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The Plurality of Daily Digital Health. The Emergence of a New Form of Health Coordination

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Abstract: *»Die Pluralität der täglichen digitalen Gesundheit. Das Aufkommen einer neuen Form der Gesundheitskoordination«*. This article presents the current datafication processes in the field of health as a new form of health coordination. Methodologically, the conceptual foundation of the article is embedded in neopragmatist thinking and mainly informed by the "economics of convention" (EC). At the beginning, it is made clear that the datafication processes in the health system and in people's everyday lives are primarily a future vision that has high hopes for improving and controlling health. The aim of the article is to analyze the current effects of these mobilization processes and to show that with datafication processes, a new coordination mode of a *digital daily health* is introduced. To this end, the new form of *digital daily health* is being introduced. For this purpose, its characteristics are described and its relevance for coordination processes is shown. After that, the intersection between the new form of *digital daily health* and individual health will be analyzed. Finally, the consequences of this new health coordination form will be shown on an individual level as well as on the level of political economy of health.

Keywords: Economics of convention, investment in form, dispositive of evaluation, regime of engagement, sociology of quantification, alliance convention, sociology of health, datafication, digitalization, big data, connected health.

1. Introduction

The central core of the idea of digital health is health data and new technologies. The datafication of more and more areas of social life and the emergence of a political economy of datafication has been discussed for some time in the social sciences (Mayer-Schönberger and Cukier 2013; Kitchin 2014; Houben and Prietl 2018). In this article, the concept of the political

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economy of datafication is used to make clear that datafication processes do not simply arise due to new technologies. Rather, methodological questions regarding power relations, dominant institutional and cognitive forms, epistemic values and orientations, and the practical handling of numbers, in form of assessing, criticizing, and justifying come to the fore. Therefore, talking about the datafication of health means talking about a number of different scales and levels like data-driven medical research, public health infrastructures, clinical health care, and self-care practices (Ruckenstein and Schüll 2017, 261; Levay et al. 2020). A pragmatist perspective opens up a methodological view on the mechanisms that legitimize and make datafication processes socially possible. This also makes clear how actors deal with these mechanisms differently depending on their situations. Then, it can be systematically asked which individual or political concerns are, and which common good is, at stake, if one generates a notion of digital health and uses health data.

The article conceptualizes the phenomenon of daily digital health from a perspective of the approach of economics of convention (in short EC). The associated key words "big data" and "digitization" are often cited as the cause of transformation processes. This leads to the reading that it is "digitization" or "big data" that sets these change processes in motion. The actual pragmatist mechanisms of action remain completely unclear and with that the resulting tensions, practical resistance, and attempts to solve it. Therefore, if I talk about daily digital health and new developments in the health sector concerning digitalization, I need to clarify first what this means in a practical way of thinking. A central thread of discourse in the health system concerns digitalization and the associated hopes and dangers. What is neglected in this comparison, however, is how the datafication of health changes the valuation and coordination process of health and health practices. The opened future visions of improved health and cost savings give the impression, that it is only an optimization of current problems in the health system and individual health. Rather, I will argue there is a rupture of coordination and valuation processes, introduced by datafication processes that lead to something I call *digital daily health*. In daily routines as well as in institutions and policies, the datafication processes are changing arrangements of actors, data infrastructures, social and economic valorization, values, and orientations regarding health. Against the background of the datafication of health, I am asking how the category of health is mobilized and what that means for the engagement of individuals' health. Methodologically, the conceptual foundation of my argument is embedded in a neopragmatist way of thinking and mainly informed by the economics of convention, which have been developed especially in the context of the new French social sciences (Storper and Salais 1997; Boltanski and Chiapello 2005; Boltanski and Thévenot 2006; Eymard-Duvernay ed. 2006a, 2006b;

Batifoulier et al. 2016; Diaz-Bone 2018a; see section 2). From this perspective, I work on the question in three steps. First, I will introduce digital developments in the field of health and discuss digital health technologies, practices, and infrastructural developments as a new equipment of health situations, in particular, as a new "investment in form." On the one hand, the characteristics of the new form are listed and, on the other hand, the features of this form are analyzed in more detail (section 3). In the second step, I will focus on a main aspect – applying a pragmatist view – which is the intersection between the new form of *digital daily health* and individual health. For that, the regimes of engagement are used to show systematically by which mechanisms they make the newly introduced form relevant at the level of individual health actions (section 4). In the last step, the consequences of *digital daily health* are shown for individual health action and a political economy of health (section 5).

2. Quantification, Forms, and Regimes of Engagement

In the scientific movement of EC, the analysis of quantification processes, classifications, and statistics has been an important starting point (Diaz-Bone 2016, 2018a). In the course of working on statistical and social classifications, the statisticians, economists, and sociologists François Eymard-Duvernay, Robert Salais, Laurent Thévenot, Alain Desrosières, and Luc Boltanski analyzed, in particular, the procedures of categorization and codification (Desrosières and Thévenot 1979; Eymard-Duvernay 1981; Desrosières 2011a, 67). In several empirical studies, Laurent Thévenot, together with the sociologist Luc Boltanski, investigated everyday classification practices of actors and the principles of how actors deal with classifications (Boltanski and Thévenot 1983). From this interdisciplinary research context, the concept of conventions developed and the aim of the EC was, from the beginning, to investigate the social and methodical use of classifications and statistics. The researchers found out that, when dealing with numbers and classifications, actors base themselves on more general principles that relate to a common good. The researchers went even further and identified conventions as the logic of all coordination that actors rely on when they have to interpret, evaluate, and valuate others, actions, objects, or processes in situations (Storper and Salais 1997; Boltanski and Thévenot 2006). When actors justify their actions in a situation or criticize other actions and developments, they rely on conventions as an underlying guiding principle (Boltanski and Thévenot 2006). The conventions are oriented towards a common good that goes hand in hand with specific values and evaluation schemes. In every situation there is a plurality of these conventions and actors are able to refer to the conventions as normative principles.

However, it is not necessarily one convention that is predominant in a situation. Empirically, a combination or alliance of conventions can often be observed. So far, eight conventions have been worked out in the EC: the market convention, the industrial convention, the domestic convention, the civic convention, the convention of reputation, the convention of inspiration, the green convention, and the network convention. Therefore, this core concept of conventions has also become relevant in the observation of quantification, later especially in the background of digitalization (Desrosières, 2011b, 2015, 2016; Diaz-Bone 2016, 2017, 2018a; Diaz-Bone and Didier, 2016a, 2016b; Sharon 2018; Stronegger 2019; Cappel and Kappler 2019; Diaz-Bone, Horvath, and Cappel 2020).

In his later work, Desrosières examined intensively quantification processes and introduced the important analytical distinction between measurement practices and quantification processes (Desrosières 2000, 2002, 2011b, 2015, 2016). He assumes that quantification processes have to bring in conventions first, before measurement is possible (Desrosières 2008, 10). In this first step, standards, definitions, and numerical measurement methods are introduced, which specify how and what is measured and why. The involved actors negotiate about these definitions and standards by using and referring to conventions. Depending on the convention, the legitimation for the indicators and categories for the measurement will be totally different. Therefore, the conventions serve as a basis for justification or for criticizing definitions and standards which are at stake. Desrosières developed a heuristic framework for the analysis of quantification processes by implementing the concept of conventions. In this view, the plurality of normative value orders in quantification processes is emphasized. Each of the conventions represents a different, but methodologically equivalent collective effort to act. Therefore, one part of the analysis in this article is to examine how actors can justify and enforce normative orders in health quantification processes and where tensions arise between them.

The concepts of Desrosières allow examining these collective quantification processes. But with regard to the digital health datafication processes, further concepts are necessary because the majority of health data is obtained via sensors that come from processes of consumption, production, and distribution. Above all, new everyday technologies, such as smartphones and wearables, make it possible to obtain data on the health behavior of individuals and to network them with other data sources. Therefore, this data can also be evaluated by using algorithms and be used for economic purposes (Diaz-Bone 2018b, 85). As a result, the indicators, categories, coding processes, and evaluations for measuring and handling health are no longer subject to a justification order and thus lose their semantic content (Diaz-Bone 2018b). These quantification processes are then no longer the result of joint negotiations, which allow justification and criti-

cism for all involved actors, of why and how health should be measured. As such, the founding conventions are usually not recognizable or criticizable for people whose health is measured, since they are often invisible due to previous privatization processes at the levels of data collection, data evaluation, and data interpretation (Diaz-Bone 2018b).

For the surveyed actors, the common good, to which the quantification process should refer, is invisible and (at the origin) semantically empty in their practices. They are therefore faced with the task of interpreting the numbers and measuring practices and classifying them according to their situation. Depending on the situation, they can rely on conventions for assessment and evaluation that allow their measurement practices to be justified and criticized. They can also embed the numbers in the context of their individual lifestyle, which is not subject to compulsory justification (Thévenot 2006). Diaz-Bone therefore introduces the distinction between conventions with and conventions without a semantic content (Diaz-Bone 2018b, 86). Conventions with a semantic content always refer to conventions as coordination logic, which are subject to justifications. Conventions without semantic content only represent standards, such as right-hand traffic on the streets (Diaz-Bone 2018b, 78). They are characterized by a low intrinsic effectiveness to implement coherent coordination as well as their shorter spatial and temporal range. In contrast to conventions with a semantic content, conventions without a semantic content are difficult to legitimize publicly because they have no inherent collective reference to the common good. This leads to inconsistencies much faster, especially in quantification processes, based on conventions without semantic content, since different and possibly contradictory assessment and evaluation standards are used across different situations. Therefore, conventions without semantic content, so-called standards, are often linked to conventions with semantic content in order to increase their stability and validity (Diaz-Bone 2018b, 78-9).

To capture the stability and validity of conventions, the concept of "investment in forms" was introduced by Eymard-Duvernay and Thévenot (1983a, 1983b). From this perspective, cognitive forms have a stabilizing function in social action processes and can significantly influence the coherence and scope of conventions. They can be understood as social order processes providing a function with certain information formats. This brings a situation into a more stable form.[1] Such investments in form can be characterized by three aspects guiding an analysis: their scope in time and space, their validity, and their equipment. The equipment of the form can

[1] An example of a form investment with a long lifespan and a big scope is the international time, which was only introduced through enormous investment efforts in this specific coordination of situations (Thévenot 1984, 13).

be material, conventional, and technological, as well as scientifical and juridical. The equipment is crucial for the fixation and distribution of the form and therefore closely linked to the lifespan and scope (Thévenot 1984, 13-5). The forms can be understood in terms of their generalization in the sense of a continuum. It ranges from the most universal forms, such as measurements and international laws, to the most individual forms, such as interactions. In between, there are also those with a limited lifespan and validity, such as house rules or specific training formats in a company (Thévenot 1984, 14). The equipment of a form is also decisive for how anonymous or person-dependent the form is. The less a form is equipped, the more it remains individualized and, if necessary, only tied to one person. Maintaining such a form is time-consuming because it has to be generated again and again and has no supports by the equipment (Thévenot 1984, 15). The different conventions are linked to different cognitive forms supporting them. Therefore, with the aim of establishing a specific convention, it is also possible to invest in a specific form with its equipment (Eymard-Duvernay and Thévenot 1983a, 1983b). For example, a numerical representation is a typical form that can be assigned to an industrial and a market convention (Diaz-Bone 2018b, 78).

Later on, Eymard-Duvernay refined the concept of investment in forms with regard to specific stabilization mechanisms. He clarified how a new form and its equipment can be used to stabilize specific values in a situation. He introduced the concept of valuation ("valorization") and thus referred analytically to processes of value construction (Eymard-Duvernay 2012). For mobilization processes in a social situation, conventions get relevant again as normative orders. But from this analytical perspective, actors do not form value judgements, nor do things have any intrinsic values. Rather, values are constructed in social processes (Eymard-Duvernay 2012, 11) and things, technologies, and materialities are part of this construction process (Diaz-Bone 2018b). Therefore, in connection with the concept of investment in forms, Eymard-Duvernay introduced the concept of the *dispositive of evaluation*. A dispositive of evaluation establishes stable spaces of valorization through certain forms, things, and conventions (Eymard-Duvernay 2012; Diaz-Bone 2018b). From this perspective, forms have the power to determine a specific valuation on people, things, and situations (Eymard-Duvernay 2012). The measurement and quantification of health can thus be understood as a dispositive of evaluation. In doing so, categories and indicators are defined by means of conventions, things, and technologies and introduce a specific evaluation of health and health behavior. Finally, it must be seen that the introduction of such a dispositive can be accompanied

by a pre-selection of people and the validity of health actions.[2] For example, the introduction of telemedicine in the health care system can be understood as such an investment, implementing a dispositive of evaluation in health care services.

In their work on telemedicine, Amandine Rauly and Florence Gallois already pointed out how new information technologies can restructure and standardize the valuation of clinical health care practices in health institutions (Rauly 2015; Gallois and Rauly 2019). The information technologies can be understood as an investment in forms and a dispositive of valuation. The introduction of telemedicine at the beginning of the 1950s in the healthcare system was aimed at carrying out health practices over long distances. Therefore, information technologies were used to standardize health practices in the health system and thus increase their scope. The technology dictates precisely how health practices have to be carried out and also excludes all other health practices not covered by the technology (Rauly 2015). Finally, dealing with the technology requires adaptation to the given evaluation standards; otherwise it opens up a field for criticism and conflicts. In this context, Gallois and Rauly especially characterize the link between the level of development of telemedicine and the form of public action (Gallois and Rauly 2019). This concept of standardizing practices through information technologies then also offers a good starting point for analyzing health quantification processes. The quantification processes are also significantly influenced by new digital information technologies.[3] The concepts introduced so far are very well suited for analyzing collective coordination challenges, for the introduction and legitimation of digital health in institutions, and for orders of discourses. However, the quantification of health does not only take place on a collective, but also on an individual level. Since the quantification process of digital health is currently very much an implementation process on both levels, there is a need to focus on three relevant aspects and appropriate concepts in this article. First, it has to be clarified which standards, definitions, and numerical measuring instruments in the context of digital health are made relevant and how, why, and by whom that happens. Therefore, the focus is on the collective political economy of datafication in the context of digital health.[4]

Second, it must be explained how quantification processes stabilize in space and time. With the knowledge about the scope and validity, it be-

[2] For a general view from a market perspective on medical valuation processes, see the work of Christian Levi (2019). His work is about medical innovation and, with regard to the concepts of EC, he tries to understand how the socio-economic value of medical innovation is constructed in the medical system.

[3] This aspect will be discussed further in section 3.

[4] See also the work of Desrosières (2011, 2015), who examined, in a more general sense, how datafication affects political and global dynamics.

comes clear when quantification of health becomes relevant in individual or collective situations. A difference to scientifically controlled survey situations occurs because the actual measurement process of the quantification processes of digital health takes place in a private everyday context via smartphones and wearables. This distinguishes, for example, the generalizability of the results and thus the scope of the form in time and space.

Third, the equipment of a situation has to be identified to understand the effect of the equipment on the mobilization and valuation processes of collective or individual digital health. This perspective opens up the possibility of differentiating when (and when not) coherent and non-coherent measurements become a practical problem.

In order to focus analytically on the level of action of the actors and of individual lifestyle, Thévenot's concept of *regimes of engagement* will be introduced. This concept focuses on the level of action and coordination without a need for justification. The actions are neither aimed at a collective common good, nor do they claim to be generalized. Such actions are typically everyday actions that are characterized by routines and unconscious actions (Thévenot 2007, 2010). Health on an individual level relates to one's own body and the practices in dealing with it. In order to grasp this self-relationship, it is necessary to leave the level of collectively established health concepts and normative health concepts. Analytically, this means actors move in their health-specific actions and valuation processes through different situational elements. These are elements with a justifying character, as well as those focusing only on private decisions, such as everyday routines on topics relating to nutrition, sports, or professional or leisure time. In order to capture these privately designed activities, Thévenot distinguishes three modes of regimes of engagement, which means different modes of coordination. A regime of justification is just one mode of coordination. These other regimes are therefore to be understood as forms of practices, which can also be equipped with objects, cognitive forms, and people who support a specific regime. Interestingly, such objects, cognitive forms, or even people can indicate multiple regimes or support multiple modes in parallel by basing them on their ambiguity (Thévenot 2007, 2010).

Thévenot distinguishes three other regimes: the regime of an individual plan, the regime of familiarity, and the regime of exploration. In the regime of an individual plan, actors do not try to achieve a collective good, but rather to implement their own, individual intention in a way, which is familiar to them and to which they feel intimately connected. Information is often formatted functionally and an actor freely decides what to do. As long as this freedom is guaranteed, actors act in the spirit of this regime. But even in this regime, an action does not necessarily have to refer to just one person. Actors can enter into a mutual commitment through a joint contract or a project. In the regime of familiarity, actors relate to their environment in a very

familiar way. Here, actions are aiming for the familiar, such as simple routines and individual peculiarities, as a matter of course. In this way, personal comfort comes into focus. This behavior is typical for couples or family relationships, close friendships or in one's own private household, acting with oneself and one's intimate environment. These actions are most in conflict with a public, justifiable, or generalizable action. In this format, information is in a known structure and sometimes also non-verbal. As long as an actor manages to maintain this connection and intimacy in a situation, he can remain in the engagement. In the regime of exploration, actors with the attitude of a discoverer relate to their environment in relation to the goal of finding something new. In this position, information is, in particular, in a format of surprising events, practices, objects, or situations. As long as actors can maintain this curiosity and exploration of their environment, they can remain in this regime. The exchange with others usually has a playful character (Thévenot 2007, 2010, 2014).

The concept of regimes clarifies that actors do not necessarily have to respond to the introduction of a new form and a specific kind of evaluation. They are able to recognize the classification and quantification of themselves in quantification processes and are able to know about the lacking influence on this process. That is why they are able to defend themselves against classification, quantification, and the associated evaluation processes (Diaz-Bone 2018b). Desrosières (2015) describes this procedure with the concept of *retroaction*. In order to avoid such quantification processes, categorizations, and evaluations, actors can retreat into regimes without any pressure for justification.

3. Digital Daily Health – The Emergence of a New Form

In the health system,[5] extensive data production and processing is often seen discursively as a solution to existing problems such as rising costs, incorrect treatments, coordination difficulties, successful prevention, or patient safety. The increase of data production is linked, on the one hand, to the hope of improving political control processes in the health system and, on the other hand, to advancing technological developments such as preventive, individualized medicine and patient empowerment (Ruckenstein and Schüll 2017). These assumptions and hopes promote the datafication of health processes and the associated implementation of digital infrastructures. In general, digital health is linked to the hope of integrating medical

[5] What is meant by the term is healthcare institutions and all the actors and processes associated with it.

knowledge and health-related data through datafication processes in such a way that diseases can be better cured or their occurrence be prevented from the beginning. Although some of these new technologies are already in use, it is nevertheless noticeable, that activities surrounding the introduction of digital health are largely future visions (Ruckenstein and Schüll 2017, 262; Wieser 2019). It is interesting that all the benefits of digital health are related to a future whose occurrence is completely uncertain. The vision of these benefits, however, seems to be powerful enough to discursively initiate and legitimize datafication processes in the present.

It is crucial with this vision, that it goes beyond curative and preventive medicine and crosses the border to a wish-fulfilling medicine that protrudes much more into everyday actions (Wieser 2019, 427). Related to the political economy of datafication in health, I classify this wish-fulfilling medicine as a new form (Eymard-Duvernay and Thévenot 1983a, 1983b), which is able to mobilize non-specific everyday practices as new health practices, regardless to any disease practices. This new form, which I would like to describe under the term *digital daily health*,[6] is characterized by the fact, that everyday activities are measured and embedded in a health context. This means, it is crucial, that practices are converted into numbers and graphics and used as a further information and evaluation basis in dealing with health. This is why *digital daily health* differs from previous concepts of digital health, such as electronic health (eHealth), mobile health (mHealth), or smart health on two aspects.

1) *Digital daily health* does not pursue a specific health purpose at all but aims vaguely at maintaining health in general. This means digital technologies are not used as targeted tools, for example, to control certain diseases. Rather, the technology functions as an intermediary and thus possibly also as a dispositive of evaluation of health in everyday life (Eymard-Duvernay 2012). As a consequence, *digital daily health* means that more and more things of everyday life can be arbitrarily attributed a health reference.
2) The concept of *digital daily health* is also connected with a very specific analytical and methodological perspective. With the idea of understanding *digital daily health* as an investment in forms, the processes of construction, mobilization, and evaluation of health and health practices come into focus. Therefore, questions about the role of eve-

[6] Deborah Lupton defines digital health as follows: "The term 'digital health' refers to a wide range of technologies directed at delivering healthcare, providing information to lay people and helping them share their experience of health and illness, training and educating healthcare professionals, helping people with chronic illnesses to engage in self-care and encouraging others to engage in activities to promote their health and wellbeing and to avoid illness" (Lupton 2018, 1). My definition differs from this because it only specifically relates to self-measurement practices in everyday private life that relate to preventive health.

ryday objects, regimes, conventions, and actors become relevant. The impact of the technology on actors or the evaluation of a successful implementation of such technologies fade into the background. In analytical terms, the concept thus aims precisely at the interactions between the framing of everyday actions in a health context and the way actors deal with them. The special feature is the flexibility and openness of this technology-based framing because of the characteristics of digitalization technologies.

Interestingly, some findings in the research field of self-measurement and quantified self-movements indicate that the results of measuring health practices and everyday practices are more trustworthy than one's own assessment of one's individual body condition (Wiedemann 2019, 11).

The reasons and justifications why people do self-measurement with health apps can be very different (Nafus 2016; Selke 2016; Lupton 2016). There are people, who want to receive bonuses by providing the measured data to their health insurance companies, so they follow a market-oriented attitude. Other actors, especially from the quantified self-scene, measure their own health out of curiosity and the will to transform their own body and health (Selke 2016; Lupton 2016). This group forms some of the few exceptions in which people sometimes develop their own measuring instruments and thus exert direct influence on the categories for measuring individual health. Nevertheless, the opinion often appears that numbers and measurements would provide a more accurate picture of one's own health and that one's own assessment can lead to self-deception more quickly. Apart from these groups, there are also many users of health apps who use them for preventive reasons or to optimize their physical and mental state (Lupton 2017, 1). Moreover, there is also a group of users of health apps, who are not aware of this usage. This happens because health apps are already preinstalled on many smartphones and automatically measure health data and forward them to the app operators, if they are not switched off or uninstalled.

For the majority of the applications of preventive health apps in everyday life, it is true that users are already confronted with finished health categories as measuring instruments, which users do not question. The resulting data, however, can only be relevant in other health-related contexts in the form in which it was measured. In the end, the meaning of health data and health knowledge in a political economy of health data is less dependent on individual assessment and medical expert knowledge, but depends more on new actors who develop and implement indicators for measuring health and the evaluation criteria for the data. Technology companies such as Amazon, Google, Facebook, Apple, or IBM are increasingly active in the field of health, developing health applications and thereby also introducing new standards and categories which determine what is measured and why (Sha-

ron 2018). The orientation towards the common good, which is discussed by different actors in connection with technology companies and datafication of health, is very diverse (Sharon 2018; Cappel and Kappler 2019). For some companies, the individual measurement and processing of personal health data is only a business model to gain profit. Others see it as part of a common good, which should support people in leading a good and healthy life. In this context, Tamar Sharon introduces a common good orientation in which vitality is a universal good (Sharon 2018, 5). This idea can be found at visionary companies in Silicon Valley or in the Quantified Self movement (Selke 2016). Other actors see the measurement of individual health as citizens' equal rights through a more balanced doctor-patient relationship and an associated empowerment of patients (Sharon 2018). With regard to the health care system, this latest development can also be understood as an attempt to mobilize citizens as market players in a health care market, which should inquire about competing health care offers (Batifoulier et al. 2011). Precisely because of the neoliberal health policy of the past decades, a market-oriented and industrial public welfare orientation in some European health systems has prevailed over a domestic common good orientation (Batifoulier et al. 2011; Da Silva 2018). In the context of *digital daily health*, it can be assumed that not only patient empowerment becomes a market resource, but in principle every facet and action of everyday life. As soon as it is possible to digitize an everyday action and assign it a health reference with specific categories, it will also be ready for a market. Therefore, ultimately, actors with their daily routine actions can become a source of information for a plurality of markets. A possible consequence of the introduction of this new form of *digital daily health* could be that individual and professional assessment of one's own health loses relevance and the process of generating categorizations gets more important.[7]

Another characteristic of the form of *digital daily health* is directly related to the specific process of creating the health measurement categories. It is about the standardization of health practices or everyday activities. During development and programming, very specific categories and evaluation standards are already implemented in the technology, which hardly allow any room for criticism in later use. A health app, counting steps, measuring heart rate, and recording sleep behavior, is not able to add panic attacks, worries about money, or bad living situations as health-related aspects. Apps, and especially their cognitive format of numbers, are therefore able to create equivalences between people through standardized and standard-

[7] For a further elaboration on the introduction of innovation in the health care market, see the work of Christian Livi (2019). In particular, he describes the valorization processes on the part of market actors during the introduction of new medical technologies and the role of the different actors in the coordination process in the medical system.

izing quantification processes and thus mobilize them as identical units (Levay 2020, 467). Also, they implement a dispositive of evaluation of digital health practices (Eymard-Duvernay 2012). On the one hand, this leads to a reduction in the complexity of health practices, since only a section of the living environment of the actors is measured and becomes relevant within the political economy of health (Nafus 2014; Levay 2020). On the other hand, it excludes other everyday practices, in particular taboos, which may be decisive for certain diseases and health practices. This opens up different levels of relevance for health practices. A distinction can be made between those practices relevant in practical and everyday life and those that are legitimized through the datafication processes or through measurements in the political economy of health and which thus can be legitimized much more easily in public health contexts.

1) The decisive point in this investment of form is the rigidity of the technology (software, datafication, and connectivity) itself and the measurement concepts defined therein. On the one hand, this means that smartphones simply set usage limits in terms of their materiality. On the other hand, the measurement categories, indicators, and evaluation standards introduced in the algorithms (health apps) decide which small section of a reality of life is to be depicted (Nafus 2014) and to be processed at a level of datafication. This introduces a relatively stable new pattern into actions, related to preventive health in everyday life. Then, health is no longer what the body indicates, depending on biological and individual living conditions, but only what can currently be measured and predicted.
2) This new form of *digital daily health* is emerging and gaining relevance for different reasons. A first reason lies in the specific constitution of the form, which affects its lifespan. The form is equipped with new technologies and objects like smartphones, apps, and wearables. It can be assumed that they have a relatively long lifespan because their physical presence makes it more difficult to ignore them compared to cognitive forms. In addition, a smartphone is a "multi-situational" object being embedded in countless situations of everyday life processes. Even if one specific application of an object is given up (e.g., by deleting an app from a personal smartphone), the object itself remains furthermore relevant in other situations. This underlines its importance as a stabilization mechanism. If actors want to assess their own health, they can also refer to their smartphone. Since the smartphone is a technical object that focuses on standardization and functionality, it particularly supports the industrial convention. Sensors then measure everyday routine activities standardized as part of a health concept. By translating daily actions into numbers through datafication processes, the actors connect with the

object and become a dyad as a stabilizing unit of a situation. Finally, the digital linkage of the measured health data creates another effect of stabilization.

The second reason for the increasing relevance of the form *digital daily health* lies in its specific mechanism of establishing validity.[8] It takes place in a very subtle and possibly characteristic way for datafication processes. The concept of the "statistical chain," invented by Desrosières and Thévenot, is suitable to explain this mechanism. It illustrates the division of labor in the generation and use of data as a process with several linked situations (Desrosières and Thévenot 1979). Looking at the quantification process of the new form of *digital daily health*, three related elements of the chain can be identified: (1) the development of measurement categories, (2) the data collection, and (3) data processing. The development of the measurement categories as well as the processing of the algorithms usually take place in a private sector environment and thus in a black box. Therefore, it is opaque (for the public) which conventions are a prerequisite for the generated health knowledge (Diaz-Bone 2018b). In particular, at the second chain element, this removes the basis for justification or criticism of the health categories introduced in daily measurement situations (Al-Amoudi and Latsis 2019, 119; Diaz-Bone, Horvath, and Cappel 2020). As a result, other assessment mechanisms for health and health practices come to the fore. On the one hand, health professionals no longer assess body conditions, but algorithms and things like smartphones and wearables programmed at a different time (Mayer-Schönberger and Cukier 2013, 16; Rich and Miah 2017, 5). Knowledge, then, is closely linked to the scope and lifespan of technology in contrast to a scope for action and interpretation in interaction with a person. Therefore, in general, when health is dataficated, the statistical chain reveals the existence of conventions with semantic content, as well as those without semantic content. Therefore, the difference between these two types of conventions should be emphasized here. Conventions with a semantic content are a resource for a more overarching and consistent way of thinking in coordination situations. They "have an inner potential to enforce a more coherent fitting with their social 'environment'" (Diaz-Bone 2016, 57) and form the basis for shared ways of interpretation, evaluation, and assessment. In contrast, conventions without semantic content miss this "coherent fitting" and can be understood as a socially established standard. Such conventions tend to be characterized by arbitrariness. That is why definitions cannot be justified with arguments, rather they simply decide, like the norm. An example for such an arbitrary decision is to drive a car on the right side of the street (as in continental Europe) or on the left side (as in

[8] This mechanism can possibly also be applied more generally to other digitization processes.

the UK; Diaz-Bone 2016, 54-61). In the case of datafied health, a typical example for a convention without semantic content is the counting of steps taken per day, as a health indicator. The number of steps contains no information content about health processes. It is not clear in which everyday situations steps are measured and which common good is at stake regarding health in general. Numbers can only develop their meaning in relation to a context and cannot be used automatically across all contexts. The evaluation scale of 10,000 steps per day[9] (Lupton 2019, 133-4) is merely a generalized evaluation scale that has to be reinterpreted depending on the situation. Nevertheless, the steps of countless people can create correlations between certain diseases and positive health conditions. In the end, the huge collection of data creates a health knowledge that is not based on causality (Mayer-Schönberger and Cukier 2013, 8). This makes correlations and probabilities more important and expertise in the field may become less important.

For the previous steps of production of knowledge, situational conventions (as well as their deliberation and negotiation), therefore, were particularly relevant for the evaluation and assessment of the situation. This means being able to justify and criticize the situation of knowledge production, according to certain principles. It is questionable whether an algorithm and especially health apps can carry out this process situationally. In other words, conventions without semantic content embedded in health apps and algorithms can limit the plurality of the common good orientation through their ready-made measurement categories and thus generate conflicts. Since such a convention without a semantic content is difficult to justify in public, a convention with a semantic content is used in the public health discourse as a pseudo-argument and a "proxy" for discussion. In this case then, medical studies are cited, in the sense of an industrial convention, to justify daily steps as a preventive health measure. The actual convention(s), which have been included in the development of the "step count" category, are then no longer part of the public discussion.

This results in a mechanism which initially appears contradictory because it also ensures stability and can integrate change. The statistical chain shows that conventions in datafication processes play a relevant role in determining the assessment and evaluation standards for health categories (Diaz-Bone 2016, 57). Due to the temporal and situational separation of the development of the categories and the measurement processes and the technological conditions, these conventions later become invisible. Thus, in a public discussion, they transform into conventions without semantic content. In terms of their lifespan and validity, such coordination should actually lose their relevance very easily and thus become unstable. The opposite is

[9] See https://www.10000steps.org.au/.

the case, however, because at another point in the statistical chain, the measurement processes and the further processing of the data enter into an *alliance* with conventions with a semantic content (Diaz-Bone 2018b). These alliances can be justified again in the sense of a common good. In the first place, there is an alliance with the industrial convention because in this convention, numbers form an elementary information format (Boltanski and Thévenot 2006; Diaz-Bone 2018b, 78). As a result, the connectivity to any measurement practice without semantic content of health practice is given. This allows one to measure and mobilize everyday practices very easily for health categories.

If one now considers the neoliberal developments in European health systems, as described by Batifoulier and Da Silva (Batifoulier et al. 2011; Da Silva 2018), it becomes clear why this form of *digital daily health* can stabilize relatively well. It happens through the close connection to the industrial and market convention. This already helps to shape a large part of the coordination in many areas of society. Surprisingly, it is precisely the transformation of the original convention(s; when the categories were introduced) into a convention with no semantic content that afterwards increases the stability and validity, instead of reducing it, because it allows an actor to react well and to adapt to external change processes easily. For example, if breaths are measured instead of steps per day, the measurement category changes, but the information format of the numbers remains and can continue to be based on the industrial convention. The actual reason why the measurement category is changed remains in the first part of the statistical chain before the situation of measurement. Therefore, it cannot be negotiated in the public. Then it is only negotiated as a standard, which cannot reasonably be criticized or justified against the background of a common good. But there is a second problem in addition to the missing opportunity to criticize the first implemented convention. To clarify this point, I would like to introduce the concept of the *alliance convention*. It is a special kind of a convention that is actually only used to stabilize and legitimize a convention without semantic content, something like a standard. The alliance convention is a convention with semantic content closely linked to the convention without semantic content. If this connection is plausible, the semantic content can be used to justify arbitrarily defined standards. Criticism or justification then takes place in the logic of the alliance convention instead of the convention that was structuring in the first step of the statistical chain. This way, a criticism and justification can only be made via the alliance convention.

As a third reason for the relevance of the new form *digital daily health*, I point to the equipment of the form. The form is characterized by the fact that it has (1) a material equipment and (2) a non-material equipment. The material equipment refers to physically present things and technologies on

which the form can be based. The non-physical equipment refers to a specific mindset, for a conventional, scientific, and legal logic of coordination.

1) The material equipment consists of mobile devices, such as smartphones and tablets with their respective accessories, as well as sensors and wearables. Actors usually carry these devices with them in all life situations and actively bring them into their daily lives. In addition, however, local computers and network infrastructures are material equipment that makes it possible to use and process the data. Due to the software, as the programmed health apps and their embedding and digitization technologies, the form has a technological equipment. The software and sensors make it possible to convert health practices and also simple everyday practices into bits and bytes and thus into something digital. Therefore, the form becomes empirically relevant, on the one hand, via health apps or lifestyle apps and, on the other hand, via smartphones and wearables, which serve as measuring instruments with their sensors. As further technology algorithms are integrated into the apps, which form frequencies, average values, or indices based on individual everyday practices. In any case, they translate practices into the language of numbers, making them accessible to most digital technologies from all areas of life (Nafus 2014). By connecting to digitization and datafication, other technologies such as artificial intelligence and the "Internet of Things" (IoT) are becoming increasingly part of this form. The datafication and digitization of practices then means that people can be measured at anytime and anywhere and thus generating medical data, which can be further processed, stored, shared, and networked (Wieser 2019, 431). These technologies are very closely linked to certain conventions, such as the industrial convention. But even consisting cables, sensors, power, batteries, and circuit boards of the technology stabilize the form. In combination with conventions, the form is then further stabilized. Conversely, conventions are then also stabilized by linked objects.
2) An important non-material equipment of the form is the inspired convention, since the form of *digital daily health* is primarily a vision (Lupton 2016). The quantification of health is often seen as a basis for innovation in the health field. There is the hope to discover new diseases and treatment methods or to have a new influence on preventive health care (Lupton 2019). If this inspired convention can manifest itself, developments of health measurement are promoted further and it is easier to mobilize resources and ensure political backing for that. This vision of a wish-fulfilling medicine and the datafication of health also give research and innovation efforts a direction in which they can be developed (Wieser 2019, 433). Furthermore, the form is

also equipped with legal and scientific elements. At the level of the political economy of health, and thus particularly in the health field, legal regulations for measuring health play an important role. On the one hand, preventive health apps from the lifestyle sector cannot be used in the first health market as long as they are not certified as a medical device. This process is subject to strict requirements in which health apps must meet defined standards of medical devices. In addition, there are data protection regulations adjusting the handling of health data and protecting privacy as well as the law for better care through digitization and innovation.[10] This law should make it possible to prescribe app development in regard to how to use video consultation hours easily and how to be able to access the secure data network in healthcare everywhere during treatments. Such laws also act as legal equipment at the level of the introduction of digital patient files in the European health systems and ultimately also at the quantification of one's own health. In addition, these laws regulate details of the technical equipment of the form, if they define certain standards, that are intended to ensure interoperability between the technologies used. The form is scientifically equipped because it uses typical scientific methods such as measurements, graphics, and mathematical calculations as a basis for the quantification processes of health. In addition, scientific studies also form part of the basis for determining measurement indicators and assessment criteria.

In sum, it can be said that the vision of, and hopes in, digitally measurable health are introducing a new form. With the concept of a statistical chain, it could be shown that due to the temporal and spatial separation of the quantification processes, the measurement processes and processing processes, a shift to several dimensions occurs. On a power dimension, professions such as health professionals but also individuals lose their ability to interpret and evaluate. Due to the invisible introduction of the measurement categories and the transformation of the original plurality of conventions into conventions without a semantic content, criticism or justification of the measured health parameters is no longer possible. Through the "proxy discussions" about an allied convention with semantic content, this influential space remains largely invisible. This gives players in the technology sector, and especially developers, more power and makes them important investors in this investment in form. This also involves new forms of knowledge generation that are increasingly based on correlations, predictions, and probabilities rather than on causal explanations and empirical

[10] For example in Germany, see: https://www.bundesgesundheitsministerium.de/digitale-versorgunggesetz.html.

knowledge. Furthermore, the equipment of the form shows that it can establish itself in a political economy of health, especially in situations that are already pre-structured by an industrial and market convention. The research by Batifoulier and Da Silva already impressively shows these existing structures in the health system (Batifoulier et al. 2011; Da Silva 2018). The notion of the statistical chain also makes evident that the introduction of categories and the subsequent measurement take place in very different situations, which can differ greatly in their type of generality and privacy. Problems and successes associated with the quantification of health are then closely linked to this point. The health data is largely generated in everyday situations, which can take place both in a private and in a public setting. The next step will therefore be to go into more detail about how actors deal with their everyday reality and how they handle the newly introduced form of *digital daily health*.

4. Digital Daily Health in Private and Public Situations

In recent years, it can be observed that the measurement of everyday practices for obtaining health data has become more important on an individual level. This development manifests itself primarily in preventive actions, when people measure everyday practices, such as their eating, sporting, and sleeping behavior. The data is used as a guide to ensure future health. Whether the introduced form of *digital daily health* structures and influences a situation depends on how exactly the health measurements are embedded in the pragmatic structuring of individual lifestyle. This is also related to how actors react to the fact that they can be categorized and evaluated through quantification processes in the field of health. As Desrosières has described with the concept of retroaction, actors can also oppose this approach and make gradations between the relevance of regimes and conventions (Desrosières 2015). To systematically differentiate between different levels of relevance, I would like to differentiate between three scenarios of health measurement action.

1) In the first scenario, *unconscious public self-measurement.* Everyday health data is measured with a smartphone and passed on to third parties without individuals' awareness. The data becomes part of the political economy of health and it also becomes connectable to all forms of digital processing. In this scenario, actors often use health apps to playfully learn about their bodies and themselves and to control personal goals in sport and in everyday life (regime of exploration). If they are concerned with their own health, they are doing so in a personal, trusting relationship, as these are sensitive and personal actions and routines (Lupton 2017, 1; regime of familiarity). At the same time,

however, they also adopt a researching and planning attitude when they enjoy new body knowledge and use it to change their everyday actions (regime of planned action). This way, they actively move alternately in the regimes of familiarity, exploration, and planning. However, if you use public, preventive health apps, which, by providing their services, also claim the rights to further process the health data collected, you are also moving passively in a public space. This public space actually requires coordination that takes place against the background of a common good, that should be justified as well as criticized. However, in this case, for the involved actors, their involvement in the statistical chain is not apparent. Therefore, the upstream and downstream steps of the chain are beyond the assessment and evaluation options of the actors, although they can affect how they deal with their own health and individual lifestyle. The further processing of health data allows companies to form categories within the framework of legal regulations and by means of which actors can be sorted. They can be excluded from certain services and privileges or even be preferred for them (Fourcade and Healy 2017a, 2017b, 2017c). In particular, the resale of health data to credit companies, life insurance companies, marketing companies, and pharmaceutical companies should be considered. The categorizations can have an effect on the persons who actively measure health data, but also on people who have just similar characteristics like this group. In this scenario, it can be assumed that the newly introduced form of *digital daily health* has a high validity and scope. On the one hand, all relevant features of the form are relevant in the private situation, although the actor himself relates to his environment in a familiar, explorative, and planning manner. However, he uses the smartphone, devices, technologies, and health apps, and also relies on an inspired convention, when doing research on his own health practices. At the same time, the legal and scientific elements of the health apps stabilize coordination, if they stipulate in a standardized and permanent manner, how exactly what is measured, how results are presented in the app, and how the data is processed further. In this scenario, everyday activities can be well mobilized as health activities and become influential in an economy of health.

2) In the second scenario, *conscious public self-measurement*, actors consciously collect health data in order to share it with a particular institution for different motivational reasons. These institutions can be health insurance companies that guarantee premiums for the data,[11] sharing platforms such as “patientslikeme” that collect health data

[11] See: https://www.sanahealth.ch/.

from rare diseases in order to share them with other people affected,[12] or health care providers such as gene databases that analyze the data.[13] In this scenario too, the actors relate to their environment and things in different ways. In a familiar everyday life, they use their personal smartphones to record very private routine activities, such as sleeping behavior, eating habits, or everyday movement patterns. They combine this individual, familiar level with planning action when they pass on their data to a health insurance company to receive a reward from it. As long as the data is only used for a reward and not for a punishment, the actor is also able to remain in the regime of the familiar and in the regime of the plan. However, if health measurements become an obligation because, for example, health insurance contributions could otherwise be adjusted, a new situation opens up that makes it necessary to justify or criticize this procedure. This also relates to the assumptions and hypotheses of the health insurance companies and their partner companies, which they use in the categorization process. For example, lifestyle is given a central position as an influencing factor on health and thus actively tries to intervene in the way of life.[14]

The situation is similar when measuring genetic data. Such gene tests offer actors an exciting way to find out more about themselves or their own families. In the regime of exploration, actors see the provision of saliva samples, and the networking of this data with other databases, as a good opportunity to generate personal knowledge. By ordering parentage and health analyses in companies such as "23andme" or "ancestry," the actors explicitly consent to their genetic data being resold to third parties and being used for future analysis procedures that do not yet exist. Your genetic data can then be stored and used for various research purposes. At this point, there is a transition from a private regime of exploration to a public situation, which requires coordination and is open for discussion with a view to the common good. This becomes particularly clear when you look at just a few developments in this field. Therefore, the origin analyses are based on comparisons, whereby it is not the ancestors that serve as a comparison, but the

[12] See: https://www.patientslikeme.com/.

[13] See: https://www.23andme.com/en-int/;https://www.ancestry.com/; https://www.myheritage.com/.

[14] These results also come from an interview with app developers in the context of the research project "Digital health classifications in apps. Practices and problems of their development and of their situational application." It is a new research project (2019-2022) applying convention theory, funded by the Swiss National Science Foundation (SNSF), and located at the University of Lucerne. For further information, see here: https://www.unilu.ch/fakultaeten/ksf/institute/soziologisches-seminar/forschung/digitale-gesundheitsklassifikationen-in-apps-praktiken-und-probleme-ihrer-entwicklung-und-situativen-anwendung/.

people from the database who live somewhere today. Then, percentages of the regions in which the own genome occurs are given, for example, 30% Germany, 30% Poland, 30% England. The databases then use the genetic data for a wide variety of purposes, both for medical studies and for sometimes questionable collaborations with third parties. However, for the actors, there is little room to criticize the procedure later. Questionable collaborations, like the one with Airbnb or Spotify, show the need for a discussion in relation to a common good. Spotify uses the gene data to offer the music database customers music offerings based on their origin and Airbnb offers accommodations in places where actors want to do genealogy. With the help of these examples, a problem becomes clear. The purposes and methods of evaluating the data remain unclear, and therefore there is no public discourse in which all the actors involved can participate. As in the first scenario, it can also be assumed here that the new form of *digital daily health* can stabilize coordination in the sense of digital health, and thereby determine certain values. The situational use of smartphones and technologies, such as health apps or analysis kits for genetic analysis, standardize measurement practices and make them easily transferable to similar situations for users, thanks to their ability to be generalized. In this way, the shape can be stabilized in its scope and validity. Legal and scientific standards also limit and control the use of health apps and the processing of health data. This is particularly important when users are confronted with the data protection guidelines and their approval or rejection. At this point, the new form may ultimately be rejected if users disagree with the legal and scientific standards and ultimately decide against the measurement of personal health data. Nevertheless, people can be affected both positively and negatively by the new form indirectly. The reason for this is the comprehensive, aggregated health data, which on the one hand allows conclusions and interventions on entire target groups. On the other hand, the private, selective data aggregation also means that only data from certain groups (young, wealthy, Europeans) serve as the basis for the further development of therapies, medicines, and services and thus exclude other groups.

3) In the third scenario, *private self-measurement,* actors collect individual health data, but do not share it with third parties and only use it privately. To do this, they use self-programmed health apps or other software to store and use their personal data on local data carriers. These are actors who want to find out about their own behavior and health in a playful way (Wiedemann 2019, 10). These actors also have not yet been able to find a suitable app for their own concerns. Then, they might program an individual health app and use it only for pri-

vate purposes.[15] Here it becomes clear that the situation does not coincide with the equipment of the newly introduced form of *digital daily health*. Consequently, there are no legal standards and no standardized measurement categories. This means the health apps or other applications, which actors develop in this context, cannot be generalized and are not available to a large number of users. For example, self-developed diabetes apps cannot be made available by law to other users as a medical product. The industrial convention, which supports the validity of the new form, also becomes secondary in this private regime of exploration. Actors measure their health here in different ways, suspend the measurements, or pay attention to an individual body feeling (Duttweiler et al. 2016). In addition, scientific and medical standards also play a subordinate role for some of these actors, since they try out experiments individually with a number of cases n = 1, instead of relying on the findings of health professionals or comparative values of other people (Tensfeld 2016, 33; Sharon 2017, 108-9). The situation in which actors then collect health data remains structured through individual, familiar, experimental, or planning action. Tensions are not to be expected in this scenario because actors act privately and are not subjected to either the obligation to justify or to the need to criticize the handling and processing of their health data.

The first two scenarios differ from the third one insofar as they are on the threshold of a switch between the private regime and a public regime.[16] The third scenario, however, can be completely assigned to a private regime. I assume that the three scenarios differ in their susceptibility to conflict and tension. The first scenario is characterized by an unaware change of regime from a private to a public regime. The inconsistencies of the statistical chain then remain meaningless on the part of the users, as long as they do not have a direct negative effect on them. When there are critical discussions about moral values in dealing with health data, this usually happens in a public, political, or media discourse that only plays a subordinate role in everyday practical life. In this public discourse, as described in section 3, proxy discussions are often held that relate to an alliance convention instead of the important process of categorization. In this scenario, tensions and conflicts that affect health coordination in everyday private life are only conceivable if the stakeholders are directly affected. This is conceivable, for example, if data theft and misuse of your own data leads to concrete negative sanctions. In the second scenario, however, it can be assumed that

[15] See: https://quantifiedself.com/blog/interview-mad-ball-of-open-humans/.

[16] I make an analytical distinction between private and public regimes. Private regimes are the three regimes introduced by Thévenot (familiarity, exploration, and plan; 2011a, 2011b, 2014). The public regime is the regime of justification, introduced by Boltanski and Thévenot (2006).

continuous and successful coordination of all participants in the statistical chain is very susceptible to failure. Inconsistencies in the statistical chain can quickly lead to the resolution of the measurement processes at the user level. Through the conscious transition from a private regime to a public regime, users of the health app actively participate in the coordination of the production and use of health data by taking a critical or justifying attitude against or with the background of a common good. In the third scenario, the susceptibility to conflict is very low because the statistical chain associated with the newly introduced form of *digital daily health* is interrupted from the beginning. The categorization as well as the measurement and further processing of the data takes place exclusively in a private regime. The conflict-creating networking of data with an economy of health does not occur in this scenario. The following table provides an overview of the newly introduced form of *digital daily health* and the associated levels of conflict in private health care.

Table 1 Digital daily health and conflict dimensions

Scenarios	Relation common good	Change of regime private to public	Relevant elements for regime change	Relevant elements for coordination stability	Relevance of the form digital, daily health	Potential of conflict
Unconscious public self-measurement	Yes	Unaware	Smartphone, health-apps, industrial convention, convention without semantic content	Smartphone, health-apps; juristically and scientific standards	High	Low
Conscious public self-measurement	Yes	Conscious	Smartphone, juristically orders (user agreements)	Smartphone, health-apps; convention of inspiration, regime of exploration	High	High
Private self-measurement	No	None	None	Smartphone and further technologies; regime of exploration, familiarity, and plan, lack of data networking	None	None

Source: Own Illustration.

5. Conclusion: Consequences of Digital Health in Everyday Life and in an Economy of Health

The current datafication and digitization processes in everyday private life mobilize a positive notion of controllable health. This notion leads quite incidentally to the establishment of a new form: the *digital daily health*. The new form is characterized by a spatial, temporal, and argumentative fragmentation of the statistical chain. This fragmentation leads to a change in evaluation and coordination processes regarding health and health practices. Paradoxically, smartphones, health apps, conventions without a semantic content, and alliance conventions are used to stabilize this inconsistent statistical chain and thus to create successful coordination. The new form of *digital daily health* will spread and, with its increasing relevance and validity, health coordination processes can be stabilized in certain cases in the long term. This development is associated with three profound consequences that are related to individual health care and health treatments, as well as to general knowledge and action about health.

The first consequence concerns the process of generating and valuating knowledge regarding health and health practices. The datafication processes of everyday practices via health apps make the everyday practices valuable as new health practices and processes in an economy of health. This means previous settings in the understanding of value will shift when measured numbers become more important as a basis for assessment than individual self-assessment or medical expertise. The result is that fewer health professionals define which values are relevant in health care than developers of health apps and large technology companies. As a result, other mechanisms for generating health knowledge come to the fore and ideas about which processes are to be regarded as valuable. On the one hand, the new large amounts of data are characterized by greater blurring than previous scientific health data, but provide a more comprehensive picture from different areas of life. This requires less general specialist knowledge in a specific area and more generalized health knowledge. In this understanding, correlations may become more important than causalities. This is particularly critical for dealing with health because the evaluation and assessment of correct and incorrect health behavior then no longer takes place in front of the background of a common good, but in front of a technological black box. On the other hand, probabilities and future forecasts become more relevant when dealing with large amounts of health data. Here too, a coordination process based on a common good is suspended and people are assessed on the basis of calculated probabilities instead. This is particularly

problematic when people are no longer judged on the basis of their actual behavior but on the basis of the calculated probabilities. With regard to the introduced form of *digital daily health*, it was shown that the aware and unconscious transfer of health data means that this development can be expected. For the handling and the development of health knowledge, less individual physical complaints are relevant, rather than introduced measurement categories that are not publicly discussed.

The second consequence of this development is the involvement of more and more aspects of social life in the generation of health knowledge and health practices in general. As a consequence, daily practices (like steps), objects (like smartphones), or processes (like the linkage of different lifestyle data) get constitutive in the generation process of health knowledge and health behavior. Therefore, the main reason is the mechanism of linkage of data. This practically allows the linking of every kind of data through datafication processes in a society arbitrarily. In this way, objects and behaviors that were previously not associated with health can serve as a source of new health information (e.g., the location of a person, daily steps taken, the weather, working hours, travel activities, or willingness to take risks). The networking linkage of such information also allows the calculation of further correlations, which may show health connections, but cannot explain them. Conversely, health data can of course also gain relevance in other social fields in this way. If the established form of *digital daily health* can continue to establish itself, I assume that the characteristics of networking make social aspects of life more important for dealing with and evaluating health than biological factors. Networking also enables new players, such as large technology companies, to become active in the health field and use their measurement categories to actively intervene in the generation and processing of health knowledge. It is particularly critical to note that these processes generally take place in a private sector but still have an impact on the construction of general values, and thus also on the political control, of health interventions. Networking is therefore a key element for the reach and mobilization of digital health.

The third consequence of this development is closely related to the relevance of networking. The possibility of linking different areas of life via data-processing processes means that these areas are also able to mobilize the health category for very different reasons. For the individual, this means that he or she becomes a projection screen for various health mobilization processes. This means that it is no longer possible to speak of an individual health status, but rather of an individual pluralist health status that can vary completely in terms of space and time. It is conceivable that in the future, employers, landlords, insurance companies, credit institutions, marketing companies, partnership exchanges, leisure industries, pharmaceutical companies, animal brokers, political decision-makers, and other institu-

tions and actors will be interested in or actively generate health data. For the individual, this can also mean that he or she is "healthy" in one of these areas, but is classified as "sick" in another. In a political economy of health, forms of surveillance capitalism (Zuboff 2019) or even new forms of digital capitalism then can gain relevance and determine the legitimated value of health information and health practices. In digital capitalism in particular, forms of value generation and value creation become blurred. Therefore, certain health actions or everyday routines of actors can be made valuable or even devalued. This would be linked to the introduction and implementation of certain values against the background of an exploitative market logic. With the concept of the regimes, however, it was systematically shown that individual health actions cannot be mobilized unconditionally and that this attempt can fail very well. The decisive factor for the mobilization is the change from a private to a public regime in which different mechanisms no longer give room for criticism and justification in relation to a common good.

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