feature of internet platforms—their comprehensive curation and commodification of content and social relations (Gillespie 2018; Dolata 2019), which extends to the democratically problematic take-over of sensitive, formerly purely sovereign tasks, such as the censorship of content. Overall, platformization can be clearly traced in very many sectors and areas of life. Owing to its significant social penetration, both an emerging platform society (van Dijck et al. 2018) and a platform capitalism (Srnicek 2017) have been proclaimed. Although organizational forms of platforms between providers and customers vary, they share the logic of multi-sided markets (Rochet and Tirole 2003), the exploitation of indirect network effects between customer groups for pricing strategies and the development of business models optimized for this purpose. Platform companies, for example, squeeze into (external) value chains between traditional providers and customer groups as "market makers" (e.g. search engines, travel or accommodation agents) and thus skim off data and profits. In addition to the two-sided markets for recipients and the advertising industry that already traditionally exist in the media sector, data traders are establishing themselves as another lucrative customer group of a multi-sided market, fuelling the transformation process of the digital trinity.

4 Controllable Evolution: Nano-Info-Bio-Cogno Convergence and Transhumanism

On the industry and political side, this digital trinity is driven by the strong belief in controllable human evolution, explicitly called for by the transhumanism movement and marked by the pursuit of "converging technologies" in highly industrialized countries.

In its second phase, the convergence trend behind the digitalization debate and the co-evolutionary spiral movements of digitalization are based on a wider set of technologies affecting wider circles than in the last century, going far beyond the communications sector. Since the turn of the millennium, high expectations and extensive politico-scientific support have been accorded to converging technologies. The hopes lie specifically in the nano-bio-info-cogno convergence, the synergetic combination of nanotechnology, biotechnology and biomedicine (including genetic

engineering), information and communication technology as well as new technologies based on cognitive science (including cognitive neuroscience).

Digital technology, and prominently within it the internet and AI, is assuming the control and steering role in this convergence with regard to what is being conceived by cognitive science, built by nanotechnology and implemented by biotechnology (Dupuy 2010). The National Science Foundation (NSF) in the United States (US) and in particular the National Nanotechnology Initiative (NNI) have been driving forces behind the NBIC convergence and the synergies to be drawn from it. Enhancing human performance through converging technologies was the main application example for a workshop on harnessing the synergies of NBIC technological integration held by the NSF and the US Department of Commerce in 2001 (Roco and Bainbridge 2002). The promotion of NBIC convergence is intended to trigger a wave of innovation to increase welfare and quality of life. Among other things, it is intended to achieve performance improvements in learning and working, increases in sensory and cognitive abilities, improvements in human (brain)–machine interfaces, (permanent) monitoring possibilities of health conditions, and the enhancement of abilities through (nanotechnological) implants (Roco and Bainbridge 2002).

Behind the science policy emphasis on converging technologies and the application area of enhanced human performance is the conviction that the evolutionary development of humankind is not at its end point. This assessment is coupled with the belief in humanly controllable evolution, in the potential of scientifically and technologically designed evolutionary steps of humanity that can improve physical and mental abilities towards transhumanism and thus increase health, well-being and welfare. Such ideas and initiatives can be found in the visions and strategies of transhumanists and internet entrepreneurs, such as the start-up Neuralink, founded by Elon Musk in 2016, which is aimed at enabling performance improvements by means of implantable brain–machine interfaces, or the biotech start-up Calico, co-founded by Google in 2013, aimed at life extension.

Transhumanism often plays a provocative role in the debate about the controlled scientific and technological evolution of humanity. It is only vaguely defined, is understood as a technological and philosophical movement, as a goal or as a belief in a designed further development of humanity, and attracts attention primarily because of its extreme utopias and dystopias (Bostrom 2005; Fuller 2017, 2019). The broad and sometimes contradictory transhumanism movement also includes key proponents of the politically promoted NBIC convergence, including Mihail C. Roco and William S. Bainbridge of the American NSF (Hurlbut 2016). The basic idea of transhumanism is part of the millennia-old history of the quest for new human capabilities, a co-evolution of technological and human development that is aimed at overcoming the limits of the human body and mind—especially in ageing/mortality and intellectual, physical and psychological performance (Bostrom 2005; Tirosh-Samuelson 2010; Hurlbut 2016). The collective term transhumanism was coined in the mid-twentieth century by biologist and neo-Darwinian evolutionary theorist Julian Huxley (1957) to describe the belief in a controlled evolutionary development of human capabilities. It gained greater popularity in the 1990s, driven by digitalization in a broad sense—through cybernetics, computer technology and science fiction (Fuller 2017). The roots of transhumanism can be seen in figures as

diverse as the Jesuit monk Teilhard de Jardin ("Noosphere") and the philosopher Friedrich Nietzsche ("Übermensch"/superhuman) (Bostrom 2005; Fuller 2019).

Extremely controversial positions made transhumanism prominent at the turn of the millennium and also contributed to the newly sparked digitalization debate in the context of NBIC convergence. Hans Moravec (1988, 1999), a computer scientist distinguished in robotics, took the separation of mind and body, initiated by René Descartes in the seventeenth century and important for the Enlightenment, to an extreme by predicting the possibility of transferring the human mind and consciousness to a hard disk (mind uploading)—and thus a form of eternal life through the preservation of the mind in a machine body. Eric Drexler (1986, 1992) created the futuristic basis for the controversial debate about the potential of molecular nanotechnology to recreate the human being. The award-winning innovator and Google strategist Ray Kurzweil (1999, 2005) has predicted not only the fusion of man and machine but also the achievement of a technological singularity as early as 2045, a machine intelligence surpassing human intelligence—with the help of nanobots, among other things—which would ultimately take over the rule of humanity and thus mean its end. In this way, he took up the idea of a technologically created "superhuman intelligence" that would end the era of humans within three decades, as already published in 1993 by the scientist and science-fiction author Vernor Vinge (1993). Overall, science and science fiction are closely intertwined in terms of the potential for technology-driven change in humanity in transhumanism. Books and films such as *Blade Runner* (1982), *The Matrix* (1999), *Black Mirror* (2011), *Transcendence* (2014) and *Ex Machina* (2014) have popularized key transhumanist themes.

Transhumanism, which should be understood as an extension of humanism, has been organized by the World Transhumanist Association since 1998 and more recently it has operated under the name Humanity+ (Hansell and Grassie 2010). It also includes positions and scenarios that are more in line with the academic mainstream, such as those of the philosopher Nick Bostrom (2014) about a superintelligence superior to humans and the possibility of it assuming world domination. Basically, transhumanists are concerned with the scientific and technological overcoming of current human biological limits in order to increase well-being. On a political level, in 2016, Zoltan Istvan popularized transhumanism when he ran in the US presidential election as a representative of the Transhumanist Party, which he co-founded in 2014. One of the basic principles, which is also summarized in the Transhumanist Bill of Rights (Istvan 2015), is morphological freedom, the right to freely choose changing identities, which also forms a bridge to the (trans-)gender debate (Bostrom 2005; Fuller 2019).

The bio-conservative, ethically, politically or religiously motivated critics of transhumanism, who come from both the right and the left, classify its positions as neoliberal-capitalist driven, too simplistic, individualistic and thus promoting new inequalities (Bostrom 2005; Hayles 2010), in the extreme even as the "most dangerous idea in the world" (Fukuyama 2004).

Controversial debates about the image of technology, the human–technology relationship, the potential of scientifically and technologically designed interventions in the evolution of humanity and about the political will and corresponding governance advances, form the politico-philosophical background of the current digital

transformation process. The underlying image of technology in the twentieth-century digitalization debate is changing from a tool that is inferior to humans (e.g. digital telephony) to a technology that is possibly superior to them. In this context, attention centres on AI, embedded in (mobile) internet development and linked to the possibilities of nano- and biotechnological intervention, nourished by cognitive science, in the direction of (nano-)robots, cyborgs and trans- or post-human worlds. A particular challenge of NBIC convergence is that not only is digital information technology expected to re-ontologize (Floridi 2007) the world in the sense of fundamentally changing the nature of things beyond radical re-engineering but so are biotechnology and nanotechnology.

In general, ideas both of a technology superior to humans and of technological interventions in human development arouse fears and call for regulatory restrictions on their development and use (Annas et al. 2002). This has been happening for some time in bio- and nanotechnologies. With the current wave of digital transformation, there are increasing calls to restrict applications, especially in the context of artificial intelligence, for example, for facial recognition (UNESCO 2021).

In summary, the debate on controllable evolution, or transhumanism, reflects the features characteristic of the digital trinity at an extended NBIC level. For example, digital doubling in the form of mindfiles or the loss of the body in the pursuit of immortality. As will be shown below, the religion-like character of digitalization on the use side gives a special touch both to the trinitarian transformation process and the belief in and striving for a controllable evolution.

5 Implicit Everyday Religion: The Convergence of Digital Technology and Religion

Another building block for understanding the second phase of digitalization as a threefold, socio-technical transformation process of the twenty-first century is its religion-like character, especially on the use side. This has emerged since the 1990s in the form of special expectations of salvation based on the combination of mass internet dissemination and the immense potential of converging technologies to intervene in human development. Digitalization, computers, the internet, robots and transhumanism as a collective term for aspirations of a technology-supported enhancement of mind and body are increasingly associated with religion and faith (Tirosh-Samuelson 2010, 2012; Kimura 2017; Kao et al. 2020).

On the one hand, the scientific and technological design efforts at a controlled human evolution are seen as an attempt to erase the boundaries between the human and the divine, to recreate the human as an image of God (Kao et al. 2020). The evolution towards a *Homo Deus* is argued by the historian Yuval Harari (2016), emphasizing the convergence of information technology and biotechnology, e.g. the decoding of biochemical algorithms by digital ones. Humans can acquire attributes previously reserved for the gods: omniscience (seamless data monitoring), omnipotence (creation of life, of non-biological intelligence and beings), omnipresence (ubiquitous digital technology) and eternal life (mind uploading, cryonics).

On the other hand, it is concluded that in the course of digitalization and NBIC convergence, it is not the human being but a superior technology that becomes the god, in particular, the computer and the internet (Kelly 2002; Kao et al. 2020). Behind this is the view that digital technology not only becomes effective as a tool in the direction of a god-like human being, but can itself become an autonomous actor with the god-like attributes listed above. The development of an AI deity is accordingly the goal of the "Way of the Future" religious community, founded in 2017 by a top Silicon Valley engineer (Harris 2017).

The digital transformation, the digital trinity, is guided by a data religion, a *dataism* (van Dijck 2014; Harari 2016), characterized as dependence on big data (Kao et al. 2020) and a belief in redemptive insights achievable from it. Dataism can be understood as a secular belief, an ideology behind the datafication of society (van Dijck 2014), a manifestation of the digital that makes use of comprehensive data surveillance to achieve the overarching goal of influencing behaviour and a controlled evolution of human development.

Religious communities are upgrading technologically; scientific principles and transhumanist thought are increasingly flowing into and merging with one another. Technology can serve to better achieve traditional religious goals, but in the twenty-first century it is also becoming religious itself (Geraci 2016). Kao et al. (2020) point to the technological upgrading of traditional religious communities and the merging with transhumanist thought in the form of transhumanist church communities, e.g. the Turing Church, the Christian Transhumanist Association and the Mormon Transhumanist Association. Inter-religious *transreligions* are also emerging, such as the Terasem techno-religious movement initiated in 2004 by Martine Rothblatt (2012), which recognizes God in technology, classifies death as optional and offers to store people's comprehensive mindfiles (a form of uploading) on satellites for later reunification with a biological or nanotechnological body (Waters 2015).

The connection between technology and religion is evident, their relationship ambivalent and not easily reducible to a contradiction (Huxley 1957; Stolow 2013; Kao et al. 2020). The approaches of traditional, well-established religious communities and cultures to technological innovations differ, as can be shown with reference to robots and artificial intelligence (Geraci 2006, 2020; Kimura 2017). Historically, the shaping of technological development by religions over millennia is well recognized. The fusion of technology and faith also turns technological endeavours into religious undertakings (Noble 1997).

For the explanatory context of this article, the question arises as to how the religious nature of the digital transformation embedded in NBIC convergence is to be interpreted.

As in other sectors and areas of life, digital technology is used by institutionalized religions as an additional tool to achieve their goals, such as organizing religious communities and spreading the faith. What is of interest here, however, is not so much sectoral case studies and theories of the effects of digitalization or internet use in institutionalized religions, as found in digital religion studies (Campbell 2016; Helland 2016), but the formation of a secular (everyday) religiosity inherent in, driving and shaping the phenomenon of digitalization, which is mainly studied by the sociology of religion. Digitalization is becoming religion-like as a system that

assigns meaning and significance, both individually and socially, and is increasingly contributing to the social construction of reality by means of diverse algorithmic-selection applications (Just and Latzer 2017) and thus to the worldview and social order (Berger and Luckmann 1966; Luckmann 1967; Couldry and Hepp 2017). The religious aspect of digitalization is developing apart from, albeit connected to or in competition with, traditional religions, driven by the convergence of technology and religion in the sense of a blurring of boundaries, which has already progressed far since the Enlightenment. In this context, technological progress is now itself touted as a religious redemption from human limitations, finitude and "evil" (Geraci 2016). The experience of technological transcendence through digital technology is becoming an everyday experience in the early twenty-first century. Novel religious communities have been founded on scientific principles and are also compatible with atheism and agnosticism, as illustrated by the positions of prominent transhumanists (Huxley 1957; Bostrom 2005; Tirosh-Samuelson 2010; Geraci 2016).

In its threefold form, digitalization assumes the social functions of religions. Algorithmization in the form of AI, on the basis of datafication and with the organizational possibilities of platformization, offers complexity reduction and a transcendence experience, conveys ontological security (Giddens 1991) and social cohesion, and makes the indeterminable determinable (Luhmann 1977).

The threefold transformation process of digitalization shows the characteristics of an *implicit* everyday religion. The criteria of Edward Bailey's (2002) concept of implicit religion apply here to a large extent: the evidence of religiosity in the course of digitalization is high, but this is not considered religious by the actors themselves (therefore implicit). This can be attributed to the unconventional, secular nature of religiosity, which from the outside—at least in parts—looks very much like religion. A high level of commitment is also recognizable in the course of the digitalization phenomenon, an attitude that Bailey (1997) evaluates as a one-word definition of implicit religion. A similarly well-suited functional concept for framing the religious in the digital transformation process (described by Bailey (1997) as a twin concept) is that of (privatized) *invisible* religion (Luckmann 1967), understood as a sense-making or meaning-giving (knowledge) system in an enlightened secular world. It is an *everyday* religion practised in everyday life (Streib 1998), a partly unreflected and routinized implicit or invisible religion.

Pärna (2010) has already identified a limited parallelism to traditional religions in the early phase of internet development from 1994 to 2001 and noted an implicit religiosity, primarily on the basis of the promises of salvation that accompanied the internet hype and the firm belief in the magical guiding power of technology. What Pärna (2010) diagnoses for the early internet hype is even more true for the digitalization hype of the early twenty-first century. Accordingly, it is an implicit religion of everyday life, characterized by a belief in technology, progress and consumerism. Transcending human boundaries by means of technology is a characteristic of this (e.g. in the direction of omniscience, omnipotence and eternal life) and can be experienced in everyday life by means of digital technology or the consumption of digital goods and services. Traditional religious promises of salvation (from death and evil) and technological predictions (overcoming diseases, eternal life through mind uploading, superintelligence) are blurring (Geraci 2016).

Starting with the internet, the hype has expanded to combinations of a wide variety of technologies, especially under the impact of NBIC convergence. Digital technology is not limited to one specific technology. Similar to the collective terms of AI and nanotechnology, it is not so much about assessments of specific technology, but of the underlying world views, fundamentally concerning the belief in a controllable evolution of humanity, and in detail concerning the technological construction of intelligence and life, as well as targeted behaviour control and associated values concerning privacy and surveillance.

In the course of digitalization, a religion-like "technological solutionism" is also emerging, a belief in universal solvability through technology, which is spreading in combination with an "internet-centrism" of the early 21st century (Morozov 2013). One danger of solutionism is that it reflexively relies on a technological solution even before the problem and the question have been precisely investigated and presented (e.g. a COVID-tracing app). Driven by data belief (as opposed to knowledge), the religious expectations of the internet and related technologies such as blockchain, robotics and AI are not only found in science and science fiction, but also in the global political debates on digitalization. The believers in a data or technology religion are forming up on a profane level, e.g. in politics. The high expectations are laid down in countless national and sectoral digitalization strategies (e.g. UK Digital Strategy 2017) and are also used as election promises. Electoral parties outbid each other in announcements to solve the problems of the time with a broadly understood, religious-like digitalization. This raises the fundamental question of the relationship between digital technology, respectively of a threefold digitalization, and social order and control, and what role the trinitarian, religion-like character of the digital transformation plays here.

6 The Digital Order: Special Features and its Governance

The digital trinity shapes the social order, comparable with religion and state. This is favoured by the convergence of digital technology and denominational religions as well as by a loss of trust in existing offers of order. This section historically classifies the socio-technical transformation of digitalization and highlights social features of the emergent digital order. This new order also calls for adapted governance constellations in an increasingly complex digital world.

6.1 Classification and Special Features

Digitalization can be classified as one of the central development steps and transformations of the media system. From a media-archaeology perspective, Dirk Baecker (2016)—inspired by Niklas Luhmann's (1998) systems theory and Marshall McLuhan's (1964) media ecology—places digitalization in a series with the epochal media of language, writing and printing.

Like the preceding central innovations of dissemination or transmission media, digitalization generates an overflow of meaning (Luhmann 1998), in the digital epoch in the form of an *overflow of control* at the human–technology interface that

erodes the existing order and ultimately creates a new one (Baecker 2016). Thus, digital technology not only transmits meaning but also produces it, and with it more opportunities for communication, including real-time communication in IoT (Weyer 2019), and therefore diverse possibilities for use and exploitation. The internet as a modular, open system combined with business models optimized for multi-sided platform markets is exemplary for the production of the overflow of control (Latzer 2013a).

According to Baecker (2016), digitalization, just like language, writing and printing before it, is thus driving the shift towards a new media epoch that overlaps with the preceding ones. This epochal change begins in each case with disruptions of existing social forms, leads to corresponding adaptation processes and thus—after tribal (language), ancient (writing) and modern society (printing)—to a "next" society, specifically a digital society (Baecker 2016). Following a similar logic and highlighting individual features of the threefold digitalization, reference is also made to the emergence of a Surveillance Society (Lyon 2001), Black Box Society (Pasquale 2015), Platform Society (van Dijck et al. 2018) and Real-Time Society (Weyer 2019).

In addition to the overflow of criticism emanating from the printing press, which the "Gutenberg galaxy" (McLuhan 1962) has been working on for half a millennium—and which is now additionally fed by digital media, especially social media—there is also an overflow of digital control (Baecker 2016). Digital control possibilities are booming, for example, based on automatic, real-time data traces of people and things, high connectivity, scalability and ubiquity. The special challenge of digitalization is therefore how to deal with these diverse new conditions and options of social control so that a suitable new order of digital society can emerge that can deal with digital unambiguousness (in contrast to analogue ambiguity) and conceptually integrates rising communication with and between machines (Baecker 2017), as happens in an exemplary way in science and technology studies (STS) by means of the actor-network theory (Latour 2005). In this context, the increasing complexity of algorithmic systems, the growing opacity of increasingly autonomous technology and a crisis of control in decentralized digital systems must be considered. In view of the overflow of control, the extent to which humans control technology or technology controls humans remains increasingly ambivalent (Baecker 2017).

The disruptions and excessive demands of the digital trinity on existing social institutions range from behaviour control based on data monitoring by states, companies and peers, to the control of human evolution in the direction of transhumanism, for example, by digital enhancement technologies or designer drugs and genes. Consequently, the control function of digital technology in the course of the advance of NBIC convergence must also be considered. Platform-economy business models use the potential of the overflow of control; they are economically and politically oriented towards the targeted manipulation of individual behaviour, compete for the attention and data of users and increasingly utilize artificial intelligence.

Ontological and epistemological changes in the course of the threefold digitalization also contribute to the overburdening of existing social institutions. The assumption of a world that can be represented and calculated in binary code in the

tradition of Gottfried Wilhelm Leibniz, of a world as a data processing system (Boyd and Crawford 2012) and of organisms as algorithms (Harari 2016), promotes an increasingly evidence- or data-based policy. On the one hand, it should be noted that digital evidence and data are not so much exact representations as new creations. The extent to which the social can be represented by big data at all needs to be investigated, as well as whether personality traits can be read from digital behavioural data (Kosinski et al. 2013), and what distortions occur in the algorithmic creation of rankings (social scoring; recommendation services) and prognoses (Mau 2017; Kinder-Kurlanda 2020). On the other hand, it should not be ignored that algorithmic big-data applications that support decisions, such as predictive policing, become particularly problematic if a meaningful theoretical foundation for statistical data evaluation is dispensed with or is only rudimentary (Weyer et al. 2018). From the political side, there are now often missionary calls for freedom of information, for data exchange to be maximized by open data and for as many data as possible to be linked together (Harari 2016). Recognizable patterns in big and small data are elevated to the central source of knowledge.

6.2 Governance in a Complex Digital World

The multifaceted governance of our everyday life by combined datafication, algorithmization and platformization interacts with the explicit governance of this threefold societal transformation process (Latzer and Just 2020). Understanding governance by technology in the context of a digital trinity, including the disruptions and challenges to the existing order outlined above, is the prerequisite for the successful search for appropriate forms of governance of digitalization. This task arises under the digitally amplified properties of complexity—of non-linearity, emergence, self-organization, feedback loops and adaptation (Latzer 2013a)—and the insight that digitalization is closely linked to the creation and reduction of complexity in societies (Nassehi 2019).

A brief summary of how governance *by* technology in the context of the digital trinity influences reality construction, decision-making and social order (a), is followed by selected starting points of a governance *of* the digital trinity that consider specificities such as complexity and faith in digital technology (b).

(a) From a media-change perspective, changes in individual reality construction and social order are a core part of governance *by* technology in the context of the digital trinity and thus through diverse algorithmic-selection applications. The strong mass-media imprint on the perceived world of the twentieth century (Luhmann 2000) is now complemented and overlaid by an algorithmically controlled reality construction (Just and Latzer 2017) that differs from the mass-media version in several ways. These include networked gatekeeping, increasing personalization in the construction of reality by micro-targeting, power shifts due to changed actor constellations in the internet ecosystem and increased commercialization, including of the social sphere. At the same time, transparency, predictability and controllability decrease with the increasing complexity of digital-algorithmic environments (Just and Latzer 2017). Assessing the risk of algorithmic control of our everyday lives requires a case-specific differentiation according to the area of application,

type and characteristics of intelligence (Baecker 2020) and the degree of autonomy and controllability (Latzer and Just 2020), because global judgements often lead to misunderstandings and overreactions, as the controversial discussion about artificial intelligence shows.

Digital technology calculates and measures, and can do so better than humans, as various human–machine showdowns in chess and go have demonstrated to great public effect. This leads to a mortification of humans based on machine-simulated human intelligence, but also creates great technological application potential. So far, digital technology has only become an algorithmic decision-making system that replaces humans in exceptional cases. The blanket designation of all algorithmic selection applications as algorithmic decision-making is misleading, because in most cases only an input for subsequent human decisions is calculated. The main benefit of AI is human–machine cooperation, not replacement. The basic architecture of computers produces syntactic machines, partially simulates human intelligence and thus ends up with weak AI. The extent to which further development towards semantic machines can take place, which also leads the way to strong AI, superintelligence and singularity—as envisioned by transhumanists—remains controversial. This is not ruled out, but it presupposes better knowledge of the basic biochemical processes of the brain and a computer architecture that can reproduce these processes algorithmically, which is currently not foreseeable.

The great political and social explosiveness of the effects of a threefold digitalization that have been outlined calls for democratic control. In summary, there are potentially welfare-enhancing effects, such as the creation of social and economic value, complexity reductions in everyday life, transaction-cost reductions and improvements in human decision-making. This is compromised by a number of risks that can affect well-being and welfare, such as manipulation, bias, discrimination, third-party control by and dependence on technology, abuse of market power, loss of cognitive abilities, and restrictions on freedom of communication and privacy (Latzer et al. 2016). These risks touch on fundamental rights, ethical values, the mediation of reality and order, and the evolution of human capabilities.

(b) Various design options in the form of governance approaches are available to manage the net effects of opportunities and risks, albeit under more difficult, complex general conditions than in an analogue world. Four groups of governance approaches can be observed in the control attempts of algorithmic systems, including AI, which are being promoted to varying degrees or in competition with each other by individual states, the European Union and international institutions (Latzer and Just 2020). They primarily focus on 1) risks, 2) human rights, 3) ethical values or 4) overarching principles (trust, transparency, controllability, accountability) and differ, among other things, in their depth of intervention.

To implement the different approaches, the question arises as to the appropriate extent of the role of the state and the corresponding governance instruments. For risk-based approaches, a governance-choice procedure (Latzer et al. 2019) offers a case-specific decision-making aid. The reputation sensitivity of the industry in question is one of the assessment criteria of this governance-choice procedure. As it usually remains very high in algorithmic selection applications and the transparency of the procedures for users remains very low (information asymmetries), the consent

of the faithful, i.e. the users' amen to variously preached data religions, is a central starting point of competition in the digital era. This consent is guided by users' awareness, sensitivity and (technological) skills, and at the same time is shaped by targeted manipulations, distortions and disinformation by commercial and political interests.

In addition, acknowledgement of the great complexity of the control object of the threefold digitalization, and thus the limited controllability and predictability, calls for changes in policy guidelines (Latzer 2014). These include an adaptive policy based on periodic reviews and feedback loops, the promotion of co-evolutionary processes through stakeholder networking and access to knowledge, and the promotion of competitive experiments instead of top-down selections between techno-economic alternatives (picking the winner).

The control of complex systems, on the one hand of the co-evolutionary, socio-technical transformation process of the digital trinity at the political level, and, on the other, of digital products at the operational level, for example, in transport (e.g. self-driving cars), energy supply or even superintelligent machines, also requires new modes of governance. However, approaches to central real-time control of decentralized systems are only just beginning to develop (Weyer 2019). Hopes and efforts are being pinned on the development of collective intelligence for networks that integrate both human and technological actors. In an interdisciplinary way this borrows from economic, psychological, sociological and biological findings, including forms of decentralized control from the animal kingdom (ants, swarm behaviour in birds and fish), which are already being used in robotics and are intended to be made applicable to social regulation (in the form of self-organization) with the help of the IoT (Malone and Bernstein 2015).

Especially in the group of ethical and principle-based governance approaches, the focus is on the *trustworthiness* of algorithmic systems, linked to transparency, controllability and accountability. An example of this is the pursuit of trustworthy AI, which is also being promoted at EU level with the support of ethics committees (European Commission 2019) and implemented differently in individual countries (Larsson et al. 2020).

Trust and faith, the extent of which is decided at the individual level, are proven means of dealing with or reducing complexity (Luhmann 1968). Trust between stakeholders or citizens and system trust, which is increasingly governed or mediated by digital technology (Keymolen 2016; Bodó 2020), is considered a prerequisite for the functioning of markets and societies. Since the Enlightenment, modern, secular societies have been characterized by the fact that trust in the form of blind faith in God as the central basis of one's own decisions and actions has gradually been replaced by trust in people's rationality and one's own abilities (Seiffert-Brockmann 2015).

The implicit everyday religion of digital transformation, the convergence of technology and religion, is leading to changes in this regard. As digital technology, increasingly perceived as superior, takes on a god-like function in the form of the internet, computers and AI, there has been a resurgence of faith as blind trust, but now as faith (i.e. without knowledge) in digital technology (for example, in rationally incomprehensible big-data predictions of automated algorithmic-selection applica-

tions), which is increasingly becoming the basis for action and thus for decisions. In the transition from trust in reason to faith in technology, it must be remembered that this tends to eliminate criticism, the unambiguousness of the digital becomes prevalent and, accordingly, there is little room for coincidences and the unforeseen (Keymolen 2016).

Comparable with an oracle, AI-based algorithmic systems are consulted as action-guiding transcendent wisdom (Seiffert-Brockmann 2015; Harari 2016). This oracular function of digital algorithmic applications (expert systems, prognosis and recommendation algorithms) replaces traditional instructions for action or leads to a rift between faith (in the sense of not knowing) in god-like, inscrutable machines (black boxes) and trust or confidence in one's own thinking and feeling (GPS apps, health apps, etc.). This can lead to a loss of cognitive abilities and can contribute to distrust in reason, in one's own thinking, human abilities and sensibilities. This is not a simple substitute for an already institutionalized belief in God and rationally analysed decisions, but graduated mixed forms are becoming established. With intelligent, digital machines, there has been a partial resurrection of god-like traits and states (Seiffert-Brockmann 2015; Harari 2016).

A likewise often rationally unquestioned trust in digital technology and big data in the context of data religions has partially replaced and complemented Faith—the unquestioned trust in God in the context of established religious communities. Technology as the focal point of a (privatized) everyday religion complements and replaces the integrative, socially controlling function of long-established religious communities. The social significance of big-data-based digital oracles (e.g. predictive AI systems) derives less from the accuracy of their prophecies than from individuals' blind faith in big data and algorithms (Gransche 2016).

A governance focus on creating transparency as an ethical value or rather as a pro-ethical condition (Turilli and Floridi 2009) is aimed at strengthening trustworthiness, but also a range of other ethical values such as fairness, controllability and accountability. For several reasons, this is a delicate political tightrope walk with a risk of crashing on both sides (Latzer 2021). Although too little transparency increases the risk of manipulation, a society that relies too much on transparency (e.g. by means of dataveillance) tends to abolish privacy and to replace trust with control. In addition, full transparency cannot be created in many algorithmic systems (rapidly changing, self-learning algorithms, programming based on division of labour), and it would also thwart the functioning of algorithmic systems because the risk of manipulation increases with transparency. Overall, the task is to take account of the complex interactions between ethical objectives and overarching principles in political governance proposals.

The tendency towards a transhumanist orientation and the embedding of digitalization underlines the question of the appropriate starting point for the implementation of ethical principles. Two basic starting points can be observed in the direction of ethical self-restraint, with the technology-using human or with the machine itself. The latter, i.e. a moralization of technology by means of designs, presupposes that socio-ethical values can be implemented in machines in the first place (Kroes and Verbeek 2014).

Moreover, with a strengthening of transhumanist issues and corresponding everyday religions of the digital, additional governance challenges appear, such as those concerning rules for changing identities, as they also arise in (trans-)gender issues and are discussed under the term morphological freedom (Bostrom 2005; Fuller 2019), the rights of machines (non-organic life) and the political handling of essentially prolonged life (Fuller 2019).

7 Summary

From a socio-technical media-change perspective, this article looks behind the facade of a comprehensive social transformation soberly referred to as digitalization. In a nutshell, it distinguishes two phases of digitalization and points out continuities and change. It characterizes the second phase with the co-evolutionary trinity of datafication, algorithmization and platformization. This is driven by the belief in a scientifically and technologically controllable evolution of human abilities on the side of industry and politics, and by an implicit everyday religion on the side of the users. This combination leads towards a newly forming digital social order, shaped by the interplay of governance by and of the digital trinity. The emergent digital order is marked by differently constructed realities and social order, and by changing requirements for public governance approaches, mainly because of rising complexity.

The division into two phases (before and after the turn of the millennium) opens up a perspective on the formative changes of the digitalization debate. These include its extended focus and scope: from the digitized communications sector in the first phase to the comprehensive digitalization of society, and from the sole focus on ICT to its integration in converging technologies (NBIC). Unlike in the first phase, these technologies are now increasingly perceived as superior to humans.

In order to analytically grasp the core of the socio-technical transformation in the second phase of digitalization, this paper proposes the concept of a digital trinity, composed of datafication, algorithmization and platformization. This metaphorical characterization as a trinity is not intended to refer to theological trinity interpretations, but primarily points to structural similarities: the co-evolutionary, complex connectedness of its constitutive elements, and its emergent character, which indicates that the whole is more than the sum of its parts. Moreover, the religion-like functions of this digital trinity in modern societies, identified as a further central characteristic of the second phase of digitalization, lend further weight to the trinity metaphor.

The digital trinity's three elements show a genuine logic and peculiarities in the fulfilment of different functions of a digitalization that goes hand in hand with commercialization, now also of the social sphere. Datafication doubles the world in terms of (big) data. Notably, this is no one-to-one-reproduction in binary code, and is to be understood in combination with differing reproductions by other media (e.g. language, printing). Digital duplications are characterized by unintentional and deliberate (interest-related) omissions and distortions. Algorithmization, with automated selection and assignment of relevance to information as its core, is aimed

at the monetarization of big-data resources provided by datafication. It incorporates ontological and epistemological changes and leads to new inequalities and power shifts based on data ownership and control. Platformization changes the organization towards multi-sided markets; it optimizes conditions for far-reaching datafication and algorithmization. Altogether, the co-evolutionary interaction of these three socio-technical transformation processes results in a self-reinforcing spiral effect, as was already structurally observable on a smaller scale in the first phase of digitalization.

The paper further highlights two more characteristics of the second phase of digitalization that can be conceptualized as central driving forces of the digital trinity: the strong belief in a controllable human evolution on the part of politics and industry (a), and an implicit everyday religion of the digital on the part of the users (b).

a. In the second phase of digitalization, not only the societal communication system but also the human–technology relationship is negotiated. Digitalization is shaped and driven by ideas and strategies to scientifically and technologically control the evolution of human abilities. The strategic promotion of converging technologies (NBIC convergence), and the influential work of the transhumanism movement serve as formative examples of this tendency. ICTs (especially with a technologically unspecified AI) assume the important control and steering function in the NBIC network and thereby trigger a considerable social crisis of control. Thematic impulses of a broadly understood transhumanism are telling in this regard and partly indicative of its development; however, not as a matter of assessing or achieving utopian and dystopian scenarios, but rather regarding the direction and belief in a targeted development to overcome human limitations.
b. By seeking to control human evolution, digitalization becomes religious, blurring the lines between technology and religion. Technological abilities that were previously only attributed to the divine (e.g. omniscience and omnipresence), promises of salvation in the course of the internet hype and NBIC convergence, a mythological level of big data, transcending human limits by means of AI, and a high level of commitment all testify to a privatized, implicit or invisible everyday religion that is routinized and often unreflected in daily life. In summary, the co-evolutionary digital trinity assumes traditional societal functions of religions, such as complexity reduction, transcendence experience, ontological security and cohesion, and the explanation of the mysterious.

Comparable with traditional religions and states, the digital trinity—driven by the belief in controllable evolution and an everyday religion—shapes the social order. The article argues the emergence of a transformed digital social order, classifies this most recent media-change-related transformation, points out its specific features, and highlights some of the challenges for its political governance.

The emerging digital social order can be conceptualized as the result of an ongoing interplay of governance *by* and *of* the threefold digitalization in modern societies. The digital trinity not only transmits but also produces meaning, and an overflow of control. Digitalization—driven by a routinized, implicit everyday religion—changes

individual reality constructions (e.g. compared with earlier mass-media-related constructions) and hence the social order of societies.

Coping with growing complexity resulting from the threefold digital transformation in the NBIC context becomes key to governance success. The acknowledgement of decreasing centralized controllability necessitates changed policy guidelines and governance modes. Recent political attempts at governing the threefold digital transformation start with risks, human rights, ethics and overarching principles. Strengthening the belief in digitalization as a privatized, implicit everyday religion has the effect of reducing complexity, but in doing so it also counteracts the spirit of Enlightenment, which seeks to replace blind trust in God (the faith guiding action) with trust in people's rational understanding. With growing faith in an inscrutable (converging) technology that tends to be superior to humans, criticism, ambiguities and contingencies tend to be reduced. Digital algorithmic applications assume complexity-reducing oracular functions. Faith as an expression of blind trust becomes a commercial and political goal in a highly reputation-sensitive environment and the digital amen of faithful customers and citizens to diversely preached technology religions becomes a contested success factor in the digital era.

Finally, the characteristics of digitalization outlined here suggest a further discussion of the fate of the "Anthropocene", which does not stop at the consequences of man-made climate change, but also includes those of the man-made digital transformation process for the further development of humanity from a co-evolutionary perspective.

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