Please quote as: Mrass, V.; Peters, C. & Leimeister, J. M. (2020): Crowdworking Platforms in Germany: Business Insights from a Study & Implications for Society. In: 82. Jahrestagung des Verbands der Hochschullehrer für Betriebswirtschaft (VHB). Frankfurt am Main, Germany.

Paper VHB-Jahrestagung 2020 | "Digitale Transformation"

(accepted for short ***presentation*** in the WI2-Session on March 18th, 2020, in Frankfurt)

Crowdworking Platforms in Germany: Business Insights from a Study & Implications for Society

Abstract (up to 300 words)

The competitiveness of organizations and whole economies depends on how successfully they are able to cope with the digital transformation and new technological trends. In the area of digital work, crowdworking platforms emerged as intermediaries that support a new form of service delivery and work organization. Despite their increasing importance, there is only few data about key characteristics of such platforms such as number of employees or revenues. Furthermore, extant data often focusses only on a few platforms, mostly from the US. Based on results from a study about the 32 crowdworking platforms that have their headquarters or a physical location in Germany, we provide data that for the first time allows to draw conclusions for the "total population" of crowdworking platforms in a defined larger region (Germany as Europe's largest and the world fourth largest economy). These results are valuable for various stakeholders from economy and politics, allowing them to make economic or political decisions on a more informed basis. Furthermore, we develop an evaluation framework that depicts the implications for these groups along the dimensions costs, flexibility, "humanity", quality, and time: Crowdworking platforms on the one hand provide several opportunities: Individuals gain more flexibility, groups can benefit from additional contributors, organizations have the potential to process work faster and cheaper. On the other hand, this novel form of work organization also includes potential threats for all groups: Low payments and 'tayloristic' work, insufficient quality or irritation of internal employees. Based on 12 interviews with company representatives and crowdworkers, we evaluate implications of this novel form of work organization for society. (262 words)

Keywords (4 to 6)
Crowdworking Platforms, Digitization of Work, Digital Transformation, Society, Study.

1 Introduction

The Digital Transformation is currently changing the way how work is processed. Digital technologies are important drivers of this transformation of the working world, as well as of productivity and growth (Brynjolfsson & McAfee, 2011). A large number of innovative new business models in recent years are based on the platform principle, often referred to as “platform economy” (Schmidt, 2016). One novel area in this realm that moved into the focus of research is that of crowdsourcing. Within the realm of crowdsourcing, one novel type of such platforms is that of crowdworking platforms: Internet-based platforms, where *paid* work is advertised through an open call to a number of potential contributors; these platforms act as intermediaries in the process of handling, coordinating and controlling the execution of this work. Especially for economies that historically have a strong industrial basis – such as Germany as the largest economy in Europe and the fourth largest economy in the world - it is important to adapt to this development in time to avoid losing further ground to leading countries in the platform area such as the US. Assuming that new business models based on technological developments cannot be "prevented" in the long run - "what can be digitized will be digitized" (Kollmann & Schmidt, 2016, p. 70), a first important step towards a better understanding of such platforms is the ‘measuring’ of the current ‘landscape’ of crowdworking platforms. The number of companies that use such crowdworking platforms is growing, as well as the degree of complexity (Mrass, Peters, & Leimeister, 2018a, Mrass, Peters, & Leimeister, 2018b) and type of work that can be processed via them. Since this development involves long-term challenges for society and economy - not least because our current social systems are linked to the 'classic' employment relationship - it is important to develop concepts to cope with it at an early stage. A prerequisite for this is an overview of the current state of crowdworking platforms, which is the goal of our research contribution.

Crowdsourcing platforms play a central role in this realm. As intermediaries, they supervise, operate or control the execution of activities that are advertised by crowdsourcers (mostly companies) and processed by crowdsourcees (mostly individuals). As far as paid work is concerned, we are using for these platforms the term “crowdworking platforms” and for the crowdsourcees the term “crowdworkers”. Currently, there is only few data on such crowdworking platforms. Research to date focusses mainly on a few platforms, mostly from the US. Furthermore, there is a lack of aggregated and representative data about characteristics of crowdworking platforms such as the total amount of revenues generated via such platforms in a country or the total number of crowdworkers. In this paper, we will present an overview over data of crowdworking platforms with headquarters or (at least) a physical location in Germany and thereby to the best of our knowledge for the first time an overview that allows inferences for a larger, clearly defined region (Germany). On the basis of a study with these 32 crowdworking platforms (as those who have the best overview in this realm), we gained institutional company data as well as central market characteristics such as number of crowdworkers, number of internal employees, total turnover of the market, level of fees, turnover development, growth, future assessments, and more. We got answers from 21 of the 32 (and thus about two-thirds) of all crowdworking platforms in Germany. This is a comparatively high response rate for a survey of this kind. In addition, the feedback was distributed fairly even over all types of such platforms, which allows to draw conclusions about the overall ‘population’ of the crowdworking platforms in Germany.

Taking this study and the insights gained from it as a basis and drawing on 12 in-depth interviews with both representatives from companies who have crowdsourced work and with crowdworkers who have processed such work, we investigated the implications of this novel form of work organization for several stakeholders and their perspectives (individuals, groups, organizations and and society as a whole).

Our research questions for this endeavor is:

RQ: What is the current status of the 'landscape' of crowdworking platforms in Germany, which data can be found that best characterizes this platform landscape and what implications does this novel form of work organization have for a society?

2 Method

According to Yin (Yin, 2014), research methods can be used for exploratory, descriptive or explanatory purposes. Our research with regard to the 'landscape' of crowdworking platforms in Germany and the implications of crowdworking for society has an explorative approach to gain data that can provide both a basis for economic and political decisions and stimuli for future research.

Obtaining the desired data about crowdworking platforms in Germany proved to be very difficult. Inquiries at institutions such as the Federal German Statistical Agency "Statistisches Bundesamt (Destatis)", the check of literature and scientific publications, discussions with experts and intensive Internet research showed that there is hardly any consolidated data on crowdworking platforms in Germany. This may be due to the fact that this is a relatively new phenomenon. Furthermore, these platforms are quite heterogeneous, use different names, and it is not always clear which kind of platforms are included when talking about crowdworking. Since crowdworking platforms have mostly still start-up character, there is also a relatively high fluctuation due to changes in the business model, mergers, business relocations or insolvencies. On top of this, these companies often do not have to fulfill reporting requirements due to their small size that does not require the publication of business data. Accordingly, the willingness to disclose such data on a voluntary basis is rather low.

Against this backdrop, we had to find a procedure that nevertheless allowed us to collect data on the overall market of the crowdworking platforms with their headquarters or a physical location (we used this a distinguishing selection criteria) in Germany and to make an estimation as valid as possible. For this purpose, we developed a questionnaire that took an indirect approach regarding some sensitive data such as revenues. For example, we did not ask for the exact revenue number for a crowdworking platform company in the survey (crowdworking platforms would usually not disclose it), but for the percentage of the revenue change compared to the previous year. Therefore, in an aggregated form, it has been at least possible to determine how the revenue of the platforms developed on average. At the same time, we asked for the estimated cumulated revenue number for *all* crowdworking platforms with their headquarters or a physical location in Germany. Even though we did not get the exact numbers, this approach allowed us to get as close as possible to them since we asked those who are the most knowledgeable about this market: the crowdworking platform providers. We used a similar approach to determine the number of crowdworkers in Germany: On the one hand, the platform providers have been asked for the number of crowdworkers on their platform. At the same time, they have been

also asked about their estimation for the total number of all crowdworkers in Germany and the average percentage of the crowdworkers registered on all platforms who are actually active. Before we could send out the questionnaire to the crowdworking platforms, we had first of all to investigate which crowdworking platforms with headquarters or at least a physical location in Germany exist. This boundary setting has been necessary since a large number of such platforms exist worldwide and a survey of all these platforms would be unrealistic. We purposefully chose a boundary character from the 'physical' world (headquarters or at least a physical location in a country) since many of those electronic platforms can be accessed from all over the world, which would make a boundary setting according to other criteria difficult.

In contrast to existing studies (e.g. that of the World Bank, see Kuek, Paradi-Guilford, Fayomi, Imaizumi, & Ipeirotis, 2015, for example, p. 18), which build their figures on the study of individual platforms as well as on projections and estimates on that basis, we chose a more comprehensive approach for this overview. In order to identify the crowdworking platforms with headquarters or a physical location in Germany, we used the following main sources: Lists of known crowdworking platforms at our chair, talks with experts from trade unions and academia, intensive searches via search engines on the Internet, and a list we received from a platform operator with European crowdsourcing platforms (that we subsequently checked for the ones with headquarters or at least a physical location in Germany). On the basis of these sources, we checked possibly relevant platforms in a first step to determine whether the respective crowdworking platform fulfils the *criteria* for an inclusion in this list (and thus belongs to the target group for our survey):

- The characteristics of crowdsourcing (e.g., open call, multiplicity of potential workers, voluntary service delivery, self-selection) are met (see also Blohm, Leimeister, & Krcmar, 2013)
- The respective platform manages *paid* activities (and can be therefore classified as a crowdworking platform)
- The respective crowdworking platform is based or has at least a (physical) location in Germany
- The platform is active (shows 'traffic' on it) and does not only exist "on the paper".

After examining all identified platforms from the mentioned sources above, 42 potential crowdworking platforms remained, which seemed to fulfill these criteria "prima facie". During the further processing (see the following comments), however, some platforms had to be removed in the course of the findings gained for the following reasons:

- When contacting a platform, the managing director stated that the platform was no longer active and is in the process of liquidation (or there was information about the bankruptcy of this platform from industry publications)
- When contacting a platform, it became transparent that, contrary to the first impression or information obtained from other sources or their website, it did not have a physical location in Germany
- When contacting a platform (provider), it has not been reachable by e-mail or by telephone, even during several days and at different times; in addition, a deeper examination of its websites showed that most recent blog entries of the platform have been older than 3 years (and thus also indicate inactivity of that respective platform).

The fact that some crowdworking platforms had to 'give up' and stopped to work is a process that is not unusual for start-up-like companies. Basically, "only" parts of start-

ups usually "survive" a period of more than 10 years. Finally, we identified a total of 32 crowdworking platforms in Germany which met the criteria mentioned above. We developed a questionnaire that we discussed with crowdsourcing experts before sending it to the crowdworking platforms. The distribution of the questionnaire was done via e-mail using a personalized cover letter to the respective management of the platform operator in order to facilitate a subsequent follow-up and to increase the likelihood to receive a response. The data and names of the CEOs/managing directors of the respective platform were taken from the legal information page of the respective website (if not already known).

After only about one third of the crowdworking platforms in Germany had answered until the desired feedback date, we contacted all other platforms via telephone and/or e-mail. In two cases, the English translation of the cover letter and the questionnaire was provided in addition since the platform provider had a physical location in Germany, but the responsible person authorized to answer our questionnaire lived abroad. Finally, a total of 21 of the 32 crowdworking platforms (and thus about two thirds) responded to the survey and returned the filled questionnaire (a comparatively high rate for a survey of this kind). The fact that these crowdworking platforms are distributed in a balanced way among several criteria such as

- different types of crowdworking services provided (content, design, innovation, marketplace, microtask, testing and sales) (and the feedbacks are uniformly distributed among them (feedback always ≥ 50% per type))
- size in relation to the number of crowds, platform employees or the number of orders executed
- “age” (from crowdworking platform “pioneers", founded a few years ago, to a platform launched in Germany only in January 2017)
- "German" platforms as well as "foreign" platforms (but the latter also having a (physical) location in Germany)

suggests that these 21 platforms allow to draw conclusions about the “total population” of the 32 crowdworking platforms with headquarters or at least a physical location in Germany. The following figure 1 shows the number of 21 feedbacks along the types of the crowdworking platforms (per category) in relation to the total number of platforms of this type with headquarters or physical location in Germany:

- Total number of identified crowdworking platforms: 32
- Number of platforms participating in the study: 21
- Percentage of feedback: 65.63% (about two-thirds)

Table 1. Distribution of feedback along crowdworking (CW) platform types

Type of the CW platform	**Total number**	**Number of responses**
Content/text creation	5	3
Design	4	2
Innovation	4	2
Market place	2	2
Microtask	3	2
Testing	7	5
Customer service/market research/sales	7	5
Total number	**32**	**21**

Regarding the investigation of the implications of crowdworking for the different stakeholder groups, we conducted 12 in depth-interviews between August 8th, 2018, and October 15th, 2019, with both representatives from companies who have crowdsourced work and with crowdworkers that have processed such work. We have also discussed the implications of this novel form of work organization during a project funded by the German government with sociologists and union representatives.

3 Results

In this section, we first present the results of the study. For the classification and commenting of these results, we also use insights and knowledge we had previously gained from additional qualitative interviews with crowdworking platform providers that we had conducted with our research in this areaindependently from this study.

3.1 Age of Platform/Year of Founding

The average age of the surveyed crowdworking platform companies is

6.86 years

ranging from the ‘birth’ year 1997 to 2016 (n = 21). [The former, however, represents an absolute "runaway", the year with the most platform foundations is 2011]. On some platforms, a merger or renaming took place. We took into account the start-up year of the current company if the company previously had a business model that would not qualify the platform as a crowdworking platform. Crowdworking platforms in Germany - even if they have already found their business model - can therefore generally still be regarded as companies with a "start-up character" respectively "culture".

3.2 Number of External Crowdworkers

The *average* number of crowdworkers on these platforms which are *from Germany* is

93.909 people

The spread of the numbers the platforms communicated has been large, ranging from 1,000 to 500,000 crowdworkers (n = 19). The median is 37,000 crowdworkers, the mode 50,000 crowdworkers. We asked both for the number of crowdworkers from Germany as well as for those from around the world (since a registration for a crowdworking platform with headquarters or a physical location in Germany is usually also technically possible from other countries). However, since a fairly large number of platforms consulted provided only the number of crowdworkers from Germany (probably because these platforms are focused mostly on Germany), we did not include the average worldwide number of crowdworkers of these platforms due to its limited validity. It should also be noted that this is the number of *registered* crowdworkers. This is not equal to the number of actually *active* crowdworkers on the respective platform (see further below). In addition to that, some platforms provided exact, others rounded numbers.

3.3 Number of Internal Employees

The *average* number of *internal* employees of the crowdworking platforms surveyed is

23.21 people

(in full-time equivalents, i.e., for part-time employees conversion to full-time equivalents) (n=19). The median is 21 employees, the mode is 25. For similar reasons as for the external crowdworkers mentioned in the section above - and in accordance with the geographic focus of our research - only the internal employees who are located in Germany were listed. This was also due to the fact that the majority of the platforms which are based in Germany also employ internal staff exclusively in Germany (even if the external crowds are partly from abroad). All in all, it can be said that most crowdworking platforms can be classified as small and medium-sized enterprises ("SMEs") in relation to the number of their *own* internal employees.

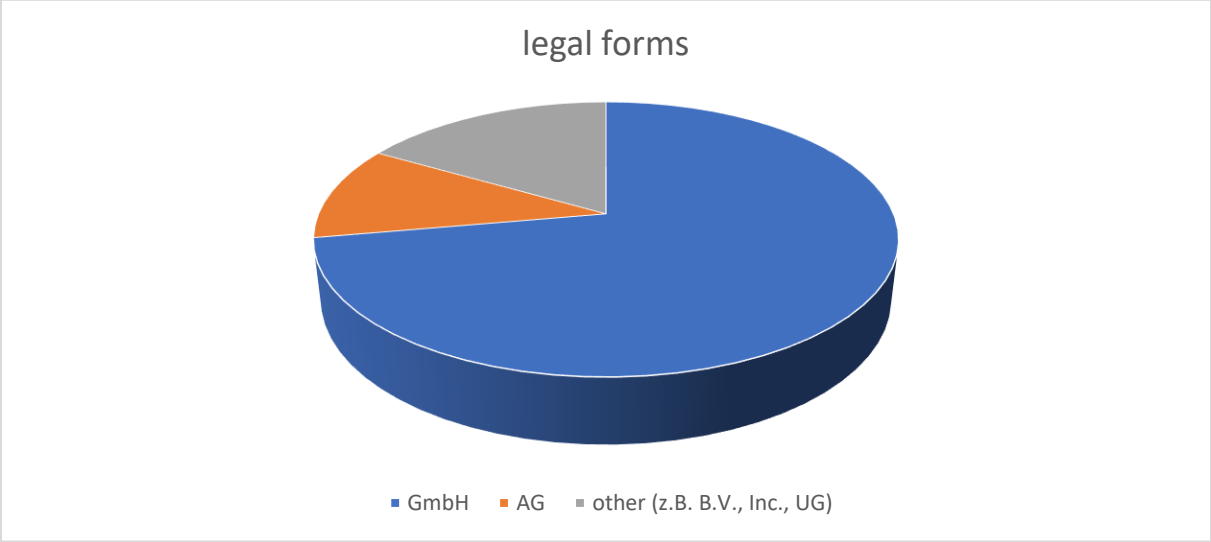
3.4 Type of the Services Provided

The services provided on these crowdworking platforms are distributed among seven main areas: Content/text creation (contributions and texts are created for online and print), design (design tasks are the main focus), innovation (the respective platform provides innovation support services), market place (supply and demand are managed for a rather heterogeneous field of services), microtask (the focus is on smaller tasks that still need "human intelligence" and cannot be done by computers so far), testing (users test devices, software or other applications), and customer service/market research/sales (sales support relating to products and services or the provision of market research services). Among the about two-thirds of all crowdworking platforms with their headquarters or (physical) location in Germany which participated in this survey, all seven types of services are represented approximately in relation to the total amount of all platforms of the respective type of service (for the distribution, see also table 1).

3.5 Legal Form

The majority of the 21 surveyed crowdworking platforms (15) are operated by companies in the legal form of a German GmbH (limited liability company). Three platforms are managed as AG (stock corporation), even though they are not listed at the stock exchange), the remaining three are attributable to other legal forms such as the American Inc., the Dutch B.V. or the German UG (another form of limited liability company).

Figure 1. Legal forms of crowdworking platform operators (n=21)



3.6 Revenue Development

The revenue development of the crowdworking platforms surveyed in 2017 for the year 2016 compared to the previous year 2015 was clearly on average on all platforms in the positive double-digit range:

+ 89.79% revenue growth

A positive revenue development was recorded by 16 platforms, while two platforms recorded a negative revenue development. Three platform companies did not provide information on the development of revenues in the returned questionnaire and were therefore not included (i.e., n=18). From this, the cautious conclusion can be drawn that the business model is also viable in Germany and has potential. "Cautious", because - as mentioned above - cases of crowdworking platforms which have been liquidated have become known. However, in this context, the for start-up-similar companies generally high rate of fluctuation/failure needs to be considered, too. Other reasons could also play an important role: For example, a consolidation could lead to "bigger players" outplaying their strengths. Conversely, however, the high average growth in revenues must also be seen with the background that, as already mentioned, these are companies with a start-up character, in which relatively high increases in revenue, initially from a relatively low level, are quite common.

The overwhelming number of the crowdworking platform companies surveyed estimated the future development of their platform with regard to Germany to be very positive (n=20, one platform did not provide information):

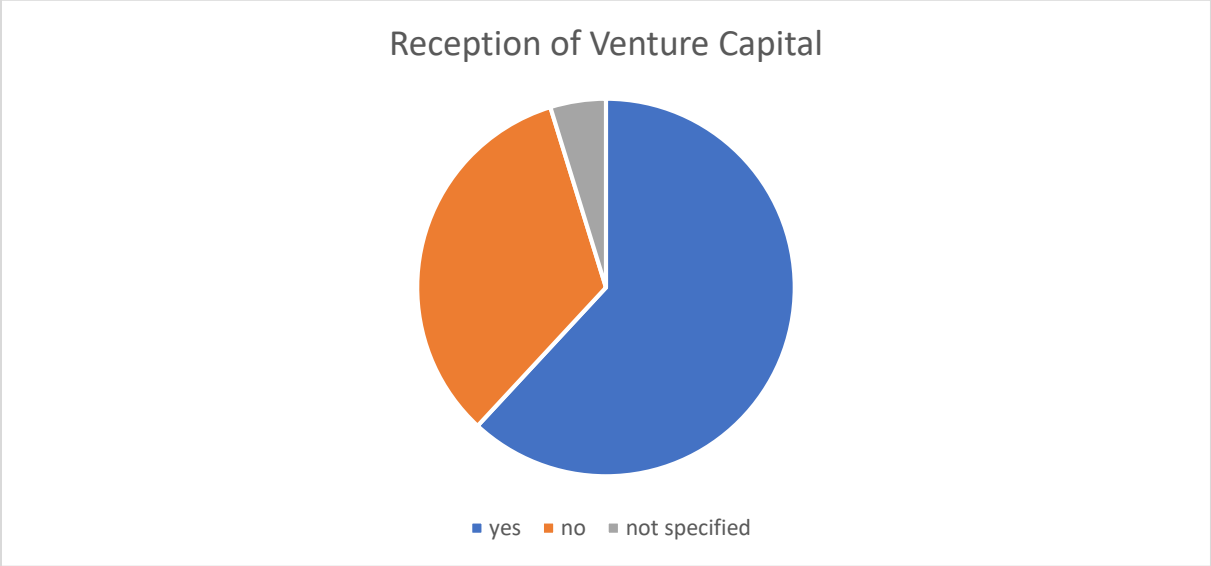
- For the short term (one year), all platforms expected an increase in revenues (i.e., no stagnation and no decline)
- For the medium term (for the next 3 years), also all platforms expect an increase in revenues (i.e., no stagnation and no decline)
- In the long run (period of more than 3 years), 18 platforms still expected a revenue increase, one expected stagnation and one did not specify the long-term (in contrast to the short and medium term).

As a result, the expectation regarding the company's own revenue development is very positive among all platforms and periods, which suggests a high degree of confidence on the side of the crowdworking platforms for this business model and its future market perspectives in Germany.

3.7 Venture Capital

Of the 21 crowdworking platforms which have replied in written form to our survey, 13 have already received venture capital so far, and 7 platforms have not yet received any venture capital. One platform did not provide information on this question (n=20). The fact that more than half of the responding crowdworking platforms have already received venture capital, allows the assumption that this business model could be principally attractive for risk capital providers.

Figure 2. Crowdworking platforms that have received venture capital (n=20)



3.8 Total Number of Crowdworkers in Germany

One of the questions that society, politics, economy, and science are increasingly asking regarding the phenomenon of crowdworking and for which there are hitherto only very rough estimations is: how many crowdworkers are there (here: in Germany)? The determination of this number is associated with additional great uncertainties: as it is the case for most data regarding crowdworking platforms, there is no central recording. An inquiry we made at the Federal German Statistical Agency ("Statistisches Bundesamt") as of February 23, 2017, also confirmed that such a number (such as several other numbers with regard to crowdworking) is not available.

In contrast to other key figures such as the number of internal employees of a platform, this number can also not be determined simply by cumulating the number of registered crowdworkers of all platforms: The main reason for this is that crowdworkers can register on several platforms and the respective platforms do not necessarily know whether, and if so, on how many and which other crowdworking platforms their crowdworkers are additionally registered. The assumption that the majority of these crowdworkers are working on such crowdworking platforms in their spare time makes

a determination of this number not easier. In order to approach this figure as closely as possible, we asked those who are most likely to know this because of their knowledge as market players: The operators of the crowdworking platforms (not least because they steer, manage and control the work of the crowdworkers). Even though this figure cannot be answered exactly by anyone, the expectation was that if anyone, the crowdworking operators can assess that. And that an average of the estimates of crowdworking platform operators is probably the best possible approximation to this figure. Although the latter is correct, the estimations of the crowdworking providers differed. Nevertheless, the most of the figures were in the six-digit to low-seven-digit range, with a median of 400,000, and four modes of 100,000, 500,000, 1,000,000, and 3,000,000 crowdworkers. According to the average of the estimates of the crowdworking platforms surveyed, as of January 31, 2017 there are

1,162,059 crowdworkers

in Germany. This average number as well as the indication of median and modes allows at least one conclusion: The only known estimate of this number for Germany so far, the number of "around 1 million crowd workers" estimated by a large German union, seems to be realistic (albeit in the meantime at the lower end of the estimates). At the same time, great attention has to be paid to the communication of this number: Four of the 21 surveyed crowdworking platforms have not given an estimation (i.e., n=17). It was clear from the commentary of one of these platforms that this could be due to the difficulty of realistically estimating this number. Even assuming this number would be perfectly accurate, it must also always be clear that it is by no means a number of persons who are working on crowdworking platforms in *full-time*. This can be seen, for example, in the estimation of the total revenue of all crowdworking platforms based in Germany (see section below) in relation to this number of crowd workers in Germany. Likewise, one has to consider that only a (comparatively small) part of the crowdworkers who are registered on platforms is really active (see also the following section below). However, compared to previous estimates, this number offers the advantage that it is based on the average of the estimates of the majority of the crowdworking platforms in Germany itself (and not on the estimates of external "observers") and therefore is likely to come as close as possible to reality.

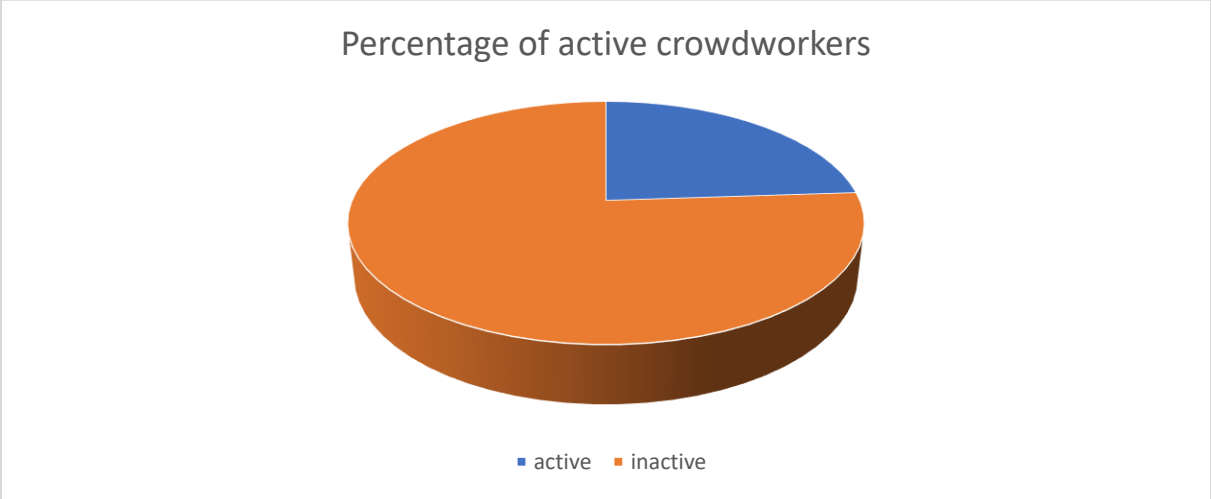
3.9 Percentage of Active Crowdworkers

A question that is also often asked in the context of crowdworking platforms is: How high is the proportion of those crowdworkers who are registered on platforms, that are also really active? Since a registration on such platforms is mostly free and crowdworkers themselves decide if and when to accept work, the number of registered crowdworkers alone is not meaningful. The average percentage of active crowdworkers across all platforms with headquarters or physical locations in Germany is estimated at

25.24 %

(median: 20%, mode: 10%) according to the estimations of those who are most likely to be able to judge this realistically (the crowdworking platform providers).

Figure 3. Percentage of the logged-in crowdworkers who are active (n=17)



3.10 Percentage of Fees/Commissions

The business model of crowdworking platforms is to be rewarded for their services around the processing, managing, steering or controlling of the activities established and/or handled via their platforms. There are different models in place regarding the payment. This fee ("commission", etc.) amounts on average according to the crowdworking platforms surveyed to

22.18 %

across all of these platforms with headquarters or a physical location in Germany (median: 22.5 %. modes: 20 and 25 %). This percentage has to be treated particularly with caution since each platform does not have specific knowledge of the exact remuneration models of the other platforms and several platforms did not (or could) not provide information with regard to this question. It is therefore particularly important to point out the nature of the estimate of this percentage. But nevertheless, and similar to other points in this study, it should also come as close as possible to reality.

3.11 Total Revenues of the Crowdworking Platforms in Germany

In addition to the number of crowdworkers, the number that is most ‘in demand’ in Germany and other regions and for which there is also hardly any data so far, is the cumulative total revenue of all crowdworking platforms. Since the companies that operate such crowdworking platforms, as already mentioned, often do not have any publication requirements, this number can also only be estimated. The average estimation for the total revenue of all crowdworking platforms for the year 2016 is € 542.22 million (median: € 50 million, mode: also € 50 million). Five crowdworking platforms did not answer (i.e., n=16). In addition, it has to be noted that 15 platforms gave similar information in the range of up to 100 million euros, while one crowdworking platform made an extremely higher estimation of 8 billion (!) Euros. Excluding this extreme "runaway", which is 80 times higher than the next estimate, the total revenue of all crowdworking platforms regarding Germany for the year 2016 is

45.03 million EUR

At first glance, this number appears small and may surprise. The fact that the highest estimation for this figure for Germany (apart from the extreme "runaway") has been 100 million Euro (twice expressed), shows that this is at least for now with regard to revenues not yet a very significant economical "phenomenon". Taking into account that the financial share of the platforms ("fee", "commission", etc., i.e. the revenue directly attributable to the platform) is 22.18% (see section above), the total revenue generated via crowdworking platforms with a physical location in Germany amounts to

203.02 million EUR

Likewise, if the number of crowdworkers in the section above is also related to this number, it becomes clear that the "income per crowdworker" per year must on average be low (even if only the active crowdworkers are taken into account). This suggests that for the vast majority of the crowdworkers (albeit exceptions that exist), these activities are likely to have more the character of an 'extra-income'.

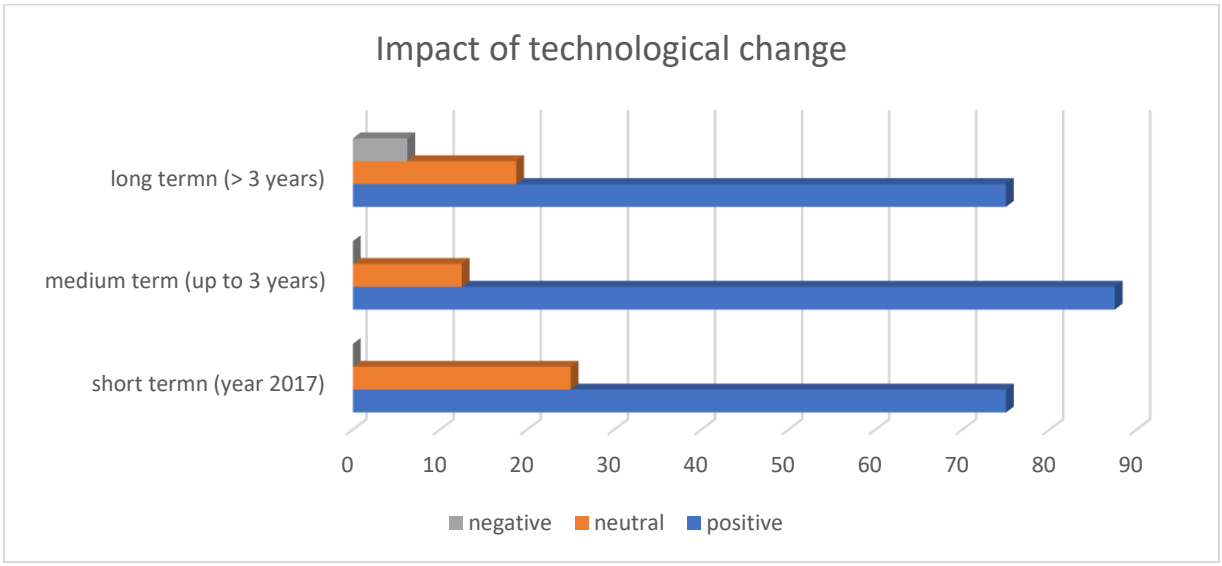
3.12 Impact of Technological Change on the Respective Platform

The effects of technological change (algorithms, automation, digitization, etc.) on their respective platform are evaluated by the responding platforms in the following way (two platforms did not answer this question, n = 19):

- Short term (one year): 15 positive, 4 neutral and 0 negative
- Medium term (for the next 3 years): 17 positive, 2 neutral and 0 negative
- Long term (period of more than 3 years): 14 positive, 4 neutral and 1 negative

It seems that digitization and technological change are not causing mainly negative predictions; crowdworking platforms seem to be rather confident regarding this development.

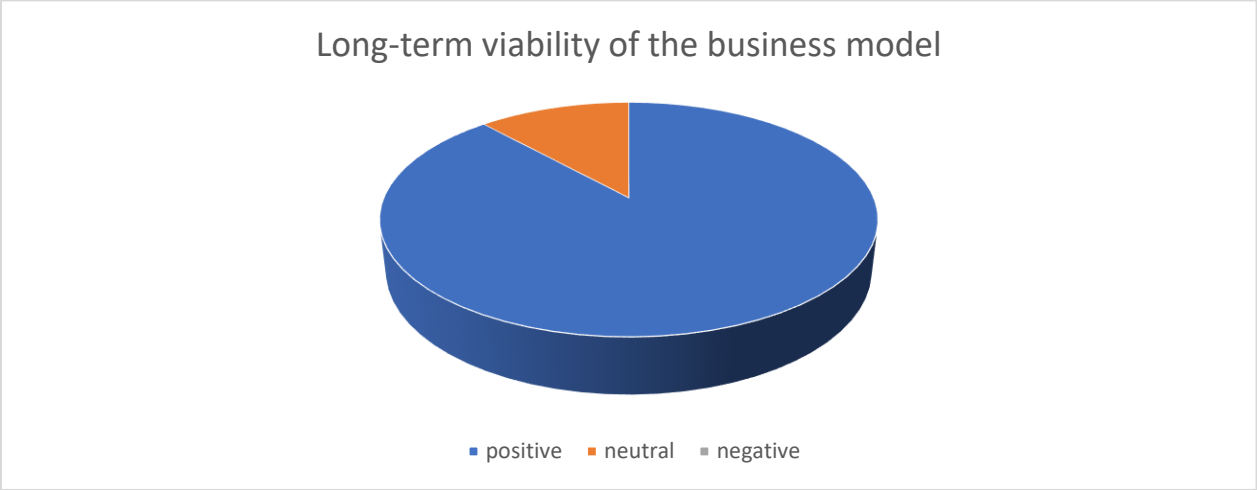
Figure 4. Impact of technological change on the respective platform (n = 19)



3.13 Future Viability of the Business Model

The long-term (> 3 years) future viability of the "crowdworking platform business model" was estimated to be positive by 18 crowdworking platforms (two neutral and no negative, n = 20).

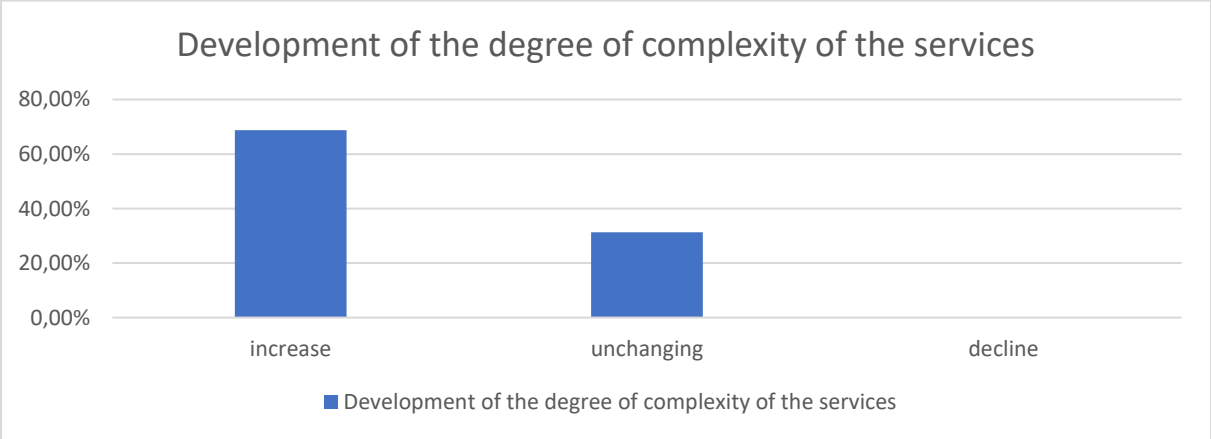
Figure 4. Long-term viability of the business model (n=20)



3.14 Development of the Degree of Complexity

In terms of the degree of complexity of the services performed via crowdworking platforms in Germany, 14 platforms expressed the expectation that this would increase, five the expectation that this would remain the same, and no platform the expectation that this would decline (n = 19).

Figure 5. Development of the degree of complexity of the services (n = 19)



4 Implications for Individuals, Groups, Organizations, and Society

In this section, we will now depict our insights gained regarding the implications of this novel form of work organization for several stakeholders.

4.1 General Remarks

Due to the increasing digitization of work, organizations such as companies have nowadays several options how to process work: In addition to the ‘classical’ setting of work processing within an organization (via internal employees), the ordering of work from freelancers, and the outsourcing of work to specialized firms, there is now also the option to process work via crowdworking platforms: Digital platforms where work is offered via an open call to a group of potential contributors who can decide on a case by case basis if they would like to process that work. We define crowdworking platforms as electronic platforms that manage work for which a remuneration is intended (“paid work”). We thereby distinguish them from other forms of crowdsourcing platforms where work is done without the intention to achieve remuneration (for example Wikipedia) or from crowdsourcing platforms from the realms of crowdfunding or crowdvoting. Work managed via crowdworking platforms is characterized by four principles: An open call (the respective work is offered simultaneously to a crowd of potential contributors instead e.g. to a certain individual, even though the crowd can be predefined), self-selection (the participants select themselves which work they want to take and when, in contrast to being assigned to it by an employer’s managerial authority), platform-based (a significant part of the work is processed electronically via the platform as intermediary) and voluntariness (the external participants decide themselves in the first place if they would like to offer their work on such a platform at all). In organizational environments, work is “the application of human, informational, physical, and other resources to produce products/services” (Alter, 2013), p. 75). Digital work refers to work practices that are being reconfigured through the operation of digital platforms, algorithms, and the processing of multiple, diverse kinds of data (Orlikowski & Scott, 2016).

Both the number of intermediaries who manage the processing of that work (crowdworking platforms) and the number of services and kinds of work available via such platforms have significantly increased in the last years (see also our study depicted above). With the increasing importance of this novel form of digital work, it also gained more attention among decision makers in economy, politics, and society as a whole. One reason is that current work laws and social systems (such as retirement systems) in many countries are not yet suited to this novel form of work organization and still focus mainly on the ‘regular’ full-time employment within a company. The uncertainty about the specific character and implications of work managed via crowdworking platforms for individuals, groups, organizations, and society as a whole, leads to the necessity of more information as a basis for informed decisions. With our research, we aim at providing such information. Specifically, we aim at investigating the implications for individuals, groups, organizations, and society, among several dimensions (costs, flexibility, humanity, quality, and time) and at structuring them into an evaluation framework for digital work processed via crowdworking platforms.

4.2 Proceeding

For our insights about the implications of processing of work via crowdworking platforms for individuals, groups, organizations, and society, we also (in addition to the 12 in-depth interviews mentioned above with both representatives of crowdsourcing companies and crowdworkers) draw on our interactions in a 3.5 year-project funded by the German government with participants from academia, companies, research institutes, and unions. These interactions include(d) conferences with invited speakers from several realms of economy and society, phone conferences, project meetings, and workshops with several institutions. The heterogeneity of the participants of the project allows to capture different perspectives. For example, the company representatives within the project provided valuable insights for the organizational perspective, the union representatives valuable insights on the perspectives of groups and individuals, the research institutes valuable insights on impact on society on the whole, etc. To classify and structure these insights, we draw on a framework introduced by Schwabe (2000) and adapted it to our context and our investigation goals. This framework shall allow us to systematize our insights for better 'digestibility' and clearer display. In the following subsection, we depict our findings and show the systematics of this evaluation framework.

4.3 Exemplary Evaluation

The findings from our research suggest that the implications differ widely among the four stakeholder groups regarding the five dimensions. To demonstrate the reasoning and systematics of our evaluation, we shortly elaborate here on one category in more detail before depicting our results for the other stakeholders more briefly: The implications of work managed via crowdworking platforms for individuals (see also figure 6):

Figure 6. Evaluation framework for implications of work processed via crowdworking platforms [source: initial idea derived from Schwabe (2000, p. 248) (the author there also refers to the four layer model of extended profitability by Reichwald), and adapted & converted to our research].

	Costs	Flexibility	Humanity	Quality	Time
Individual	+	+	-	o	+
Group	o	+	o	+	o
Organization	+ +	+ +	o	o	+
Society	- -	+	-	+	o

+ +	+	o	-	- -
positive	rather positive	neutral	rather negative	negative

Given that individuals that process work via crowdworking platforms do this on a self-employed basis (crowdworking platforms usually do not function as employer for their crowd), the implications regarding work-related *costs* for them are rather positive: For example, since this novel form of digital work often allows them to work from almost every place they want (provided that it has Internet access), they do not have costs that are common to 'regular' jobs such as fuel or tickets for commuting to work.

Similarly, because of the character of that digital work that can be done almost from everywhere, it offers individuals a great amount of *flexibility*. This can especially be valuable for individuals that are not available to the 'regular' work market (e.g. because of illness or the necessity to take care of close relatives such as children or parents). Or who do not have sufficient access to the work market (e.g. because of their residence in economically underdeveloped regions). The reason why the dimension flexibility has only one 'plus' (meaning 'rather positive') in our evaluation framework is that some crowdworking platforms indirectly nevertheless limit the flexibility of individuals. For example, by requesting that they process a certain amount of work to allow them to get access to better paid work or to simply be able to 'stay in the game'. Nevertheless, the overall effect regarding flexibility for individuals is positive (unanimously confirmed by all crowdworkers interviewed).

The dimension least favorable for individuals, getting an evaluation of 'rather negative', is that of "*humanity"*. This is due to the fact that some crowdworking platforms provide individuals only with rather small payments (often below the minimum wage) or even require them to allow to make automatic, unannounced screenshots from their computers to be able to remotely 'control' them. In addition, work on several platforms (especially on microtask platforms) has often the character of 'tayloristic' piecework. All our crowdworkers already had such negative experiences during their 'crowdworking career' and highly appreciated when a crowdworking platform provider offered personal communication, for example via a 'community management department', making them feel treated "more as humans than numbers".

The dimension '*quality*' has several facets with respect to individuals. Here, we refer to the quality of the work performed by them. We on average did not find real differences between the delivered quality of work when processed via crowdworking platforms compared to the quality of work processed by the same individual given that s(he) would do that within a regular company. Therefore, we assigned it a 'neutral'.

And last but not least, the dimension '*time*' is also rather positive for individuals that process work via crowdworking platforms. In addition to time that is saved since one does not have to commute to a workplace in a company for this kind of work, it also allows for working at times that fit the individual's needs and personal situations best.

For groups which we in this case consider from the perspective of units within an organization (such as for example a department), the effects regarding costs are on average neutral since the costs for the crowdworkers are not directly borne by them (but by the organization). Groups also increase their flexibility, for example since they can give work that they are not able to conduct (either at that time because of their workload or due to missing skills) to crowdworkers. Additional gains in flexibility result from the fact that such groups can give work to crowdworkers in other time zones who

can conduct this work when these groups are not working (e.g. at night, during public holidays, etc.). The ‘humanity’ aspect for these groups themselves remained unchanged (therefore an evaluation of neutral), while the quality of their work can benefit from the inclusion of external knowledge and skills (therefore rather positive). The effects regarding their time aspect are on the whole on average neutral (there are time gains from giving work to crowdworkers, but also additional coordination needs).

The most positive effects of this novel form of work organization occurs on the level of the organization: The cost effects for them are positive since the paying for crowdworkers is on average lower than that for internal employees, among other due to competition effects and high transparency regarding wages on crowdworking platforms. In addition, organizations such as companies do not have to pay social security contributions for the crowdworkers. Organizations that crowdsource work also have high gains in flexibility, especially since they can bridge times where their own employees are not as available as usual (e.g. due to illness, high workloads, vacation) without having to employ such crowdworkers in the long run. Their situation regarding time is also rather positive since being able to tap into an additional workforce “on demand” helps to increase the speed of the work processing. The aspects ‘humanity’ is rather neutral from an organizational level, the same is true for the aspect of the quality (even though there are some gains on the organizational level, there are also some rather negative quality aspects due to lacking knowledge of internal processes and requirements from the crowd).

Some of the most negative effects of this novel form of work organization might occur on the level of society in the long run: The cost situation is negative due to several effects: Crowdworkers usually do not pay respectively receive any social security contributions for their work on such platforms. If such crowdworkers do not receive such contributions from another employment or provide for their future/old age on their own, society on the whole might come into the situation that it has to compensate for this lack of payment later (e.g. welfare). In addition and in parts openly admitted by some crowdworkers, it is not easy for state institutions such as financial/tax authorities to realize how much a crowdworker is earning and therefore to demand for the appropriate amount of taxes. Crowdworking platforms usually pass on the duty to report such payings to the crowdworkers since they are not the employers of them (and regard themselves only as intermediaries) and the crowdworkers are self-employed. Nevertheless, society as a whole also gains in flexibility since for example its members (here: crowdworkers) are also able to gain a job even if they are living in economically underdeveloped areas (and therefore ‘lessen the burden’ of such areas). Nevertheless, due to the often rather ‘tayloristic’ character of much of such work on crowdworking platforms, the ‘humanity’ aspect for a society as a whole is rather negative. Time is rather neutral (gains and losses balance each other) on the society level, quality is rather positive since this novel form of work organization via crowdworking platforms also offers a lot of innovation potential (many of such crowdworking platforms have their business model in that realm) from which a whole economy and society benefits.

5 Discussion and Conclusion

Crowdworking platforms have continuously increased their economic importance in the last years and many organizations such as companies have exploited the potential of crowds and this novel form of work organization. However, there is still only few data about such platforms on a larger scale. Extant data usually relies on investigations of a few platforms and the attempt to project this data to a larger total population; such extant data also mainly focusses on platforms from the US. Based on results from a written survey among the 32 identified crowdworking platforms with headquarters or a physical location in Germany, we are to the best of our knowledge the first to provide aggregated, comprehensive facts and figures about crowdworking platforms in Germany. In addition to the value of this data for its focus region Germany, our data also allows to draw conclusions for other regions. It is now also possible to more reliably project this data on a global scale by putting other data from Germany into relation to the area for which one wants to estimate data about crowdworking platforms. Since there is a lack of detailed data of this still novel phenomenon within the online platform area, these results are relevant for several stakeholders from economy, politics or research. Especially facts and figures such as the number of crowdworkers, the revenues of crowdworking platforms or the percentage of active crowdworkers are in ‘high demand’. They allow now a more valid evaluation of the current state and possible future importance of this new paradigm of work organization and provide a basis for more informed decisions (for example regarding currently highly discussed topics in public such as the adjustment of our social systems to such novel forms of work). Therefore, our data from this study can provide valuable background information for the shaping of the digital transformation. Similarly, it can provide starting points and stimuli for other researchers and therefore pave the way for further future research in this novel and promising area of work organization via crowdworking platforms.

Crowdworking platforms foster new forms of digital work and offer several benefits. They nevertheless also pose threats to several stakeholders. Since the future of work will be more and more digitized and work processed via crowdworking platforms will therefore likely face an increase in importance, it is worthwhile to investigate its specific implications on individuals, groups, organizations and whole societies. Leaders in economy and politics have to find ways how to foster the opportunities and mitigate the risks related to this novel form of digital work. With our research about the implications on individuals, groups, organizations and society, we aim at providing a basis for such informed decisions.

6 References

Alter, S. 2013. Work System Theory: Overview of Core Concepts, Extensions, and Challenges for the Future. *Journal of the Association for Information Systems (JAIS)*, 14(2): 72–121.

Blohm, I., Leimeister, J. M., & Krcmar, H. 2013. Crowdsourcing: How to Benefit from (Too) Many Great Ideas. *MIS Quarterly Executive*, 12(4): 199–211.

Brynjolfsson, E., & McAfee, A. 2011. *Race against the machine*: *How the digital revolution is accelerating innovation, driving productivity, and irreversibly transforming employment and the economy*. Lexington, Mass.: Digital Frontier Press.

Kollmann, T., & Schmidt, H. 2016. *Deutschland 4.0*: *Wie die Digitale Transformation gelingt*. Wiesbaden: Springer Gabler.

Kuek, S. C., Paradi-Guilford, C. M., Fayomi, T., Imaizumi, S., & Ipeirotis, P. 2015. *The Global Opportunity in Online Outsourcing*. Washington: The World Bank.

Mrass, V., Peters, C., & Leimeister, J. M. 2018a. Managing Complex Work Systems via Crowdworking Platforms: How Deutsche Bank Explores AI Trends and the Future of Banking with Jovoto. *51th Hawaii International Conference on System Sciences (HICSS), Waikoloa, USA*: 3391-3400.

Mrass, V., Peters, C., & Leimeister, J. M. 2018b. Managing Complex Work Systems via Crowdworking Platforms: How Intel and Hyve Explore Future Technological Innovations. *51th Hawaii International Conference on System Sciences (HICSS), Waikoloa, USA, Doctoral Consortium*.

Orlikowski, W. J., & Scott, S. V. 2016. Digital work: a research agenda. In B. Czarniawska (Ed.), *A Research Agenda for Management and Organization Studies*: 88–95: Edward Elgar Publishing.

Schmidt, F. A. 2016. *Arbeitsmärkte in der Plattformökonomie*: *Zur Funktionsweise und den Herausforderungen von Crowdwork und Gigwork*. Bonn.

Schwabe, G. 2000. *Telekooperation für den Gemeinderat* (1st ed.). Stuttgart: Kohlhammer.

Yin, R. K. 2014. *Case Study Research*: *Design and Methods*. Los Angeles: SAGE Publications, Inc.