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Digital Entrepreneurship in Business Enterprises: A Systematic Review

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Abstract. This study systematically reviews extant contemporary literature on digital entrepreneurship in peer-reviewed journal articles over six years (2013–2018) from six journal databases. It involved a systematic literature review of 101 papers from 53 journals focusing on the publication outlets, yearly trends, themes, and associated theoretical and conceptual approaches, methodologies, sources and geographical distribution of digital entrepreneurship research. The findings suggest that extant literature mostly lacked sound theoretical underpinnings. More work adopting appropriate and proven theoretical approaches is needed. Most of the reviewed papers also focused mainly on issues relating to the technology itself than those relating to the enterprise or the entrepreneur. The capabilities and capacities of enterprises, as well as the strategies in implementing digital technologies and harnessing the opportunities of digitalization, are key issues that have not hitherto received much attention. The study contributes to the understanding of the conceptualization of the digital entrepreneurship phenomenon. Future research should consolidate the understanding of the field, with models and frameworks that recognize digital entrepreneurship as an academic research field in its own right, and also consider the impact of enterprise capabilities and capacities on digital entrepreneurship.

Keywords: Digital Technology, Digital Entrepreneurship, Business Enterprise, Systematic Review.

1 Introduction

Digital entrepreneurship is generally defined as the pursuit of business or economic opportunities based on the use of digital technologies [9], and this definition is adopted for this study. The entrepreneurs involved in the digital entrepreneurship are then described as digital entrepreneurs while the resulting ventures or firms, which provide economic and social value for themselves or their communities, are referred to as digital enterprises [9, 50]. Although researchers and policymakers have widely used the term ‘digital entrepreneurship’, its conceptualisation remains elusive, with very little evidence of scholarship in the field [50].

There is a growing interest in digital entrepreneurship since it is considered to be the ultimate and contemporary trend in entrepreneurship development due to the rapid

development of digital technologies and the emerging digital economy [20]. Bogdanowicz [2] also emphasises the renewed and increasing interest in digital entrepreneurship and calls for empirical evidence [24].

Despite the increased interest in digital entrepreneurship and technology-based innovations, there has been limited clarification of the concept from different perspectives and conceptualisations. Moreover, there has also been a lack of contextual and conceptual development and discussion of the concept of digital entrepreneurship, as most prior research examined only the sporadic phenomena associated with it [42, 50]. Furthermore, some critical and fundamental issues about digital entrepreneurship currently remain unresolved in the literature. These include how digital technologies transform entrepreneurship, how digital entrepreneurship predicts performance outcomes, and how digital entrepreneurship differs from traditional entrepreneurship [48, 50]. Meanwhile, not much has been done in terms of reviewing the body of literature and research trends in digital entrepreneurship, so the need for conceptualisations in the field is much desired [34].

Furthermore, there is a dearth in knowledge regarding the detailed classification of digital technology-enabled entrepreneurship and enterprises, making it difficult to appreciate the current level of understanding and boundaries of the original concept [36, 41]. Additionally, the current conceptualisation of digital entrepreneurship is considerably diverse. While some researchers have opted for a broad conceptualisation of digital entrepreneurship as a combination of digital technology and entrepreneurship innovation [1, 14], others have limited the concept to the attainment of entrepreneurship goals with digital technological applications [44].

It is essential to review achievements and studies to date, regarding what has been done, what needs to be revisited and what is still missing in the field, in order to better appreciate and promote the development of digital entrepreneurship on the academic and research front [33]. A review of studies on the concept of digital entrepreneurship is necessary to evaluate the current understanding of, and complementary perspectives on, how the digital technology revolution has permeated entrepreneurship and innovation [22].

Hence, compelled by the challenges posed by the development of the digital entrepreneurship concept, particularly in the IS research environment, this study seeks to provide a systematic review of the extant literature on digital entrepreneurship. The study will identify and describe the major issues, themes, trends, distribution, and focus of research on the concept. It will also examine the methodological and theoretical approaches to past studies on the concept, identify the limitations and gaps in the literature, and offer recommendations for future research. The resulting review is expected to serve as a one-stop source, offering insight into what has been accomplished so far, what is currently being done, and what challenges and opportunities lie ahead, in terms of research on digital entrepreneurship. The study, therefore, addresses the following questions to achieve this:

1. What are the major trends, characteristics, and distribution of research work on digital entrepreneurship?
2. What major issues and themes are being focused on and discussed in digital entrepreneurship research?

3. What theoretical, conceptual, and methodological, approaches are being used to address digital entrepreneurship research?
4. What are the limitations and gaps in the extant literature on digital entrepreneurship?

This study seeks to systematically review research articles concerning digital entrepreneurship in peer-reviewed journals from six major journal databases, over six years. The next section presents the methodology employed, while the third section presents the findings and discussions. The fourth section elaborates the limitations and gaps identified, followed by the conclusion and contribution.

2 Methodology

The study was conducted as a systematic literature review (SLR) of extant studies on the conceptualisation of digital entrepreneurship [37]. The searches for articles were conducted in six electronic databases for which the researcher had full-text access: ScienceDirect/Elsevier, Emerald, AIS Library, Sage, Springer, and Taylor and Francis. Although these databases may not exhaustively list all relevant journals, they, however, cover a reasonable portion of the existing database for IS journals. As Levy and Ellis, [29] noted in their guide to a systematic approach to a literature review in IS, it is better to use multiple databases in conducting literature searches, since the IS domain is multidisciplinary and IS literature outlets are highly diversified. Quality IS literature is dispersed through-out hundreds of databases and some of the databases used in this study, being multidisciplinary, are among those recommended by Levy and Ellis, [29] as useful for IS research. Moreover, most journals in these databases are globally top-ranked IS journals [4]. Against this backdrop, the list of databases above was a fair and adequate representation of the relevant IS databases suited for digital entrepreneurship study, which is a multidisciplinary subject.

The searches were conducted using “digital innovation” and “digital entrepreneurship” as search terms. Other keywords included “digital enterprise,” “digital economies,” “digital technologies,” and “innovative technologies.” The search was limited to articles published between January 2013 and August 2018, resulting in 175 papers or articles, that were downloaded.

The exclusion criteria applied included the delimiting of the papers to peer-reviewed research articles, and hence, conference papers and book chapters were excluded from the study, in addition to stock reviews. The articles were also restricted to those concerning business entrepreneurship and business enterprises, and thus, all articles concerning policy, education, and social entrepreneurship were eliminated. After the papers had been identified and elicited, they were sorted and cross-checked to eliminate duplications.

Ultimately, 101 articles from 53 journals were selected. The selected papers were then classified based on the publishing journal, year of publication, digital technology issues and themes, theoretical and conceptual approaches and frameworks, research methodologies and methods, data sources and levels of analysis. The data collected on the various classifications were analysed and summarized using descriptive statistics.

3 Findings and Discussions

3.1 Publication Databases and Journals

Regarding the distribution of the articles in the databases, it was found that Emerald hosted the majority of the publications, followed by ScienceDirect, Springer Link, and Taylor and Francis. Sage and AIS Library, by contrast, had small numbers of journals and articles, with particularly the AIS Library having the least. Such observation may be explained by the fact that, because digital entrepreneurship researches straddle multidisciplinary fields, it may be expected that libraries and databases that accommodate multidisciplinary fields will have more articles on digital entrepreneurship [29]. Moreover, apart from the AIS Library, which contains papers specifically related to IS, the other libraries (Emerald, ScienceDirect, Taylor and Francis, Springer Link and Sage) contain papers from several different fields [29].

In terms of the number of articles per journal, *the Journal of Small Business and Enterprise Development* had the highest number of 11 (10.9%) articles and is followed by *Technological Forecasting and Social Change* with 9 (8.9%) articles. The *Information and Management journal* had 5 (4.9%) articles, *Journal of Business Research* and the *Journal of Information Technology* had 4 (4.0%) articles each, while the *Journal for Innovation and Entrepreneurship*, *Journal of Strategic Marketing*, *Small Business Economics journal* and the *Journal of Open Innovation, Technology, Market and Complexity* had 3 (3.0%) articles each. Twelve (12) of the journals had 2 (2.0%) articles each while the rest of the journals, thirty-two (32) in all, had 1 (1.0%) article each.

The focal areas for many of the journals from which the papers were obtained included information systems (IS), information technology (IT), innovation, business, entrepreneurship, management, marketing, human relations, governance, regulation, operation, production, knowledge, planning, strategy, gender, and other diverse fields. These focal areas suggest the suitability of the journals for digital entrepreneurship research, which is a multidisciplinary concept that is applied in different scientific and academic fields. It further corroborates the observation that digital entrepreneurship is multidisciplinary in perspective [5, 45, 47].

3.2 Year of Publication

The distribution of the publications by year (Figure 2) shows an increasing trend of articles on digital entrepreneurship from January 2013 to August 2018. Throughout the period under study, the number of papers published continually increased from six papers in 2013 to 33 papers in 2018 (up to August only), representing more than five-fold increment. Apart from an insignificant drop from six in 2013 to five in 2014, the increment was consistent, as the number of papers increased to 13 in 2015, 14 in 2016, 30 in 2017, and 33 in 2018. This trend shows that the number of publications is likely to increase further in the future.

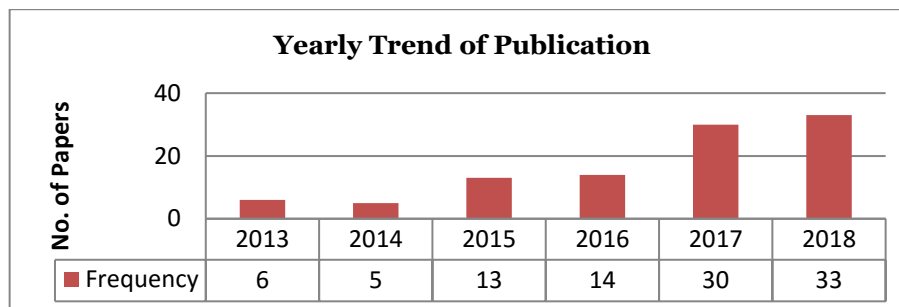


Fig. 2. Trends in the publication by year (N = 101)

This trend shows a growing interest in digital entrepreneurship, not only in practice and policy but also in research, which affirms Kelestyn and Henfridsson's [27] claim. Considering the proliferation of digital technology and information technology (IT) based business, the increase in digital entrepreneurship research is expected to continue for several years [19, 27, 30].

3.3 Focus and Categories of Research Issues and Themes

The study identified several issues of focus in the papers reviewed. These issues were grouped into four categories as (i) those that focused directly on the technology involved (73 papers), (ii) those that focused on the relationships and interactions with the technology (58 papers) (iii) those that focused directly on the enterprise (53 papers), and (iv) those that focused on the entrepreneur (13 papers).

The *technology-focused issues* concerned digital technologies like mobile technology, e-business platforms, social media, cloud computing, big data, crowdsourcing, internet, enterprise systems, and blockchain [49]. Some of the technology-focused articles, however, did not indicate any specific technologies but mentions digital technologies or ICT in general. The *interaction-focused issues* comprised access, adoption, impact, role, influence, possession, trust, and use of digital technology. The *enterprise-focused issues* involved demographics, business model, innovation, transformation, performance, productivity, profitability, value, expansion, growth, convergence, ecosystems, incubations, start-ups, cooperation, competition, internationalisation, marketing, stakeholder collaboration, success factors, and strategic orientation. The *entrepreneur-focused issues* encompassed behaviour, gender, competence, perception, positions, and management.

Given that digital entrepreneurship is ICT-driven [35], it was not surprising that the technology-focused issues (from 73 papers) dominated the various issues addressed. The distribution of the themes within the technology focussed issues shows that most of the papers, 33 articles (32.7%) did not specify the exact technology theme. Specifically, the dominant technology theme identified from the publications on digital entrepreneurship included e-business platforms with 12 (11.9%) papers and social media platforms with 10 (9.9%) papers. Other digital platforms and mobile technology reflected in 4 (4.0%) papers each while cloud computing had 3 (3.0%) papers. The enter-

prise systems and blockchain were considered in 2 (2.0%) papers, whereas internet service, big data, and crowdsourcing reflected in 1 (1.0%) paper each. The e-Business, social media, other digital platforms, and mobile application are all expected to feature as main themes in publications on digital entrepreneurship due to their popularity. Of the 58 papers that focused on issues of the interactions with technology, 17 (16.8%) focused on influence, 13 (12.9%) on adoption, 11 (10.9%) on impact, 7 (6.9%) on use, 6 (5.9%) on role, 2 (1.6%) on trust and 1 (1.0%) each on access to and possession of the technology. Whereas, out of the 53 papers with enterprise-focused issues 17 of them focused on business model, innovation and transformation; 10 on business growth, expansion, performance, success factors and return on investment; 7 on ecosystems, incubation and sharing economy, 6 on competition, convergence, collaboration and cooperation; 5 on enterprise processes, institutional and social interactions; 4 on enterprise state, demographics, boundaries and employment; and 4 on marketing and strategy. Meanwhile, of the 13 papers focusing on entrepreneur related issues, 5 focused on the entrepreneur's perspectives, perceptions and behaviour; 3 on entrepreneur's gender, race and class; 3 on entrepreneurial competence and another 3 on ownership and management. These constitute the trending issues that dominate contemporary discussions and study of digital entrepreneurship.

3.4 Theoretical and Conceptual Approaches

Regarding the use of specific theories or concepts, the findings show that 57 (56.4%) of the papers had no theory or concept underpinning it, while 44 (43.6%) had theories or frameworks. Of the 44 papers that were underpinned by theories or concepts, 35 (34.6%) used single theories, while 9 (8.9%) combined two or three theories. Meanwhile, 14 (13.9%) of the 35 papers that used single theory or concept and 1 (1.0%) of the nine papers that combined theories or concepts utilized the author's frameworks. This implies that only 29 (28.7%) of the papers, comprising 21 (20.8%) of the 35 papers with single theory and 8 (7.9%) of the nine papers with combined theories, utilized known and established theories or concepts.

In all 28 different known and established theories and concepts were employed. The Dynamic Capability theory was used in 4 papers, while the Resource-Based View was used in 3 papers. Diffusion of Innovation, Institutional Theory, Technology Acceptance Model, Technology Organization and Environment framework, Theory of Planned Behavior, and the Trust Theory were used in two papers each, while each of the remaining 20 theories was used in one paper each. The theory-based studies focused on enterprise-related issues such as business model, value, process, innovation, and transformation, as well as competition, expansion, marketing, and strategic orientation. The review also shows that some of the studies with no theories could have been underpinned with applicable theories in IS literature such as social theories, socio-technical theories, institutional theories and the Task-Technology Fit (TTF) theoretical framework which could explain the assumptions on which many of the publications were conducted [6, 38, 43].

These theories and concepts that were used by the papers reflect the wide application of different theories and concepts in digital entrepreneurship for different purposes,

depending on the focus of the research, which emphasizes the multidisciplinary nature of digital entrepreneurship with a diversity of research approaches. With fewer papers, 29 (28.7%) in all, utilizing 28 different established theories and concepts also suggests the newness of the knowledge area in research. For studies in digital entrepreneurship to gain prominence in the IS research landscape, further work based on grounded, appropriate, and credible theoretical approaches should be considered.

Among the theories used, the most dominant was the social theories approach with 25 (24.8%) papers, followed by the socio-technical theories approach with 11 (10.9%) papers and the technical theories approach with 5 (4.9%) papers. The dominance of social theories could be due to the social nature of entrepreneurship studies. Many of the studies that used social theories focused on ICT adoption and impact [11, 18, 39], while others used the theories to explain the influence and impact of ICT on business [8, 12, 40]. From the review, it also emerged that studies that adopted the socio-technical theories approach focused on the influence of ICT in business [6], the extent of ICT adoption, and barriers to its adoption [38]. The theories applied in the publications reviewed are popular and prominent in IS research.

3.5 Research Methodology Used and Trend

Regarding the classification of the publications by the research methodology employed, four distinct groups emerged, namely, those that used mixed methods, qualitative methodology, quantitative methodology, and those with no defined methodology. Regarding the distribution, the results show the almost equal distribution for studies using qualitative (41 (40.6%) papers) and quantitative methodologies (39 (38.6%) papers), which were the dominant approaches. Just a few papers used mixed methods 3 (3.0%), while a reasonable number did not use any defined methodology 18 (17.8%).

Of the 41 quantitative papers, 22 (21.8%) were based on theories, of which 15 (14.9%) were established theories. Whereas, of the 39 qualitative papers, 17 (16.8%) were based on theories, of which 12 (11.9%) were established theories. Having 83 (82.2%) of the papers with both quantitative and qualitative methodologies almost equally shared suggest that the digital entrepreneurship research is becoming more mature with proven methodologies. The 18 studies that were not underpinned by any defined methodology were made of 16 reviews, and two content analysis papers and most did not have any theory as well. Moreover, with 13 of the 18 no defined methodology and review papers published in 2017 and 2018, it goes to suggest the growing interest in exploring the research already done in the area of digital entrepreneurship.

It was further observed that both quantitative and qualitative methodologies have increased in use in recent years (Figure 2). The increasing use of qualitative methodology suggests the subjection of digital entrepreneurship to exploratory research, being a new field, while the increasing dominance of quantitative methodology also reveals the simultaneous development of statistical rigor and analysis [21, 39]. According to Creswell [7], qualitative methods are commonly used in fields that are new and require more exploratory research designs, hence the observed trend reflects the attractiveness of digital entrepreneurship as a new area of research.

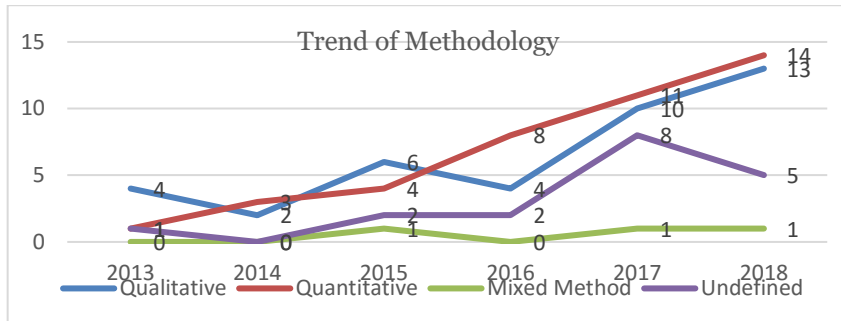


Fig. 2. The yearly trend of research methodology

3.6 Data Sources, Research Methods and Levels of Analysis

The data sources used in the publications included secondary sources, primary sources, and some undefined sources. The results indicate that about two-thirds, 68 (67.3%) of the papers used data from primary sources, whereas about a quarter, 27 (26.7%) of the papers used secondary data sources. The data sources available for a study largely depend on the availability of previous studies on the topic and the research approach employed. The survey and case study research approaches tend to employ primary sources [12, 31, 32], whereas most reviews tend to rely on secondary sources [10, 46].

Based on the results of the study, survey and case study were the two dominant methods used, which resulted in the use of primary data sources for many of the papers. Meanwhile, the data sources and methods used are also influenced by the level of research development in the field of inquiry (Ireland, Reutzel, and Webb, 2005). In relatively new areas of research, obtaining secondary data or the adoption of a literature review approach may be hampered. The limited use of secondary data sources in many of the works published in this area reflects the relative newness of the field. This assertion is also reflected in the research approach that was employed in the study. From the results, it is clear that the most widely used methods were a survey, case study, literature review, and interviews. The use of the case studies and interviews suggest that more exploratory and descriptive questions are being asked at the same time that rigor is being sought through surveys. The greater use of the research approaches mentioned above, compared to others, suggests that many of the papers were focused on discovering and describing phenomena related to digital entrepreneurship [25]. Interestingly of the 35 papers that used a case study or interview methods, 21 of them have no theory base, which further emphasizes the exploratory and descriptive purposes. The focus of such papers included adoption, impact, influence and use of digital technologies like social media, e-business, enterprise systems and crowdsourcing [15, 28].

Research methods, approaches, and data sources used may also be entirely dependent on the level of analysis that the researcher intends to perform [3]. The results show that many of the studies were conducted at the micro-level, with very few at the macro- and meso- levels, which suits entrepreneurship research [25]. The current focus on organizational level noted in the study may be explained by the fact that many of the studies are applied studies that do not simply seek to advance knowledge, but also to

understand, contextualize and explore the practices of entrepreneurs and SMEs that have adopted digital innovation technologies [13, 16, 17, 23, 26, 38].

4 Limitations, Gaps and Future Research

The main limitation of the study was the restriction of the electronic databases to only six, namely AIS Library, Emerald, Sage, ScienceDirect/Elsevier, Springer Link, and Taylor and Francis Online. Another limitation is the restriction of the study to articles published between 2013 and 2018. Such limitations would result in some appropriate articles being eluded. Future research could expand on the database and also consider other forms of digital entrepreneurship.

Only a few of the studies discussed had sound theoretical underpinnings. A major gap identified, is the limited use of theoretical and conceptual frameworks that would bring the concept of digital entrepreneurship up to par with major areas of academic inquiry in IS research. Meanwhile, for studies in digital entrepreneurship to acquire some eminence in the IS research purview, more work adopting appropriate and proven theoretical approaches is needed. Few papers focused on issues relating to the enterprise while much fewer papers focused on the entrepreneur. Future research should consider the drivers and motivation of the entrepreneur for digital entrepreneurship. The capabilities and capacities of enterprises, as well as the strategies in implementing digital technologies and harnessing the opportunities of digitalization, are key issues that have not hitherto received much attention.

Future research should consolidate the understanding of the field, with models and frameworks that recognize digital entrepreneurship as an academic research field in its own right, and also consider the impact of enterprise capabilities and capacities on digital entrepreneurship

5 Conclusion and Contribution

There is an arguable case for acknowledging digital entrepreneurship as a distinct field that has attracted considerable scholarly attention in recent years. As a multidisciplinary and multi-sectoral subject, research on digital entrepreneurship encompasses many fields. Owing to the broad range of research within the scope of digital entrepreneurship, the understanding of the concept is diffuse and open to misinterpretation.

The paper provides guidance for researchers with insight into the conceptualization of digital entrepreneurship as a multidisciplinary research field. It will also help academicians understanding a holistic view of available research and the developing trend in digital entrepreneurship. This paper contributes to information systems research by describing and classifying the published literature in digital entrepreneurship and by pointing out the gaps where further research is most needed. Furthermore, the paper provides a framework that may provide a conceptual structure for future studies in digital entrepreneurship.

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