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## Digital entrepreneurship: context and conceptualization

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# 1. Digital entrepreneurship: context and conceptualization

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## 1.1 THEORETICAL AND PRACTICAL CONTEXTS

Digitization has ushered in a new era of economic value creation in which soaring cross-border data flows generate more value than traditional flows of traded goods (Manyika et al., 2016). The move to more digital forms of economic value creation has fundamentally altered the rules of innovation and entrepreneurship regarding who participates and how new market offerings are created, and with what consequences (Yoo et al., 2012; Lyytinen et al., 2016). Accordingly, digital entrepreneurship, which refers to the creation and application of digitized and cyber-physical market offerings, has emerged as a subject of significant scholarly and practical interest (Nambisan, 2017). Activities at the micro levels of digital new venture creation have far-reaching consequences, with digital transformation and digital disruption being among the core macro- and micro-level effects on society. The increased centrality of digitization in all forms of value creation motivated veteran industry watcher, investor, and digital entrepreneur, Marc Andreessen, to proclaim figuratively that ‘software is eating the world’ (Andreessen, 2011).

However, conceptualizing digital entrepreneurship and its effects can become quite challenging, given the nature of complexity and the dynamic environment against which the phenomenon emerges (von Briel et al., 2020). Moreover, the subject lies at the nexus between multiple disciplines with their distinctive interpretations and theoretical emphases. Accordingly, an integrative perspective is needed to fully appreciate the phenomenon and organize scholarship and practice. Hence, this book identifies and integrates relevant theoretical and practical lenses towards a pluralistic and pragmatic explanation of the mechanisms by which a digital entrepreneurial process emerges. It also examines how such emergence upends some widely held assumptions of entrepreneurship and value creation. At an abstract level, entrepreneurship is a complex phenomenon revolving around the discovery and exploitation of opportunity to create new economic value (Shane and Venkataraman, 2000; Wiklund et al., 2011). More current developments in the entrepreneurship discipline define entrepreneurial opportunity more precisely as two interrelated

sub-constructs – New Venture Ideas and External Enablers (Davidsson, 2015). Following these developments, technology change is an opportunity; which means it can act as an external enabler that triggers new venture ideas by individuals, which then centrally drives the entrepreneurial process.

Accordingly, the interrelationship between digital technologies, such as digital artifacts and digital platforms, and underlying digital infrastructures, such as cloud computing and internet connectivity, is central to unpacking the complexity of digital entrepreneurship. These complementary, ubiquitous, and often standardized technologies enable entrepreneurship by promoting near-costless communications and transactions, which allow individuals to network, organize, and co-create value with an ever-changing cast of collectives dispersed across geographical regions. Hence, today's digital new ventures can easily become micro-multinationals and born globals in compressed time frames, compared to their traditional counterparts (Bell and Loane, 2010). Moreover, their often agile and stealthy emergence means they can creep up on unsuspecting incumbents, consequently disrupting or transforming entire industries and value chains as a consequence. For instance, outcomes of digital entrepreneurship such as Uber and Airbnb more recently appeared with business models that have proven disruptive to the taxi transportation and hospitality industries – which had remained relatively stable over recent centuries. Hence, Tapscott (2014, p. xxiv) cautions that in an age of networked intelligence, punishment is swift for organizations, industries, and societies that fall behind.

The velocity, scope, and systems impact of change brought about by digitization have led to the assertion that we are on the cusp of a Fourth Industrial Revolution (Schwab, 2017) or the Second Machine Age. This age is believed to have already begun and is accelerating into a future defined by the 'digitization of just about everything' (Brynjolfsson and McAfee, 2014, pp. 57–70). The digitization of virtually everything will continuously result in the merging of digital, biological, and physical spheres into ever more powerful 'new combinations' (Schumpeter, 1942). Accordingly, in 2016, McKinsey reported that some 50 percent of digitizable services had already been digitized (Manyika et al., 2016). Likewise, Machine-to-Machine (M2M) communication from Internet of Things (IoT) devices hooked up to the cloud continues to accelerate the trend in value creation defined by the generation, collection, harnessing, and monetization of insights from big data (UNCTAD, 2019). Furthermore, the application of Artificial Intelligence (AI) and machine learning algorithms on big data is poised to become prevalent and ever more mainstream (McAfee and Brynjolfsson, 2017). Hence, digital and cyber-physical products/service offerings reshape industry structures and alter the mechanisms through which firms create and sustain a competitive edge (Porter and Heppelmann, 2014, 2015).

Consequently, ubiquitous digitization of value creation equally challenges widely accepted theoretical assumptions about entrepreneurship and innovation (Nambisan et al., 2017). New knowledge is therefore required to advance new hypotheses and theories and guide sound policy implementation and practice. As Storey and Greene (2010, p. 208) maintain, nurturing the growth of gazelles (young fast-growth firms) should be essential in any enterprise policy development initiatives. Digital gazelles have indeed had a transformational impact on global economies in just under 30 years. To put it into perspective, by 2017, four digital technology-based firms (Apple, Google, Amazon, and Facebook) had a market capitalization roughly the GDP of the Indian economy at over \$2.3 trillion (Galloway, 2017, p. 1). Likewise, there was only one digital technology-based firm (Microsoft) among the top five global companies by market capitalization in 2006. However, by 2020 the trend had been completely reversed, with Saudi Aramco being the only non-digital technology company among the top five – with Apple and Microsoft reaching combined capitalizations of nearly \$4 trillion (PricewaterhouseCoopers, 2021). Additionally, relatively newer digital ventures in the sharing economy, such as Uber and Airbnb, have emerged and disrupted entire industry structures with innovative business models. These digital disruptors question what it means to create and capture value in the digital age.

Yet, despite its contemporary significance, the field of entrepreneurship has largely neglected the role of digital technologies in the entrepreneurial process. Remarkably, digital entrepreneurship only very recently received agenda-setting entries in leading journals of entrepreneurship (Nambisan, 2017; Kraus et al., 2018). Earlier and current attempts at describing and understanding the phenomenon had mainly been undertaken by MIS (Management Information Systems) scholars (Hull et al., 2007; Davidson and Vaast, 2010). As the relatively scant but rapidly growing literature on digital entrepreneurship indicates, digitization challenges the degree to which existing theories can inform on the varied issues surrounding digital new venture creation and value creation in the digital age. To underscore the point, Benner and Tushman (2015, p. 498), in reflecting on their decade-old award-winning article in the *Academy of Management Review* noted that digitization has resulted in a ‘shift in the locus of innovation,’ thereby challenging some of our core organization axioms and the state of organizational scholarship.

The disruptiveness of digitization on extant assumptions of innovation and entrepreneurship appears to be particularly visible in purer forms of digital entrepreneurship, where digital artifacts and digital platforms form the core of new venture ideas, resulting in intangible but highly valuable market offerings (Nzembayie et al., 2019). Purer forms of digital entrepreneurship have spurred new forms of economic value creation based on the digitization, processing, and commercialization of information as new market offerings (Giones

and Brem, 2017). They operate in the context of what is commonly termed ‘economics of bits,’ characterized by the production of non-rival digitized offerings, with ‘close to zero marginal cost of reproduction’ (Brynjolfsson and McAfee, 2014, p. 62). Digitized non-rival products and services can be consumed by many people simultaneously without being depleted. Accordingly, Shapiro and Varian (1998) argue that digitized information may be costly to produce but relatively less expensive to replicate and maintain. Owing to these characteristics, the economics of pure digital new venture creation often upends some of the more traditional assumptions of entrepreneurship and value creation, rooted in the creation of physical and tactile market offerings.

## 1.2 CONCEPTUALIZING DIGITAL ENTREPRENEURSHIP (PURE AND HYBRID)

Conceptualizing digital entrepreneurship begins with the understanding that it refers to two main typologies – pure and hybrid. We define Pure Digital Entrepreneurship (PDE) as entrepreneurship in which digital artifacts and digital platforms are solely the new venture ideas and new market offerings, which are cultivated on top of and distributed via external enabling digital infrastructures (Nzembayie et al., 2019). Current examples of PDE market offerings are digital services such as Uber, which is a taxi-hailing service; Apple App Store and Google Play which are mobile app distribution platforms; Netflix, which is a digital movie streaming platform service; Facebook and Twitter, which are social media platforms; and Shopify which is a Software as a Service (SaaS) platform for developing an e-commerce venture.

However, when digital new venture creation is based on creating tightly coupled cyber-physical systems as market offerings, a hybrid form of digital entrepreneurship is distinguishable. Thus, we define Hybrid Digital Entrepreneurship (HDE) as the tight coupling and layering of digital artifacts and digital platforms with physical artifacts and processes, resulting in mutual dependencies of cyber-physical systems as market offerings. Two classifications of outcomes are possible under this typology of entrepreneurship. Fitbit and Garmin are smartwatches that make good examples under the first classification. Smart devices are made smart by the tight coupling of digital software artifacts with microprocessors and networking technologies into a layered, modular, and mutually dependent cyber-physical product/service combination (Lyytinen et al., 2016). In the example, a watch, which is traditionally ‘a single function device,’ becomes transformed and augmented into a multi-purpose device. Meanwhile, in the second classification of HDE offerings, the tight coupling of a purely digital service with a purely traditional service as market offering results in outcomes such as Deliveroo and Just Eat. Such

cyber-physical services combine a purely digital artifact (app) and digital platform with the purely physical and traditional service of takeout food delivery.

There are significant implications for entrepreneurial processes when new venture ideas and market offerings fall under either pure or hybrid typologies of digital entrepreneurship, which we explore in greater depth in Chapter 3. For instance, it is reasonable to assume that HDE is generally more challenging to realize than PDE because of spatial and temporal constraints. Thus processes may combine traditional discrete value chain models with the fluidity and weightlessness of the pure digital value chain. Given its hybrid nature, theories of innovation and entrepreneurship with assumptions of spatiotemporal boundedness may retain some of their explanatory power under an HDE typology but less so under PDE. Therefore, with significant differences in processes and outcomes, it is necessary to distinguish between digital entrepreneurship typologies and more traditional typologies of entrepreneurship in the digital age.

However, owing to the increased blurring of lines between digital and traditional forms of entrepreneurship, we argue that entrepreneurship in the digital age is best conceptualized as a continuum between the extremes of PDE and Pure Traditional Entrepreneurship (PTE) with two hybrid typologies in between. Figure 1.1 illustrates how the typologies of digital and traditional entrepreneurship are differentiated along this continuum based on the centrality or peripherality of digital artifacts and digital platforms in new venture ideas and market offerings (Fiss, 2011). We expand on this conceptualization in Chapter 3, following a grounding in traditional theories of entrepreneurship in Chapter 2.

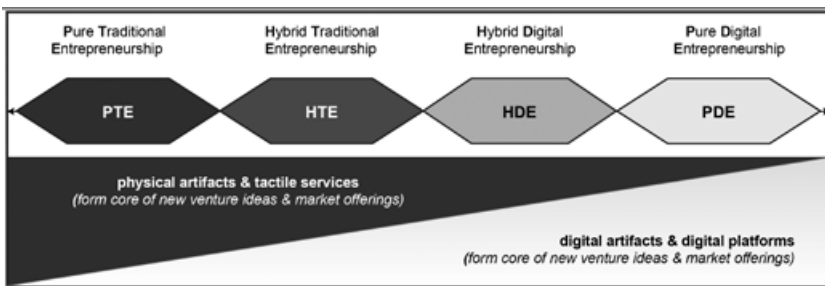


Figure 1.1 Typologies of entrepreneurship in the digital age

### 1.3 ROADMAP OF THE BOOK

The following structure has been developed to guide the reader throughout this book. It is divided into five main thematic chapters and a synoptic final

chapter. The current chapter has provided a general introduction to digital entrepreneurship, which will be discussed in greater depth in subsequent chapters.

Chapter 2 provides a general background to entrepreneurship scholarship and state-of-the-art theories of the entrepreneurial process. It identifies and reviews established theories and concepts which explain entrepreneurial decision-making and action. Consequently, an integrative traditional model of the entrepreneurial process is developed, around which a holistic narrative of new venture emergence can be woven. The model also serves as an analytical tool for examining how the digital entrepreneurial process both intersects with and differs from traditional assumptions of entrepreneurship in Chapter 3.

Chapter 3 builds on Chapter 2 in defining digital entrepreneurship and unbundling its distinctive technological basis. It examines the fundamental similarities and differences between digital and traditional assumptions of entrepreneurship at an advanced theoretical and practical level. In examining the distinctive technological basis of digital entrepreneurship, the chapter also explores the generative mechanisms of digital technologies which interact to drive digital new venture creation in distinct ways. In the end, it develops a framework that explains the causal mechanisms driving the digital entrepreneurial process.

Chapter 4 examines the dynamic landscape in which digital entrepreneurship and entrepreneurship in the digital age currently emerges. As such, it highlights the enabling technological changes currently happening that shape current and future forms of digital entrepreneurship. Centrally, it elucidates how the convergence of four critical technologies – cloud computing, big data, machine learning and AI, and IoT are shaping the next wave of digital entrepreneurship. The chapter then proceeds to examine possible barriers that practitioners and policymakers must confront to create a nurturing ecosystem for digital entrepreneurship.

Chapter 5 logically follows from Chapter 4 in providing an evidence-based model of digital new venture creation with practical utility. Accordingly, it moves from theory to practice in offering fine-grained steps that highlight the essential elements required to increase the odds of building a successful digital new venture.

Chapter 6 concludes the book by synthesizing core arguments and themes explored throughout this book.