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Structured Literature Review of disruptive innovation theory within the digital domain

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Abstract: The area of interest is disruption is the digital domain. The research questions are: How has the disruption and digital disruption literature developed over time? What is the research focus into disruption regarding the digital domain and how has this changed over time? Which methods are being utilized in research regarding disruption and digital disruption? Where are the key contributors to disruption in general and in digital disruption? Is there a future for digital disruption research? The method is a Structured Literature Review (SLR). The contribution is the results of an analysis of 95 publications within the field of disruption in the digital domain and disruptive innovation theory in general. Works of twelve practitioners and 83 academics are investigated.

Keywords: Digital disruption; disruption; disruptive innovation; structured literature review; SLR; digitalization; digital transformation; innovation management

1. Disruption in the digital domain

The purpose of this paper is to define disruption in the digital domain, also known as digital disruption. Scrutinizing the literature describing, analyzing and discussing disruptive processes within the digital domain revealed a relatively young concept which had not yet been broadly articulated. This lack of foundations is a challenge for work that attempts to build hypotheses and theories in the domain, and while "… there is no general theory on the relation between digitalization and disruptive innovation…" (Rosenstand et. al. 2017, p. 2) an effort towards bridging the two areas is called for. We therefore argue that disruption connected to the global mega-trend of digitization is in need of theoretical grounding from which it may continue to develop.

Firstly, a short concept clarification of digital disruption; disruption refers to market-oriented disruption as described in the theory of disruptive innovation by Clayton Christensen (1997). When disruptive processes, based on the theoretical understanding, becomes fueled by digitalization, e.g. services or products being: brought to market on digital platforms, services or products supported or created by digital tools, consumed by digital users, then, digital disruption is at play (Baiyere & Salmela, 2013; McQuivey, 2013).

Digitalization is a global mega trend exemplified through cases such as Netflix, Kodak, Airbnb, Google, Facebook, Amazon, and Nokia (Ismail, 2014; Baiyere & Salmela, 2013; Gans 2016), and thus more and more business has disruptive innovative challenges and opportunities in the digital domain. It is argued with digital cases like these, that disruption is happening with a still increasing speed (Ismail, 2014). The reason given is the exponential price/performance development of digital technologies; often doubling the price/performance between every one to two years. Applied to disruption theory the digital disrupter's trajectory moving up-market is driven by this exponential development of digital driven technologies resulting in digital disruption of incumbents.

In the literary field of disruptive innovation there is an academic consensus among contributors incl. Christensen that disruption theory needs to continue to be developed, and "…*integrate it with other perspectives*" (Christensen et. al., 2015, p. 171). Due to the global mega-trend of digitalization we argue that the digital domain is such a perspective.

Haase et al. (2017, p. 2) state, that digital disruption has mainly been explored in broader societal scale or as integrated part of disruptive innovation, and not as a specific study area; an exception is Baiyere & Salmela (2013). This study is based on a literature review; the contribution is summarized in a table, where differences between 'digital disruption' and 'traditional disruption' are outlined regarding e.g. business model type, speed of diffusion, and humans in work (Haase et al., 2016, p. 6-7). Haase et al. characterize the contribution as a first step (ibid. p. 8), and we find this inspiring in order to take a next step using a Structured Literature Review (SLR) (Massaro et al., 2016a) including research questions and an applied statistical method revealing other or alternatively strengthen existing findings.

We believe that an assimilation of existing studies may provide new or other nuances to existing knowledge of how digital perspectives, cases, and technologies are being utilized, discussed, and researched in relation to the theory of disruption.

The following research questions are explored through the SLR in order to identify important digital aspects in the disruption literature field:

1. (RQ1): How has the disruption and digital disruption literature developed over time?

2. (RQ2): What is the research focus into disruption regarding the digital domain and how has this changed over time?
3. (RQ3): Which methods are being utilized in research regarding disruption and digital disruption?
4. (RQ4): Where are the key contributors to disruption in general and in digital disruption?
5. (RQ5): Is there a future for digital disruption research?

Research questions 1-4 are addressed in chapter 3 concerning insights, while research question 5 is addressed conclusive in the concluding chapter, 4.

2. Methodology

This paper uses as mentioned a SLR method (Massaro et al., 2016a). An SLR is a method for studying a corpus of scholarly literature, to develop insights, critical reflections, future research paths and research questions and helps developing knowledge by connecting new research with the past. According to Light and Pillemer (1984, p. 169) "the need for a new study is not as great as the need for the assimilation of already existing studies". This idea has been more poetically expressed by great thinkers such as Bernard of Chartres and Isaac Newton: "If I have seen further it is by standing on the shoulders of giants[1]". In this spirit of scholarly discovery, therefore, SLRs contribute to developing research paths and questions by providing a foundation on which to build on prior discoveries.

In Newton's time, scholarly literature was generally unavailable to the common man and a select group of individuals accessed and developed new knowledge at universities with access to the relatively few scientific publications in the libraries. Today's is a different world, where mass education and information technology is changing the way academics communicate and develop knowledge. Researchers can use a range of software, online search engines and research databases linked to journal articles. This makes access to knowledge easier - but possibly more confusing. In an age where the availability of information is hyper complex researchers need tools for hyper-connecting the information from different perspectives with different research questions. The information is mostly out there, today the researcher's or innovation manager's job is to ensure to ask the right questions because the information is out there. However, as Dumay and Cai (2014, p. 1261) outline, many "researchers are avoiding the use of leading edge technologies" and could be potentially limiting the scope of their literature reviews. Consequently traditional literature reviews are criticized as too subjective (Petticrew and Roberts, 2008). To assist in reducing this criticism SLRs are a method that incorporates the latest research technologies for conducting a literature review. The SLR method complements traditional literature reviews because the approach helps to yield different outcomes that are defensible.

Research questions

In our SLR we have developed and applied, through a problem oriented research process, the research framework in Table 1.

[1] Letter to Robert Hooke (15 February 1676).

Table 1 Research framework

A. Parameters	*A.1 Specifications/variables*
Bibliographical/Source-info;	
• Citations:	Citations pr. year from GS[1]
• Journal/Publisher:	Where the article is published
• Year:	Year published
• Country/Region:	Origin of the source of data used in the research
• Author characteristics:	Country first author affiliated to
Applied method:	Action research, intervention research Case study, non-intervention Conceptual paper Critique Discourse analysis Interviews qualitative Literature review Mixed methods Multi-case study Other Panel data or similar quantitative study Survey, questionnaire
Domain/area of interest:	Emerging markets Health sector Institutions and society Large-corporate Multiple perspectives (S-SMV-XL) Other Public-sector Start-ups
Definition	Defines disruption (DI) Defines digital disruption (DD) Combination None
Field-perspective on DD/DI:	Start-ups Business and management Computer Science Cultural industries

[1] As of 10th of September 2017.

	Design thinking Education Engineering and production Government, society, politics Health science Humanities Innovation and entrepreneurship Other
Theme of research:	Advantage through digitalizing Analog technology Applied definitions (DI/DD/DT) Creating frameworks, models and techniques Entrant / Incumbent Digital business cases Digital business model Digital consequences Digital technology Digital technology examples Digital transformation Hardware examples Price-performance Relation between digital and disruptive innovation Relation between scale and digital/ Relation between digital and scale Research questions Software examples Supply / demand

Data collection and processing

To ensure a rigorous and exhaustive literature review the research group collected a dense set of data related to search key-words. This first step ensured that every corner of Google Scholar was vacuumed for information regarding disruptive innovation in the digital field.

This generated a large set of data[1] containing data varying from literature reviews, interviews, case studies, panel surveys, conceptual papers and more. The total number of articles and books that went into the SLR-research protocol where 157 (highest cited and/or ranked papers), out of these, 95 articles where imported into NVivo after a customized priority assessment process shown in table 2.

Table 2 Data assessment through construct validity

B.	*Parameters*	*B.1 Specifications/variables*

[1] Data search initially revealed 100.000+ hits on the key-words however, the majority of these sources revealed to be healthcare studies using disruption as a *biological term*. When "digital" was included it was in the context of tools and interfaces utilized in measuring physiological data.

Rules for use of key-words and combinations in GS search:

Root/Constant[1]	Additions
Disruptive	Digital
Disruption	Technologies
Disrupting	Innovation

Priority assessments for input NVivo;

1st priority assessment: Literature list containing references to work by Clayton M. Christensen and/or utilizing terms or variations of terms (synonyms) from the theory by Christensen[2].

2nd priority assessment: Literature list containing references to highest cited/rated contributions of disruptive innovation theory (fx. Henderson (2006), Markides (2006), Adner (2002).

Over the duration of one month a structured literature review was coded. The research-process was divided into four stages; first stage was spent constructing an analytical framework and research protocol. In the second stage a structured literature search was conducted using the search engine Google Scholar because Google Scholar is a more accurate citation metric than for example Web of Science (Harzing and Alakangas, 2016). Citation counts and ratings[3] were also collected and added to the research protocol. In the third stage, all of the collected literature went through a prioritization and assessment process (table 2). The 95 most relevant papers where then imported to the program NVIVO for coding. In the fourth stage, visual representations of the NVivo file where created followed by analytical tabulation and a discussion of the results. All sources of data are restricted to articles and books.

Variables, strengths and implications

Two initial questions arose as the analysis framework took form; the first question we encountered was how to ensure a valid amount of inclusion of disruptive innovation literature, to get a valid representation of 20+ years of theory-construct (still ongoing) into the SLR, while also investigating contributions on disruption in the digital domain

[1] The rule of the constant is that it has to be present in every search combination of key-words in Google Scholar, considering that searching between additional keywords such as digital, innovation and technologies would generate too many papers not related to disruption theory.

[2] References can also be caused by the "Google Scholar effect"; defined as a situation when older academic publications continue to be cited because of their appearance in the top rankings of Google Scholar, which makes some authors believe that journal reviewers and editors expect to see these citations, regardless of their actual fit and contribution to the citing work (Serenko and Dumay, 2016).

[3] Ratings retrieved from Harzing.com

(Christensen, 2006; Christensen et. al. 2015). The research group started out by adding all major publications on the theory of disruptive innovation to the research protocol. Cooperating ratings and citations per year constituted a useful tool of measurement in regards to prioritizing the top contributions on disruptive innovation. However, fewer citations have been recorded for articles attending to disruption in the digital field since this area is rather new and less explored. As expected, the count of papers coded for disruption in the digital domain was far outnumbered by the ones coded for disruptive innovation and disruptive technologies. In this study both CPY (Citations Pr. Year) and CP5Y are considered dependent on the context; the reason to this is that the latter tells about if there is continuity in citations made for authors with high counts in CPY.

By having a large set of data with disruption (and different like comparisons) as a common nominator in regards to search key-words, we obtained a solid fundament of data. When the coding process in NVivo was initiated, we could smoothly re-adjust the focus on finding indicators of how disruption in the context of digitization has developed over time. In this paper, we answered the research questions beginning with insights from quantitative results and then supplement/support our findings with qualitative data from the more in-depth coding phase of the data.

The research group has a well-rounded and fundamental knowledge-base in regards to the theory of disruptive innovation. Therefore, we are conscious of how we can utilize our prior experience and knowledge obtained from working within the field of disruptive innovation to strengthen the validity of the coding process. This knowledge may support the research group in having to identify important secondary authors who have contributed to building onto Christensen´s theory as well as provide support in situations where distinguishing between different interpretations (and misinterpretations) of the theory will be necessary.

The second question that arose was whether including non-academic material would be unavoidable when dealing with an area described only sparsely within the academic field. To rule out all non-academic literature when investigating a phenomenon that many practitioners are defining and describing differently, could mean that important nuances and information on relevant dilemmas may be lost. We chose to include 12 contributions of non-academic nature in the analysis based on their quality and connection to disruption in the digital. We define the non-academic genre as consultancy reports and literature belonging to the field of popularist science e.g. essays, columns and books on the subject of disruption in the digital field.

Some of the implications in regards to collection and processing data were that literature, specifically on digital disruption, has not had the same time to mature as the general literature of disruptive innovation theory. Because of this we see that CPY/CP5Y is heavily declining in more recent contribution. For coding purposes the literature needed to be obtained as PDF´s which was hard to obtain at times due to restrictions on publication-servers. This caused two sources not to be included in the coding phase, even though they fulfilled the passing requirements. The sources left out were articles by Sullivan et. al. (2016) and Weill et.al. (2016).

3. Insights

In the following, we discuss the five research questions:

3.1 How?

(RQ1): How has the disruption and digital disruption literature developed over time?

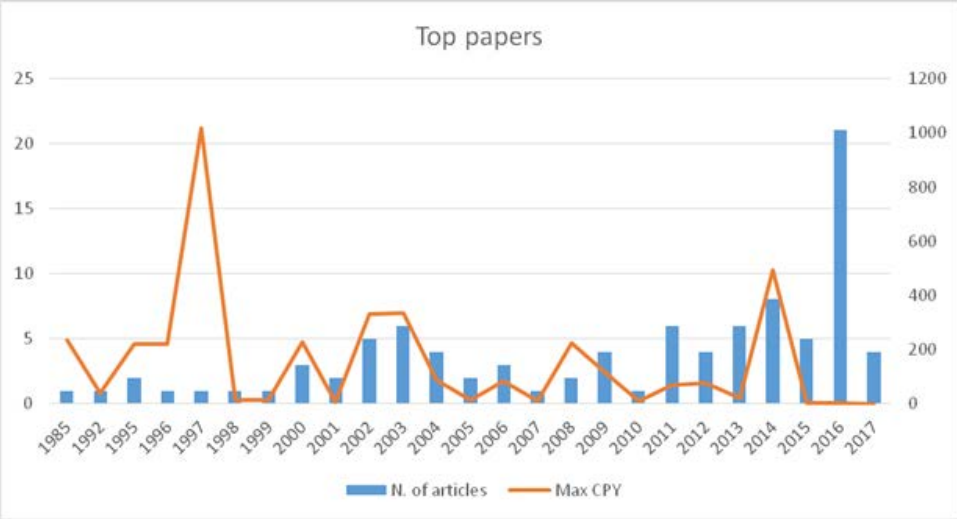

Figure 1: Top papers and citations in the timeframe 1985 to 2017.

As it can be seen in Figure 1, the literature shows a growing number of articles published in the field with, at times, great fluctuations in CPY. Our data illustrates that there are several phases in the digital disruption domain. In the graph (Figure 1) we find a number of Max CPY spikes in 1985, 1995, 1997, 2000, 2002-2003, 2006, 2008-2009 and 2014. In 1985 Abernathy & Clark writes on mapping the winds of creative destruction, the latter refers to the Schumpeterian concept which has similar features of the theory of disruptive innovation1 (Gans, 2016). We observe a major spike starting from 1995-1997 (Christensen´s article on disruptive technologies from 1995 and his book "The innovator´s dilemma" from 1997). The innovators dilemma is a highly cited publication throughout the development of the theory.

At the spike in 2000 we have publications such as Chandy & Tellis (2000) investigating the perspective of the incumbent companies in disruptive processes. The same year Christensen & Overdorf (2000) publishes the article "Meeting the challenge of disruptive change" where outlines of frameworks and methodologies are being developed and later presented in his later major publication in 2003.

The second highest citation count on the chart is seen in 2002, where the most dominant writers are Gilbert & Bower, (2002) and Adner (2002). Gilbert and Bower writes about disruptive change from the perspective of the incumbent companies and Adner, being among the first to build upon Christensen's theory, publish an article with the core question: "When are technologies disruptive?" Lastly, we have two highly-cited articles by Christensen the same year; Christensen, Johnson & Rigby (2002) and Christensen, Verlinden & Westerman, (2002).

From 1985-2003 the highest amount of publications is identified in 2003. The curve showing max citations pr. year has some fluctuations with the highest on the entire graph

[1] Similarities have been identified between Schumpeter´s (1942) concept of "Creative destruction" and Christensen´s theory of disruptive innovation; however Christensen never intended this when coining the theory. In the forewords of a later edition of the innovators dilemma he did agree to the existence of similarities between the two terms (Christensen, 2016; Gans, 2016, p. 16).

at 1997. The accumulation of highly cited publications in 2000 and 2002, along with Christensen coining the term of disruptive technologies in 1995, and publishing his first major work "The innovators dilemma" in 1997, makes these years stand out.

A second, relatively stable, phase of research takes place from 2004 to 2013. Here there are neither radically high numbers of published works, or works that are extraordinarily high cited. In 2003, Christensen´s follow up to his first publication *The innovators solution* clearly makes the citation count rise.

In 2004 and 2006 we see two smaller spikes; the reason to this is that during these years, a variety of publications on disruption theory is published (Danneels 2004; Hacklin, et. al., 2004; Kostoff et. al., 2004; Christensen, Anthony & Roth, 2004). In 2006 Christensen published a 10-year status on the development of the theory of disruptive innovation named "The ongoing process of building theory" Christensen et al. had in 2002 invited researchers to empirically test their deductively derived model in order to "…continue to build deeper understanding of the circumstances under which we might expect integration and non-integration to confer competitive advantage or disadvantage" (Christensen et al., 2002, p. 957) a range of US academics responded to the invitation (Henderson, 2006; Govindarajan & Kopalle, 2006; Markides, 2006; Tellis, 2006). Publications from this period are especially critiques and reviews, adding to the theory-building process of disruptive innovation.

In 2008 another spike is identified; in 2008 Christensen and coauthors Johnson & Horn publish the book "Disrupting class" where the theory of disruptive innovation is applied in educational contexts. This year top authors like Zittrain (2008) publishes a book about how to handle future aspects of the internet, this publication tops the citation chart in 2008 with a CP5Y-count reaching 207,6.

Christensen publishes another book in 2009, this time applying the theory of disruption to healthcare; this is popularly cited by later authors discussing digital disruption within the healthcare sector (Topol, 2012; Garetty et. al., 2014; Dubé et. al, 2014; Vernig, 2016).

In 2014, we observe another citation spike on the graph; here we have 10 different publications as well as one highly cited paper by Boccardi, et. al. (2014). Other highly cited contributions are Sultan (2014), Lepore (2014) and Downes & Nunes (2014).

Lastly, the most recent year illustrates a distinct spike in the number of published works (citation-counts from 2015-2017 are yet to mature). The year 2016 have accumulated the largest amount of publications, predominantly, regarding digital disruption. The methods used in this year vary from panel data/quantitative studies to qualitative surveys. Mixed methods are not utilized in this period and no critiques are published. The dominant methodologies are multi-case studies, case studies and discourse analysis. In 2016 we also see the most drastic change in number of publications which grows by 500% in one year.

3.2 What

(RQ2): What is the research focus into disruption regarding the digital domain and how has this changed over time?

In order to provide an answer to this RQ we first analyzed from which fields the works in the field originated. Next, we studied the specific themes of research in each work.

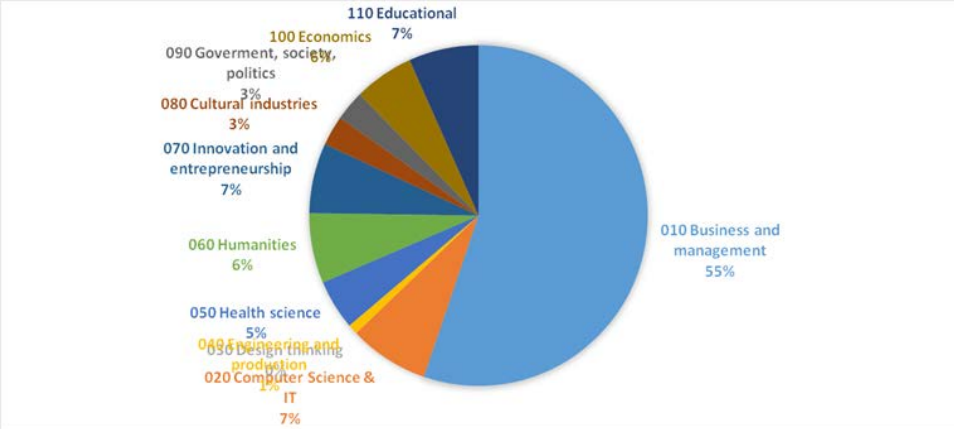

Figure 2: Research themes.

Our results show that especially Business and Management is dominant in the field, and that there are a few perspectives such as Computer Science and IT, Education, Innovation and Entrepreneurship, Economics, and Humanities that share a relatively equal focus. However, there are differences in this focus across time, with engineering for example being a much more recent field contributing to the domain of digital disruption.

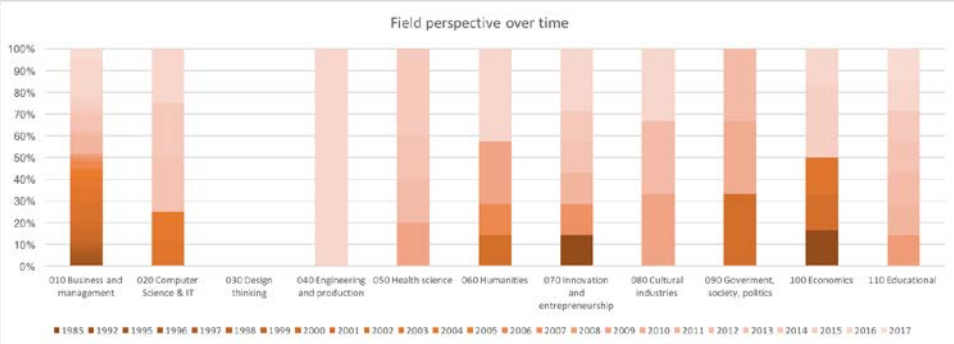

Figure 3: Development of field perspectives.

Figure 3 illustrates how the perspectives forming the field are changing over time. The first column in fig. 3 shows, that once a perspective enters the field, it does not die out. Economics, as a perspective on digital disruption had a rather long break; from around 2000 to 2010 as shown in column labeled no. 100.
Figure 3 also shows that there are some relatively newcomers to the field of digital disruption. On the one hand, we have some more technical perspectives associated with Engineering and production and the Health sciences. On the other hand we have the sifter sciences relating to Cultural industries and Education. These results indicate that the field is currently in the process of broadening.
Design thinking sciences have not yet engaged with the field, despite intricate connections to practical entrepreneurship. Adding this perspective would undoubtedly bring new insights to the field.

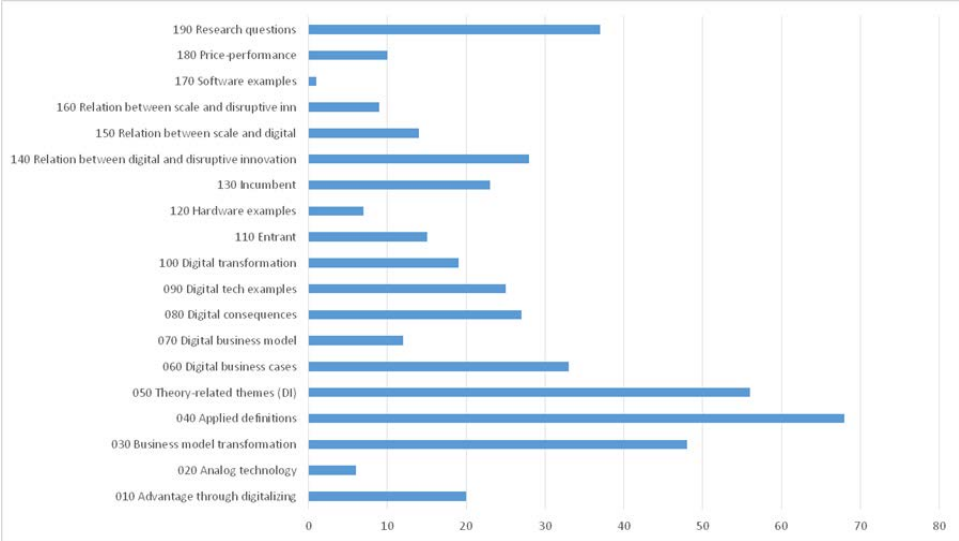

Figure 4: Thematic distribution.

The data illustrates the traits of a young and emerging field in terms of definitions, theory related themes, and research questions are among the most dominant themes.

A second insight is that when concerned with the perspective of business and management, the themes Business model transformation and Digital business models are the most dominant. Contributions of this field that are concerned with the effect on business, clearly study how the digital domain alters the characteristics and potentials of value creation (Bughin et. al, 2017; Bradley et. al., 2015; Kiron et. al., 2016).

Development in themes of research

Combining results from fig. 1 and fig. 2, 3 and 4, we obtain insight in regards to how themes in disruptive innovation theory develop. While Christensen and Bower describe disruptive innovation in 1995, "The Innovator's Solution" by Christensen and Raynor (2003) shifts the focus of the theory from technologies to business models. It is from this publication that the current theoretical understanding stems from.

In terms of digital perspectives we find insights looking into publications in 1998 and 2003. In 1998 Larry Downes´ book "Unleashing the Killer App: Digital Strategies for Market Dominance", focuses on the potential of products and services for dramatically changing business[1]. The book reinvents strategy for the deep understanding of the internet-age to succeed in an interactive future; a theory called "Law of Disruption" is also described. Downes´ publications could very well be classified as an early example of literature dealing with disruption within the digital domain however, disruption in Downes' study shares more commonalities with its dictionary origins, as something that interrupts, than the theory of disruptive innovation which counter-arguments this.

In 2003 we see another interesting publication by Sambamurthy, Bharadwaj & Grover, (2003), *Shaping agility through digital options: Reconceptualizing the role of information technology in contemporary firms.* This study is published in MIS quarterly

[1] This publication has sold over 200,000 copies and was named by the Wall Street Journal one of the five most important books on business and the Internet ever published.

with the highest possible rating[1] as well as a CP5Y-count reaching 228,2. This publication in particular is also the earliest study found in this review that directly combines IT and digital applications with the field of disruptive innovation:

> "The convergence of computing, communications, and content technologies offers firms significant opportunities for enhancing agility (Goldman et al. 1995; Moore 2000; Venkatraman and Henderson 1998). Contemporary firms are making significant investments in information technologies (such as Web services, data warehousing, customer relationship management, or supply chain management technologies) to leverage the functionalities of these technologies in shaping their business strategies, customer relationships, and extended enterprise networks." (Sambamurthy et. al., 2003, p. 238)

In the publication from 2003 both references and descriptions of Christensen´s work is provided and applied in the context of how contemporary firms invests in digital tools and services to become more agile. With this insight we can argue that 2003 can be considered as the point of departure year in academic contributions of disruption in the digital domain.

From 2008 to 2009 Christensen introduces healthcare as well as educational aspects to the theory of disruptive innovation (Christensen et.al., 2008; Christense et. al., 2009). In regards to healthcare we see an array of contributions from authors like Topol (2012), Garetty et al., (2014), Dubé et. al. (2014) and Vernig (2016) while educational aspects to disruption theory is provided by authors such as Flavin (2012) and Meyers et. al. (2016).

Looking into the contents of publications from 2010 and forward, we observe, that a majority of the published papers initiates discussions in regards to digital transformation and the following consequences as well as advantages on a larger scale (societal, governmental). Examples are Sultan (2013), and Cohen and Schmidt (2010) who takes a look into layers that goes beyond the disruption of businesses and looks towards what transformations the society faces in regards to public and private infrastructures and social behavioral patterns.

Another insight comes from the period 2015-2017, where a majority of publications start to converge the digital field and the theory of disruptive innovation; Bughin et. al (2017) describes what they call "Disruption Digitization" – in many ways another version of digital disruption. In many ways Bughin et. al. describes an updated version of disruption theory, but is referring to it as a concept. By explaining how digitization is a highly relevant factor in disruptive market processes this paper is an example of how contemporary publications create convergence between disruption theory and the digital domain. In this case, digital disruption is presented as a more abstract and multidimensional concept and, like Christensen has a strong focus on incumbent firms´ ability to fail in the face of disruptive innovations, Bughin et. al. also emphasize the importance of incumbents reaction and understanding of this in order to survive an even greater threat of disruption.

In other recent contributions like Rosenstand et al. (2017), Møller et. al. (2017) and Nielsen et. al. (2017) we start to see academics questioning and seeking more theoretical frameworks for the field of digital disruption.

[1] Rated: 4*/A*/2 (obtained from Harzing.com, 52nd edition)

3.3 Which

(RQ3): Which methods are being utilized in research regarding disruption and digital disruption?

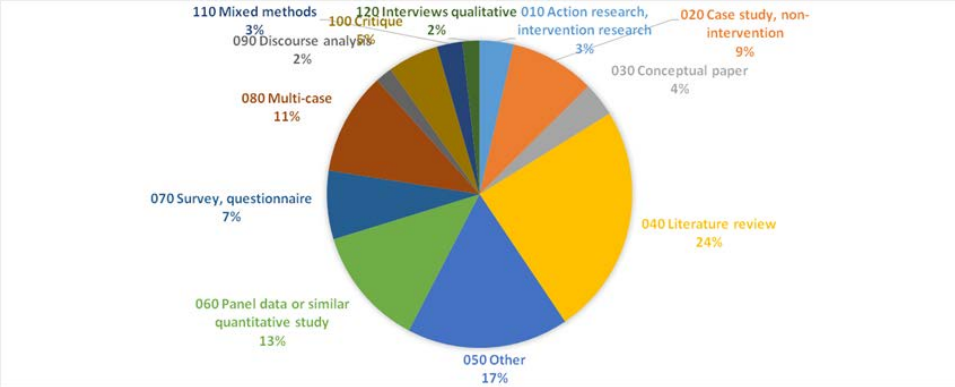

Figure 5: Methods used.

Our results show that empirical analyses are dominant. It is also evident that, even though qualitative studies including action research and non-interventionist case studies are more recent compared to quantitative analysis, they represent the larger proportion of the dataset.

Quantitative studies, critiques, and literature reviews are the methods with most overall continuity. Most recent literature utilizes qualitative methods and conceptual papers are becoming dominant after 2003 as well as cases. Mainly practitioners use case-studies (1/3 of the academic contributions use case-studies) where digital technologies such as Cloud, AI and robotics, information technologies and tracking technologies are the focal point of these cases. Academics are more likely to create conceptual papers as well as reviews as their focus is drawn to describing and framing the new phenomenon of digital disruption (Møller et. al., 2017; Rosenstand et. al., 2017).

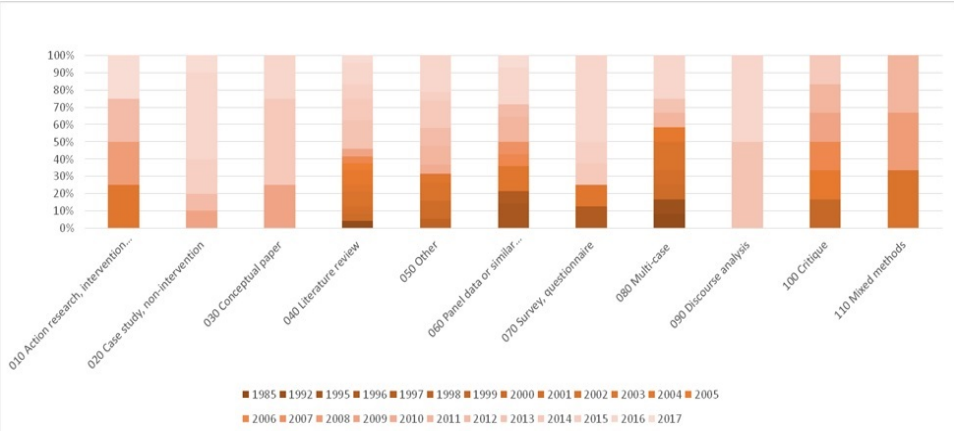

Figure 6: Development of methods used in publications (years are color-coded).

As we see on the chart in figure 6, the publications in 2014 does not entail mixed methods or critiques, the methods used in these publications are mainly discourse analysis, conceptual papers, (multi-)case studies, action research and surveys/questionnaires. The amount of conceptual papers published could point towards a paradigm shift within the field of digital disruption around this period. The methods of case-studies, action research and discourse analysis are telling us that the research conducted within this phase are primarily of a qualitative nature.

3.4 Where/Who

(RQ4): Where and who are the key contributors to disruption theory in general and in digital disruption?

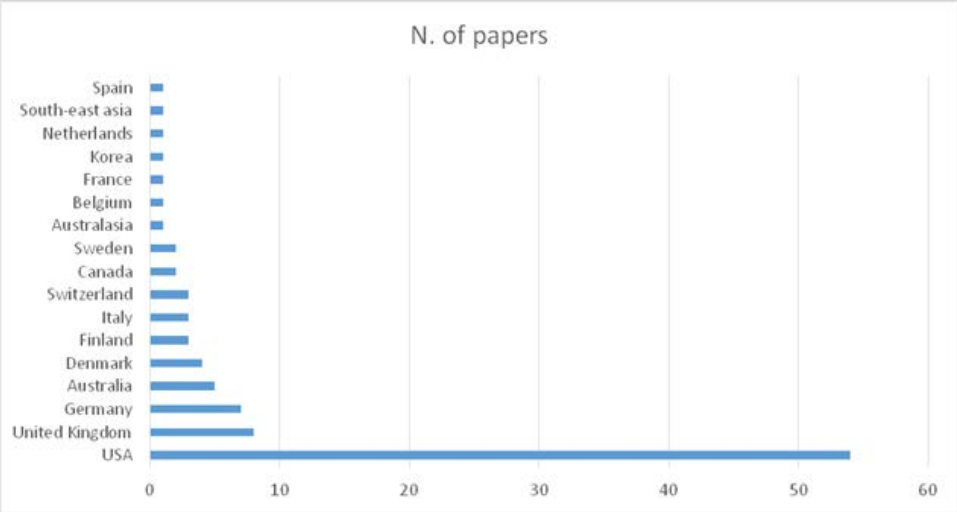

Figure 7: Number of papers published pr. Country / Region.

Continental distribution

The clear dominator of this chart is the US; knowing that the theory of disruptive innovation originated from Christensen at Harvard University while many co-authors and contributors of Christensen´s originates from somewhat same areas and universities. The follow up is the UK and countries in the EU such as Germany, Denmark, Finland, Italy and Switzerland. Australia comes in at a close fourth while Asia and some European countries are underrepresented, but they are, none the less, represented in this chart. The chart in figure 7 tells us about the continental distribution of contributions adding digital perspectives to disruption theory. It also tells us that a highly developed country like China or Japan is not contributing to the subject of digital disruption. This could be a clear call for contributions from China and other regions of the Asian continent.

Academic contributions vs. Practitioner contributions

The following figures (8 and 9) depicts two graphs; figure 8 shows the amount of academic contributions (number of publications and citations) while fig 9 shows same measurements for practitioner contributions.

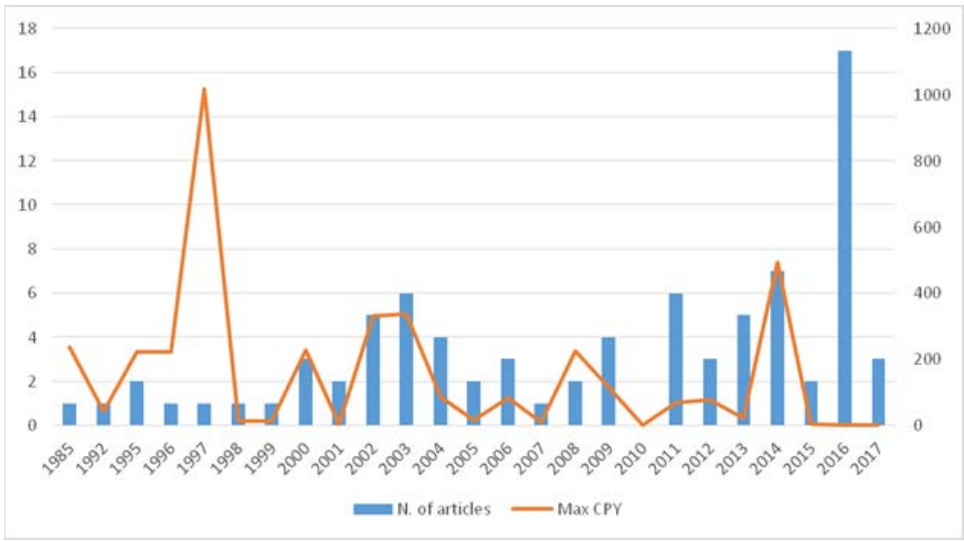

Figure 8: Academic publications.

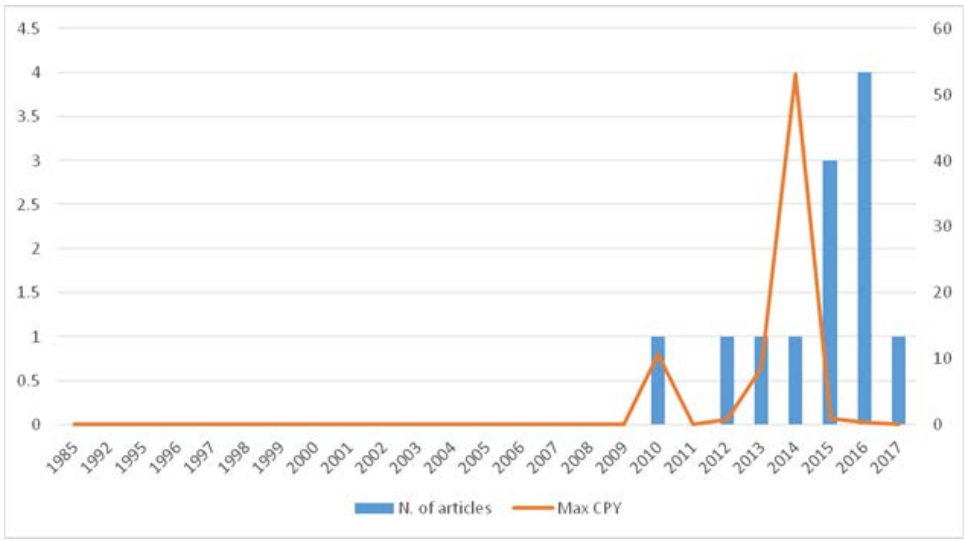

Figure 9: Practitioner-publications.

While academic contributions are well-spread out over a period of 32 years with some distinct fluctuations (the majority being around Christensen´s major publications in 1997, 2003 and 2015), the number of practitioner publications starts being represented from 2010, peaking at its highest in 2016. The CPY for practitioners are peaking in 2014, this year only one publication is recorded in this study making the CPY relatively high for a non-academic contribution. Considering the practitioner publications in 2016 have not yet matured in regards to receiving citations, we cannot say whether or not the citation spike will grow or regress negatively.

4. Conclusion

(RQ5): Is there a future for digital disruption research?

The SLR shows that the field of digital disruption is in a process of broadening out and the business appeal of the domain is slowly shifting to also incorporate technical and humanities based perspectives. One of the potentials of such a shift is that it might create stronger links between business and both hard and soft sciences. To this point the trend is following Christensen's earlier mentioned suggestion of integrating the theory of disruption with other perspectives (Christensen et. al., 2015, p. 171).

Also, we identified that there is a lack of contributions from China and other regions of the Asian continent which calls for contributions from Asian regions to the field of digital disruption.

Business model innovation is a prime driver of the field at the present, through the business and management perspective. Business Model Innovation is about the effects of digital disruption and how this opens up new possibilities, which advocate for future research on digital disruption:

- Perhaps something more needs to be said about the causes leading to digital disruption?
- Perhaps we need research on the negative side-effects of digital disruption?
- Perhaps a clear definition of the difference between disruption theory in general and a specific digital disruption theory has to be developed?

Through our research we identified that a majority of academic contributions are beginning to incorporate digital perspectives in disruption theory. We also identified an expanding field of practitioner-based contributions. However we have only identified 31 relevant publications directly focusing on digital disruption. To this point the field of digital disruption can be characterized as relative immature.

Our research results point toward a convergence between disruption and the digital field. Disruption theory is challenged in embracing all of the aspects that digitization adds to it, and thus the trend is to include new disciplines representing these aspects. It can therefore be argued that there is a need for a specific research focus on digital disruption with a more interdisciplinary approach.

Academics have the strength of theoretical knowledge and rigor in their research methods while practitioners such as innovation managers rely heavily on relevance in their contributions (Massaro et al., 2016b). We see this exemplified in the data through the amount of practitioner papers using case- and multi-case studies while the focus on being rigorous mainly applied to academic contributions. To conduct more applicable research in meeting grand-scaled challenges adjustment could also be considered for academic contributions in terms of focusing more on relevance in their research by collaborating with practitioners.

In conclusion, we believe that there is a future for digital disruption research. With a reference to the theory of disruption, digital disruption started as niche research in the general field of disruption, and is now on an exponential trajectory. In future all areas might become digital, and thus a relevant theory disruption to innovation managers has to regard the digital domain.

We intend to continue to build onto existing data and creating larger scaled SLRs to capture more aspects of the digital megatrend in relation to disruption theory.

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