Maker Movement as a Path of Digital Transformation?

Current Understanding and How It May Change the Social and Economic Environment.

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ABSTRACT

Embedded in the digital world, a new phenomenon that is innovating the way we work, learn, produce and consume — the Maker Movement — has emerged and has been attracting increasing attention since 2011. Using the multilevel theoretical approach, we hypothesize that the Maker Movement is a specific transformation path that has been occurring simultaneously with digitalisation in industry, and it challenges the existing production regime. To get insights regarding this hypothesis, we explore the Maker Movement (MM) within a media content analysis and analyse the MM's routes and effects, linkages to digitalisation in industry and possible future perspectives with respect to society and economy.

Keywords: Maker Movement (MM), media content analysis, social and economic change

1. Introduction

Associated with societal digital transformation, the industry and service sector face new challenges. Researchers, practitioners and different groups of stakeholders are discussing the future consequences and impact of the mega trend digitalisation extensively, dynamically and also controversially in the literature and amongst practitioners and different groups of stakeholders. The corresponding challenges, issues and consequences for future developments with regard to the reorganization of value creation networks, the 'Industrial Revolution' labelled as Industry 4.0 and the flexibility in manufacturing or new forms of work are all subject to foresight processes. At the same time and embedded in the digital world, a new phenomenon that is innovating the way we work, learn, produce and consume, the Maker Movement (MM), has

emerged and has been attracting increasing attention since 2011. However, until now, we have not yet comprehensively explored the implications of the MM as a possible structural shift, its drivers, to what extent the movement has established itself as a new social practice or what kind of economic and social environment the MM will create.

2. Theoretical Considerations

To find the right point of approach for investigating the phenomenon of the MM's occurrence and diffusion as a path of digital transformation, we need a conceptual framework to appropriately describe MM and elevate its development to a higher social context. For this purpose, the transition approach, which has been under discussion for many years in various facets and with different degrees of emphasis (cf. Grin et al., 2010; WBGU, 2011b), is ideal. According to this understanding, social transformations result from interrelated changes in technologies, social institutions and individual behavioural trends in social subsystems (WBGU, 2011b, p. 342). To understand them, we must develop a system to describe their dynamics, pinpoint change drivers and unveil the associated constellation of stakeholders and levels of action (WBGU, 2011b, p. 87). An appropriate method for this is the multi-level perspective as suggested by Geels and Schot (2007) for transformation processes and used by Grin et al. (2010) to determine accessible levels of action during the transformation process. This approach aims to reflect the transformation process's complexities, multiple dimensionalities and asynchronous characteristics and, at the same time, present a model that would radically simplify matters.

The authors also view this model as suitable for systematizing the MM's context and proposing the hypothesis that the MM is one specific path for changing the existing socio-technical regime. At this model's core are three different interdependent, dynamic levels of action (Geels, 2007; Geels & Schot, 2007).

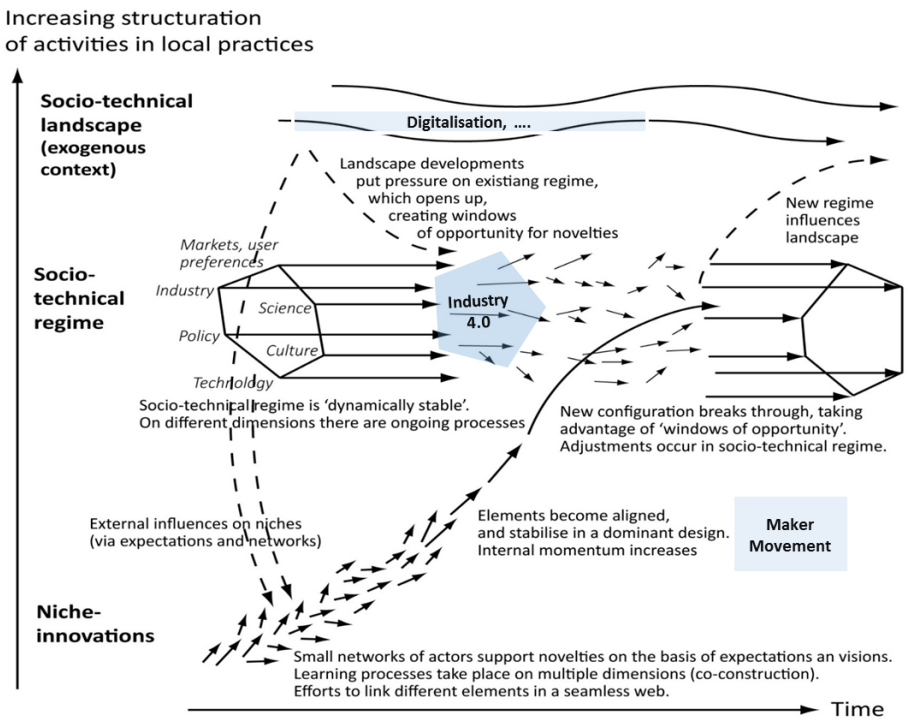

Figure 1. Multilevel perspective of the transformation approach (according to Geels & Schot, 2010, p. 25).

According to Geels and Schot (2007), spaces for transformation opportunities result from changes and dynamics at these levels of action and interaction. In this regard, it is all about the level of 'socio-technical landscape' as an exogenous macro-context, the level of 'socio-technical regime' as an object of transformation in the narrower sense, and the level of 'niche innovations', where the innovation process acts at the micro-level as an important driver of the socio-technical regime's transformation. The established socio-technical regime — as a system of technologies, markets, industry, scientific systems and cultures — develops under the influence of the socio-technical landscape, which exerts pressure on the regime towards change and possibly towards preservation. The socio-technical landscape is characterized by long cycles and trends that the stakeholders cannot readily influence. The level of niche innovations describes at the micro-level the emergence of radical innovations in certain constellations that will have the chance to significantly influence the socio-technical regime. In particular, destabilizing the established socio-technical regime throws open the 'windows of opportunity' for radical niche innovations. Rectifying the processes at the three levels enables breakthrough innovations that begin to dominate available markets and compete with the existing regime (Geels, 2007, p. 400).

3. Methodological Approach

Starting from the hypothesis that the MM is a special path for challenging and changing the developing socio-technical system of production (Industry 4.0), we planned a media content analysis to find answers regarding the following research questions:

1) What should we understand the term Maker Movement to mean, and what are its main drivers?
2) To which extent does Maker Movement establish itself as a new social practice?

3.1 Media Content Analysis

To gain insight into the above-outlined questions, we implemented a media content analysis: 'Media Content Analysis is a specialized sub-set of content analysis, a well-established research methodology' (Macnamara, 2005, p. 1). Macnamara (2005) provided an overview of media content analysis approaches and definitions, for example, regarding uses, benefits and best practices methodology of media content analysis.

Our study identifies media content analysis as a technique for gathering and analysing the content of text. The 'content' refers to words, meanings, pictures, symbols, ideas and themes (cf. Neuman, 1997, p. 272–273).

Because media has the power to affect and reflect certain developments and events, we can explore how certain events and phenomena occur and disappear in the media, in what context they are discussed and placed or how their importance may change over time. Postulating the MM as a social and societal phenomenon can make media content analysis a promising approach for learning more about the media's impact and actors.

We implemented a qualitative, category-guided content analysis (cf. Kuckartz, 2012; Mayring, 2010) in which we followed a defined process with guidelines adjusted to the object of investigation and research questions. This approach centres on a category system for systematically classifying content. The category system considers feedback loops within the process of the content analysis and quality criteria (cf. Mayring, 2010, p. 603 et seq.). According to Kohlbacher (2006, p. 6) the strength of this approach is its potential for dealing with complexity, theory-based guidance, integration of different kinds of material and its quantitative aspects.

3.2 Implementation of the Content Analysis

According to Kuckartz (2012, p. 49 et seq.), we followed a defined process in this study containing (a) a planning phase, (b) a developing phase, (c) a test phase, (d) a code phase and (e) an examination phase.

(a) Planning Phase

In addition to printed mass media articles, we considered articles in online forums and blogs as relevant for exploring the MM. This is due to the MM's strong links to online networks and the increasing relevance of blogs as a news forum (cf. Albrecht, 2013). The selection of articles in print media is well grounded and linked to the relevant countries — USA, Great Britain and Germany — as well as different publishers within these countries and different kinds of magazines and newspapers (daily newspapers, weekly newspapers and magazines) with a high number of readers (cf. Almeyda et al., 2015). We have chosen the United States because it is the MM's country of origin. In Germany, Industry 4.0 plays a central role as a transformation path under the conditions of digitalisation and is therefore of special interest. For comparison, we have chosen Great Britain as an English-speaking country.

(b) Development Phase

The development phase starts with an open sampling based on a selection of printed media articles and blog/forum contributions. A search process that used 45 keywords identified 297,115 articles in the selected media as relevant. The high number of keywords and the corresponding matches indicate the broad search approach for the object of investigation at this stage of the study.

In a further comprehensive selection process, 902 articles are considered relevant for the MM, which means that we can directly link only a relatively small number of articles (902 out of 297,115) to the MM. The selection process referred to analysis of headlines. We excluded conference announcements, event coverage, purely technical articles and articles with no direct reference to the MM. The majority of articles (588; 65%) came from newspapers, whereas 314 articles (35%) came from blogs. For the following content analysis, we developed a suitable system of categories that considers the underlying theoretical approach, initial hypothesis and research questions (see figure 2).

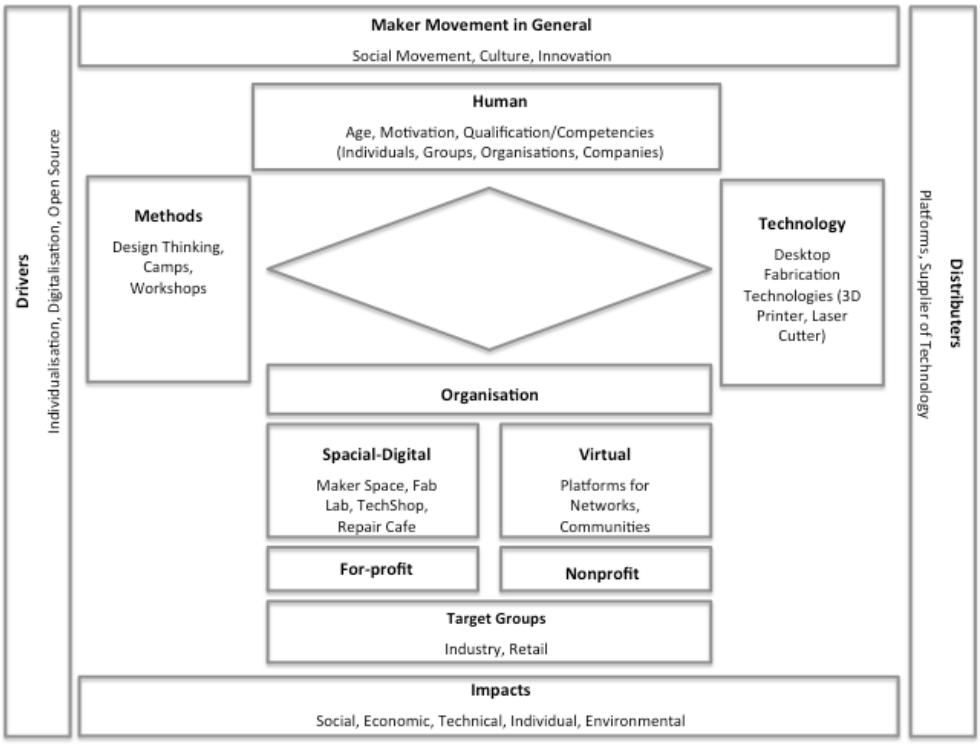

Figure 2. System of categories for the content analysis Maker Movement.

(c) Test Phase and (d) Coding

These phases are based on the derived system of categories codes used for the content analysis supported by the software tool Atlas.ti. During these phases, we searched the selected articles for relevant phrases that could be related to the specific codes.

(e) Examination

We carried out a quantitative, software-based examination of the coded material (e.g., number of quotes per code or quotes per country and type of media) and a qualitative examination based on the main categories (cf. Kuckartz, 2012, p. 94).

4. Analysis and Discussion of Results

Considering the number of coded articles according to their release clearly indicates that the reflection on the MM started in 2011 and has steadily grown since then. We identified very few contributions regarding selected aspects in the period 2002–2010.

All in all, we coded 1420 quotations in 199 articles, spread relatively equally (with the exception of those from German blogs) in German, American and British newspapers, as well as in American blogs (see Table 1).

Codes	Blogs DE	Blogs USA	Newspaper DE	Newspaper GB	Newspaper USA	Sum (total)
Distributors	0	18	22	6	4	**50**
For-profit	0	9	13	10	4	**36**
Content	0	29	24	12	13	**78**
Maker Movement in general	8	67	61	18	48	**202**
Human	2	41	40	22	35	**140**
Methods	3	14	7	11	6	**41**
Nonprofit	0	2	8	0	1	**11**
Organisation space	1	44	37	14	20	**116**
Organisation virtual	0	13	9	14	6	**42**
Regulations	1	0	11	0	0	**12**
Technology	3	22	30	17	23	**95**
Drivers	4	4	8	11	7	**34**
Impact	3	38	29	28	29	**127**
Target group	1	13	11	8	25	**58**
SUMME:	26	314	310	171	221	1042

Table 1 *Distribution of Quotes*

In the following qualitative analysis, we analyse and discuss selected codes.

4.1 General Characterization of the Maker Movement

The predominant general opinions expressed in the media regarding the MM are summarized in the concept of a modern, democratic culture of innovation that builds on the open availability of a number of digital production technologies, including specially developed software that empowers the general public to create new products and further develop and manufacture existing designs. In particular, these digital technologies include 3D printers, laser cutters, CNC routers, software tools and, more recently, affordable scanners. These tools are accessible (i.e., most people can easily learn to operate them) and available in workshops (labs or maker spaces). In parallel to this context of technical opportunity, the foundations of the MM's culture of innovation build on the desire for self-fulfilment by 'doing' as expressed in the Do-It-Yourself movement and reveals that movement's democratic aspirations.

Considered as a whole, MM does not simply represent a new technical or process-based form of production. Note that the process of 'making' integrates contemplation, deliberate learning, the development of a value system and knowledge — the scope of which is not restricted to individual products, but touches upon production, application and usage contexts. The MM's aspirations therefore far exceed the simple desire to revolutionize industry and society through 3D-printing individual products and in fact include a philosophy associated with the production process's applications, roles and values.

A general understanding of the MM must therefore acknowledge the contradictory relationship between individualization and collaboration. On the one

hand, making is connected with a rather individualistic Do-It-Yourself attitude, but, on the other, the Do-It-With-Others approach frequently resurfaces in the discussion. Makers are clearly not just interested in creating and manufacturing things for themselves but also wish to collectively develop and exchange knowledge. Thus, describing the maker scene as a community is justified, and the principle of sharing can be considered another defining characteristic of the MM.

From a social perspective, the MM is often associated with sustainability. It is viewed not just as creative but also empowered and inclusive, following a paradigm of participative design. According to this understanding, the movement does not pursue an elitist approach to design but instead focuses on altering, modifying and improving available resources in terms of both designs and products.

Considered on a somewhat theoretical level, the MM is neither merely part of a protest movement based on mass collaboration nor the expression of a shift in attitudes, for example, toward the democratization of the production processes; it is a new form for the organization of production, separate from market and state, based on the Internet and peer networks.

This returns focus to the relationship between the economy and the MM, which the media describes in very different ways. For instance, the MM is ascribed a highly disruptive character in relation to the economy. Because makers draft, share and manufacture their own designs and control their own property rights, they break away from previous modes of production, distribution and sales structures. Possession of and access to necessary resources plays an important role in this regard. In a certain sense, the MM has developed in deliberate opposition to existing economic structures and cultures of innovation. This is enhanced by the aspect of spatially decentralized production, which, in many cases, is considered a fully realistic alternative. Decentralization and localization of manufacturing processes are expected to gain in significance, and there is mention of a new type of artisanal manufacturing.

But the MM is also seen as an integrative component of the economy when considered in connection with entrepreneurship. This reflects the assumption that individual makers might later found companies to market their ideas, prototypes and products. Additionally, large, established companies have more recently shown interest in the MM, and their participation will be necessary for attaining larger scales. This view contains a more integrative perspective of the MM.

Another characteristic assumption regarding the MM relates to the fact that makers work in an self-determined manner. Makers are perceived to be able to choose their work schedule with relative freedom and are thus capable of achieving work-life balance. Another often-discussed aspect of the link between the MM and work is the specific maker skillset acquired through practicing forms of production that could potentially be exploited in the context of future work. This applies in particular to the combination of digitalisation skills with other artisanal skills and the makers' capacity for creative and collaborative problem-solving.

4.2 Groups of Actors in the Maker Movement

One group is described as hobbyists, who create objects in a home context, accomplishing production using new technologies such as 3D printing. Hobbyists are private individuals who create something new in their own homes — and which requires technology that is sufficiently accessible and easy to operate.

Children and young adults occupy a special role within the MM. They are perceived to possess an especially high degree of yet-unbridled creativity and a special affinity for new technology such as 3D printing based on their own designs.

The line between hobbyists and professional agents and organizations is often not easy to draw, and people with a strong variety of motivations and aspirations are condensed into a single group. The makers comprise programmers, mechanics, electronics amateurs, craftsmen and hackers, along with engineers, entrepreneurs and designers. Arts and engineering students are also viewed as part of the MM.

A second group of actors in the MM are organizations of a wide variety of types. Companies are often founded by individual hobbyists or by professional or semiprofessional persons as a spin-off.

Networks are also important as a form of organization for the actors in the MM, often described as peer networks or commons-based peer production. Their open 'architecture' is often seen to contain a special capacity for innovation, allowing other people to participate and contribute to cutting-edge projects. Participation rather than commercial recognition is the primary driving force behind these innovation dynamics, combined with low levels of bureaucracy resulting from these networks' decentralized structure and flat hierarchy.

Companies also are also actors in the MM. For example, 3D printing is seen as the driving force behind the emergence of so-called cottage industry entrepreneurship, creating business opportunities based on access to small-scale manufacturing. We can distinguish these MM 'nuclear companies', often start-ups founded by individual makers based on their own novel ideas and products from another category of company within the movement, namely those that develop and market technology for makers or that operate platforms designed to support makers in developing and marketing their own products (enablers and distributors).

Particularly in the American media, schools and universities play an important role as MM actors. A particular school of thought argues that 'making', in the sense of creating physical objects, should occupy a central position in the way we understand and shape the world and therefore should be at the heart of the learning process, especially for young people. Whether this is best

accomplished in schools or other learning environments remains controversial.

4.3 Forms of Spatial Organization in the Maker Movement

The flagships of the MM, known as Fabrication Laboratories (FabLabs), are the leading examples of maker spaces. The creation and opening of an increasing number of FabLabs and maker workshops is often even conflated with the MM itself in the media, and the movement's access to new technologies provided by all kinds of maker spaces explains its dynamic development. The first FabLab, founded in 2002 at MIT in Boston by Neil Gershenfeld as an open workshop, provided access to 3D printers, laser cutters and CNC routers. The underlying philosophy was to forge a closer connection between the processes of idea creation and implementation in the context of specific locations that could provide space for collaboration. By 2006 eight other locations existed in the United States in which practically anybody could gain access to the latest fabrication technologies and transform ideas into prototypes. By 2015, according to information provided by the Lab Foundation, 450 FabLabs existed worldwide, illustrating the movement's dynamic character. FabLabs are generally not profit-oriented companies. They are intended as open workshops and incubators for products, business models or start-up companies. The economic exploitation of the generated ideas and products occurs outside of the FabLabs.

Another type of space is the so-called TechShop. TechShops are equipped with a very broad range of production technologies made available to users in exchange for a subscription fee. TechShops are companies that are far better equipped than the average FabLab, offering full metal and wood workstations, plastics and electronics labs, CNC machines and countless software tools.

Noneconomically-oriented maker spaces also exist that are fully nonprofit and open to the public. These spaces are often not institutionalized. Examples include repair cafés and hackerspaces. Dedicated maker spaces in schools and universities, another form of publicly available space, began to develop around 2009 in the United States. Today, the use of maker spaces as places of learning and training has reached a relatively advanced stage, especially in the United States, where more than 200 U.S. universities and colleges integrate 3D printing coursework into their curricula, including not just printing but also 3D scanning and design.

More recently, libraries and museums offering spaces and technology have acquired significance as MM locations. Some libraries have transformed themselves into 'hands-on creative hubs' — spaces in which people can experiment with new digital manufacturing technologies. City districts or even maker cities are currently also the topic of discussion. In addition to physical spaces, virtual spaces play a key role within the MM. These spaces can host platforms for ideas, sales and financing, thus fulfilling the important function of MM enabler.

4.4 Potential Impact of the Maker Movement

The media quotes a variety of potential consequences in connection with the MM that provide insight into possible future courses for the movement's development.

4.4.1 Impact on the economy and employment

New products and applications from the MM in home production would, of course, have a different impact on branches of the economy that currently manufacture products in isolation. If these devices become popular with private individuals, entire sectors could experience a dramatic shift. According to media reports, MM and 3D printing have already changed the way that the industry designs, develops and manufactures prototypes. In addition to production infrastructure, commercial infrastructure will also presumably be subject to change in the context of the MM. The MM will also directly affect the economy, as its production techniques themselves have considerable market potential.

In addition to the above-described impact on the economy in a stricter sense, reports also provide indications of the future state of the job market subject to the influence of the makers. First, there is the aspect of the new job creation by the makers. These jobs arise from the founding and growth of new companies. However, the media has also highlighted job loss resulting from the MM, either because of obsolete logistical services, substitute products or termination of activities that the makers are performing themselves, such as design work.

Another aspect of the relationship between jobs and the MM lies in the particular skillset that future jobs will require, which the makers already seem to largely fulfil today with their own special competencies. The ability to collaborate and engage in creative problem-solving are often characterized as the types of thought process that educators wish to cultivate, and they represent qualities typical of makers.

As employment becomes more flexible within the MM, the boundary between work and leisure fades, the consequences of which are not exclusively positive. Criticism is also levelled in this specific regard, based on negative experiences with processes of decentralization and increased flexibility in the knowledge production sector. Arguably, the Internet has brought about increased working hours and existential uncertainty for countless actors of the creative economy.

4.4.2 Impact on methods of production

The discussion of the impact on methods of production is directly associated with the impact of the MM on the economy, elevating the discussion of the problem to a higher level. Accounts of this impact are based on the perception that new digital desktop production technologies will be capable of transforming full-scale production infrastructure and traditional factories, even rendering obsolete the organizational structures on which they are based. It can be noted that although these kinds of consequences regularly figure in the discussion, in most cases little is said regarding transitions or corresponding timeframes, and these topics are usually addressed with sceptical undertones. Makers are still primarily associated with the creation and production of accessories. Until the movement develops past this stage, consequences such as the transformation of production infrastructure continue to represent a distant prospect.

The disruptive influence of the MM and its technologies on future production has also been linked to its integration with two other technologies: 'intelligent robotics' and 'open source electronics'. Together, they are perceived as having the potential to end the age of large and complex global value chains by developing flexible, local value chains based on modern software.

Another aspect of the effect on methods of production has been derived by drawing an analogy with the destruction of traditional business models in the fields of communication, publishing and entertainment and other fields such as energy supply and, of course, 3D printing. These ideas contain (1) the relocation of production away from large companies towards the level of individual 'prosumers' and (2) the increasing propagation of business models from the sharing economy model and a trend of 'disownership'.

Individualization and prosumers occupy a large proportion of the discussion of the MM's possible effects. Individualization is clearly viewed not just as a driving factor of the MM but also as one of its consequences. After the ages of the social market economy, globalization and the sharing economy, an age of individuality is perceived to be on the horizon.

Another thread in the discussion of the impact on methods of production is the idea that in an MM-engineered future, people will purchase fewer things. Purchased products will be more expensive than before but will be more robust and will support local business. In parallel to this, the middle class will be reinforced by the MM's revitalization of 'manufacturing'.

The MM has also been considered in the context of its impact on the environment. One positively perceived effect is the use of so-called additive production methods that, unlike subtractive production methods, in principle do not require any other materials than those present in the final product (i.e., production waste is eliminated, and the end-products are recyclable). However,

the maker philosophy is also believed to be ultimately positive for the environment because of its reliance on sharing (e.g., the sharing of machines), reusing waste (upcycling), and reduced need for logistical services according to the logic of the separation of creation and manufacturing.

5. Conclusions and Directions for Future Research

In this study, we found indications for the MM developing as its own path for transformation of the socio-technical production regime. On the one hand, digitalisation and individualisation have triggered the transformation; on the other, a new culture of innovation and production, beyond mass consumption and standardised industrial production processes, drives the MM. This can be seen in new ways of creation, learning, organising and making. In this sense, the MM has developed in opposition to the previous dominant production regime and its predominate institutions.

The media recognises the MM as social phenomenon that has a variety of different facets, without a proper theoretical foundation. The term 'Maker Movement' is still fuzzy with variable boundaries, as we can see in its links to the DIY movement or the hacker scene. Also, the notable contrast between individual and collective perspectives regarding the MM does not systematically dissolve. Media content analysis delivers insights for a better understanding of the MM. The analysis indicates that the MM is in the beginning of the growth phase of its life cycle.

Key drivers are FabLabs and the Maker communities, which are not mainly profit-oriented but also correspond to commercial virtual idea and distribution platforms. FabLabs and its distribution platforms are not only spaces and drivers but also key actors of the movement itself with the power to organise makers and provide resources and tools to challenge the dominant production regime. It becomes obvious that the MM has multilateral relationships with the existing socio-technical system of production's institution and culture. With regard to the economy, integrative rather than disruptive relationships become obvious. How and in which way these relationships may develop in the future remains an open question.

In terms of the existing production regimes, the further development forward for Industry 4.0 is observable. In Germany large-scale industries mainly drive this evolution, such that until now the MM has not been recognised as complementary or even competitive. Nevertheless, numerous indications in the media suggest that large corporations integrate technologies related to the MM, like additive manufacturing.

Mainly, the unanswered questions include the extent to which the MM's autonomy is key to its sustenance next to the dominant regime and how the MM could influence the dominant regime as a whole.

To further explore these questions, the MM should be deeply explored based on the different possible paths as described by Geels and Schot (2007). This

could be done by implementing a scenario analysis based on the findings of the content analysis and considering possible paths as described by Geels and Schot. Furthermore, the theoretical considerations of the multilevel-perspective should be further operationalized (cf. Haxeltine et al., 2015) in order to explore the MM as a social innovation.

6. REFERENCES

Albrecht, S. 2013. Der emergente Diskurs im Internet: Wahrnehmung der Nanotechnologie im Spiegel der Online-Diskursanalyse. In: FRAAS, C., MEIER, S. & PENTZOLD, C. (eds.) Online-Diskurse. Theorien und Methoden transmedialer Online-Diskursforschung. Köln: Herbert van Halem Verlag.

Almeyda, T., Andersson, L. & Eppinger, E. Nutzen und Risiken der Personalisierten Medizin - Analyse der Berichterstattung in den deutschen, britischen und US-amerikanischen Medien In: Eppinger, E., Halecker, B., Hölzle, K. & Kamprath, M. (eds.) Dienstleistungspotenziale und Geschäftsmodelle in der Personalisierten Medizin. Wiesbaden: Springer Fachmedien.

Anderson, C. 2012. Makers. The New Industrial Revolution, New York, Crown Business.

Burkhardt, D. 2014. Die Maker Kultur gibt Innovationen enormen Schub [Online]. Available: http://www.deutsche-startups.de/2014/01/28/die-maker-kultur-gibt-innovationen-enormen-schub/.

Deloitte 2014. Impact of the Maker Movement.

Geels, F.W. & Schot, J. 2007. Typology of sociotechnical transition pathways. Research Policy, 36, 399-417.

Gershenfeld, N. 2005. FAB. The coming revolution on your desktop-from personal computers to personal fabrication, New York, Perseus Books Group.

Hagel, J, Brown, J.S. & Kulasooriya, D. 2014. A Movement in the Making.

Haxeltine, A., Kemp, R., Dumitru, A., Avelino, T., Pel, B. & Wittmayer, J. 2015. Transformative Social Innovation Theory.

Howaldt, J., Kopp, R. & Schwartz, M. 2015. On the theory of social innovations. Tarde's neglected contribution to the development of a sociological innovation theory., Weinheim, Beltz Juventa.

Kohlbacher, F. 2006. Qualitative Content Analysis in Case Study Research. Forum Qualitative Sozialforschung, 7, 1-30.

Kuckartz, U. 2012. Qualitative Inhaltsanalyse: Methoden, Praxis, Computerunterstützung, Weinheim und Basel, Beltz Juventa.

Macanamara, J. 2005. Media content analysis: Its uses; benefits and best practice methodologies. Asia Pacific Public Relations Journal, 6**,** 1-34.

Mayring, P. 2010. Qualitative Inhaltsanalyse. In: MEY, G. & MRUCK, K. (eds.) Handbuch Qualitative Forschung in der Psychologie. Wiesbaden: Springer VS.

Neuman, W. 1997. Social research methods. Qualitative and quantitative approaches, Needham Heights, MA, Allyn & Bacon