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32901

Digital Entrepreneurship

Leseprobe

Unit 1
Introduction

Fakultät für
Wirtschafts-
wissenschaft

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1 Digital Entrepreneurship

Entrepreneurship is a key driver of economic growth and social progress and has become an increasingly key area of study in both academic and practical contexts. This module in Entrepreneurship aims to provide a comprehensive overview of the field, exploring the different forms of entrepreneurship, the role of entrepreneurship in driving economic growth and societal well-being, and how entrepreneurship can be supported and encouraged. The module is divided into five units, each focusing on a different aspect of entrepreneurship. Unit 1 introduces the essence of entrepreneurship and lays the foundation for digital business. Unit 2, 'Envisioning the Business,' explores the critical aspects of conceptualizing a digital venture, from formulating a business idea to developing a sustainable business model and creating a strategic roadmap. Unit 3, 'Understanding the Market,' explores the dynamics of the market with a focus on customer analysis. Analyzing customer behavior, preferences, and demographics can help create a digital venture that meets specific market demands. Unit 4, "Building the Business," synthesizes the insights that are required to bring the entrepreneurial vision to life. This includes delving into legal considerations, meticulous planning, financing strategies, and risk management to navigate the complexities of realizing a digital venture. Unit 5, 'Selected Areas of Entrepreneurship,' provides specialized insights into digital entrepreneurship, including digital health, social entrepreneurship, women's entrepreneurship, and digital intrapreneurship. These insights provide a broad understanding of the unique challenges and opportunities within each niche.

Learning goals



Learning objectives: By the end of this module, it is expected to have an in-depth understanding of digital entrepreneurship and its fundamental concepts:

- **Describe the Basic Idea of Digital Entrepreneurship:** Gain a deep insight into the core principles that underpin digital entrepreneurship and articulate its significance in the modern business world.
- **Demonstrate Understanding of Central Concepts:** Grasp the essential concepts within digital entrepreneurship and understand how these concepts interconnect and influence each other, forming the backbone of successful digital ventures.
- **Distinguish Digital from Non-Digital Innovation:** Differentiate between digital and non-digital innovation, recognizing the unique features and challenges associated with digital innovation processes.
- **Explain Differences in Digital and Non-Digital Value Creation:** Explore the nuances between digital and non-digital value creation methods, understanding how digital technologies transform value propositions and customer experiences.
- **Evaluate the Role of Digital Technologies:** Assess the multifaceted roles of digital technologies within entrepreneurial endeavors. Figure out whether these technologies act as enablers, outcomes, contexts, or a blend of these roles, and understand their impact on business strategies and operations.

1.1 Why Entrepreneurship?

Entrepreneurship takes on various forms, including the establishment and management of small enterprises, the launch of innovative technology startups, the creation of social enterprises, and the fostering of corporate ventures within larger organizations. Its importance in economic development, job creation, and societal progress cannot be exaggerated, as it drives innovation, problem-solving, and advancement. Entrepreneurs drive change, propelling economic growth and societal well-being forward. Entrepreneurship extends beyond starting a business, encapsulating addressing challenges, generating value, and leaving a legacy imprinted on society's fabric. This module acts as a source of inspiration, a pool of knowledge, and a driving force for empowerment. This course draws on the valuable insights of successful entrepreneurs, domain experts, and visionary leaders who have navigated challenging waters, overcome adversity, and emerged stronger and wiser. It serves to guide you as you navigate the exciting yet challenging landscape of Entrepreneurship.

Entrepreneurship in Germany is not only embedded in the economy but is also embedded in the social fabric. The nation has a rich history of innovation and entrepreneurial spirit, attributed to a strong industrial foundation and an export-oriented economy. The German government provides support to startups and entrepreneurs through financial incentives, grants, and carefully crafted programs, all aimed at fostering innovation and entrepreneurship. Germany's position as a leading innovator in technology is evidenced by its excellence in industries spanning automotive, manufacturing, biotechnology, and renewable energy. This favorable environment presents entrepreneurs with the chance to generate pioneering solutions and challenge conventional industries. But how does Germany perform when compared globally?

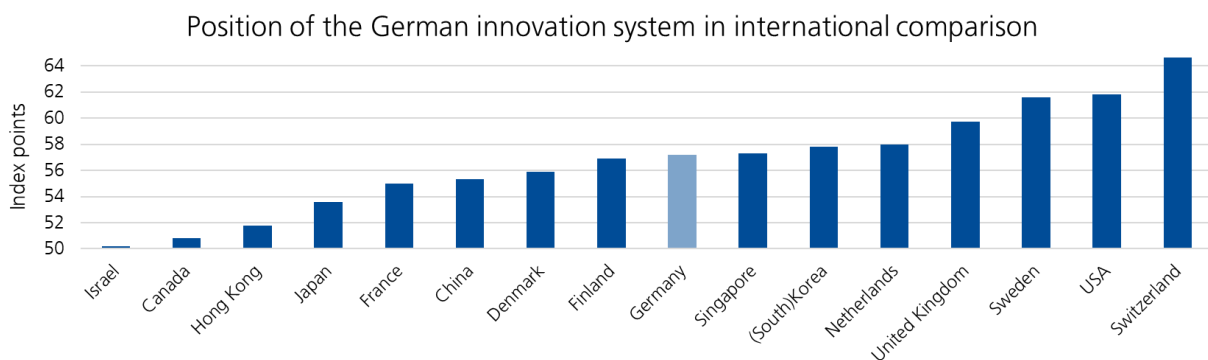


Figure 1 Global Innovation Index 2022/Zimmermann, 2023

In terms of digital innovations, Germany is positioned in the middle of nations worldwide. The authoritative Global Innovation Index (GII) provides an annual report and ranking that evaluates innovation capabilities and performance globally. As such, it is a vital resource for policymakers, businesses, and researchers seeking to understand the innovation landscape on a global scale. This ranking analyses the innovation ecosystems of 132 countries, using 81 individual indicators to assess various aspects of their digitization. Additionally, the GI highlights the increasing importance of innovation in a wide range of sectors, including technology, healthcare, sustainability, and social innovation. To conclude, entrepreneurship is not solely a business pursuit; it represents

a power that propels societies towards a vibrant and more innovative future. Entrepreneurship in Germany flourishes within an ecosystem bolstered by a rich innovation history and a government dedicated to its nurturing. Despite the nation's placement at the midpoint of the global innovation scale, its capacity for growth and progress is considerable. In Germany, as everywhere else in the world, entrepreneurship is a symbol of progress, helping us to venture into uncharted territory and to shape our future. In the international arena, Germany holds its ground when it comes to digital innovation. The Global Innovation Index (GII) serves as a yearly gauge of the innovative capacities of nations across the world. The GIJ evaluates 132 countries on 81 indicators related to digitalization and innovation, covering technology, healthcare, sustainability, and social innovation. In GIJ 2022, Germany obtained the 8th place, situated among Finland and Singapore. Switzerland is at the top, with Israel taking the last place in the rankings. These rankings are more than just figures; they provide valuable insights into global innovation trends. Some countries consistently lead, while others have shown remarkable progress. In Germany, there is considerable scope for digital innovations to grow, with the possibility of more entrepreneurial initiatives to sprout. Entrepreneurship is not limited to establishing businesses only; it is about molding the future and stimulating innovation. In Germany, as well as around the globe, entrepreneurship is a potent agent for progress, a driver of change, and an exemplar of creativity. The expedition towards success persists, with myriad prospects waiting for the new wave of inventors to emerge.

1.1.1 Understanding the VUCA World: Challenges and Opportunities

The term "VUCA" has become a ubiquitous buzzword in the realm of business and leadership. It represents Volatility, Uncertainty, Complexity, and Ambiguity, encapsulating the multifaceted nature of the modern world. Within a VUCA world, change prevails as a constant element, predictability is a scarce commodity, and leaders face challenges calling for adaptability, creativity, and resilience. This chapter explores the concept of the VUCA world, analyses the challenges it poses, and elucidates the opportunities it provides.

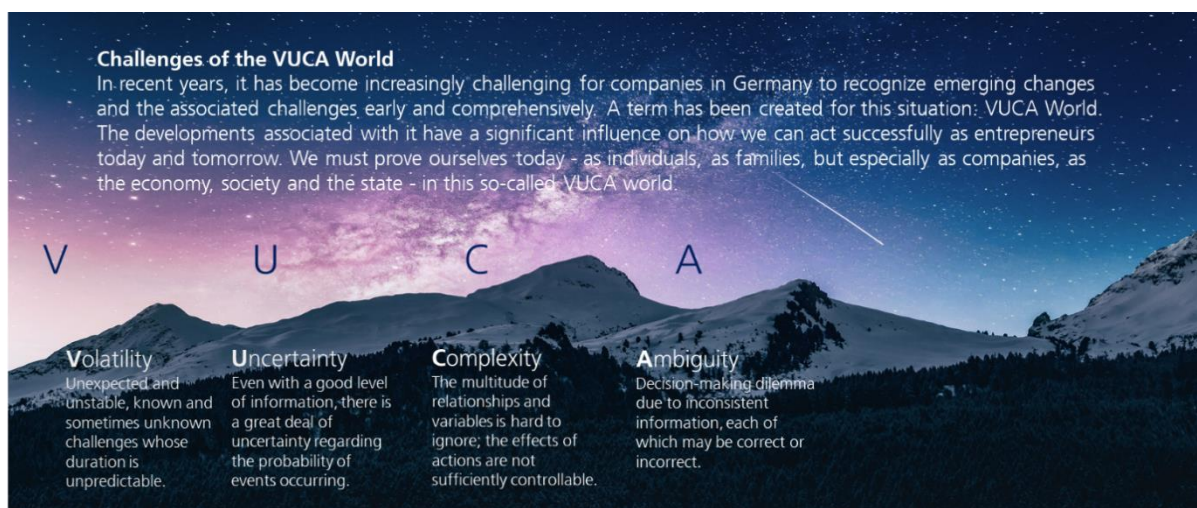


Figure 2 What is a VUCA world? Bitkom Akademie, n.d.

Defining the VUCA World

The VUCA framework originated in the military to describe the post-Cold War era, but it has since been embraced by various sectors, including business,

education, and government. Each element of VUCA stands for a different dimension of the contemporary environment:

Volatility: Volatility refers to the rapid and unpredictable changes that occur in each situation or environment. This could include sudden market fluctuations, political unrest, or unforeseen events that disrupt the status quo. Volatile situations require adaptability and the ability to respond quickly to change.

Uncertainty: Uncertainty signifies a lack of predictability or clarity about future events or outcomes. It implies that the information available is insufficient to make confident decisions. Dealing with uncertainty often involves risk assessment, scenario planning, and the ability to make decisions even in the absence of complete information.

Complexity: Complexity shows the presence of multiple interconnected factors and variables that can make a situation intricate and hard to understand. Complex situations may involve many stakeholders, intricate processes, or a web of interdependencies. Navigating complexity requires systems thinking, holistic analysis, and the ability to manage interconnected factors.

Ambiguity: Ambiguity refers to situations where information is unclear, and the interpretation of events or data can vary widely. Ambiguous situations often lead to confusion, making it challenging to figure out cause-and-effect relationships. Coping with ambiguity involves seeking clarity, communication, and fostering a shared understanding of the situation.

In the context of entrepreneurship, the VUCA framework is significant as it reflects the realities and challenges entrepreneurs typically experience while starting and running their businesses. In terms of how VUCA applies to entrepreneurship, entrepreneurship is inherently volatile. Markets may witness sudden fluctuations with rapidly changing consumer preferences and unexpected disruptive technologies. Entrepreneurs must be prepared to adapt their business models and strategies in response to unstable market conditions. This may require pivoting, diversifying, or downsizing operations, as necessary. The entrepreneurial landscape is characterized by an elevated level of uncertainty. Startups often operate in unfamiliar territory with no assurances of success. With limited information, entrepreneurs must make critical decisions about product development, market-entry, and resource allocation. Managing uncertainty and making well-informed, flexible choices are vital skills for entrepreneurs. The entrepreneurial landscape's intricacies challenge business founders to navigate market dynamics, competition, regulatory requirements, and financial complexities skillfully and with a deep understanding. Due to these interrelated elements' complexity, problem-solving demands an integrated approach. To effectively address complexity, entrepreneurs must employ an integrated problem-solving methodology. Ambiguity is often a factor in the initial stages of entrepreneurial ventures; founders may lack clear data on customer preferences, market demand, or the feasibility of their ideas. To gain greater clarity in their vision and succeed, entrepreneurs must actively pursue feedback while iterating quickly to reduce ambiguity. To thrive in a VUCA (volatile, uncertain, complex, and ambiguous) environment, entrepreneurs should cultivate skills and mindsets. They need to be agile and ready to adjust their strategies when circumstances change. The ability to react flexibly to the latest information and adapt accordingly is a valuable characteristic. The journey towards entrepreneurship is seldom straightforward. Resilience is vital, involving the capacity to bounce back from setbacks, learn from failures, and stay motivated despite adversity. Entrepreneurs achieve success by identifying opportunities in volatile, uncertain, complex, and ambiguous (VUCA) environments. To create unique solutions,

products, or services that meet the constantly evolving market demands, innovation is a crucial component. Due to the complexity of entrepreneurship, collaborating with experts, mentors, and peers can provide invaluable insights and resources to overcome obstacles. Entrepreneurs must adopt a strategic outlook to anticipate and prepare for future uncertainties. Scenario planning and risk assessment are essential tools to counteract the impact of VUCA elements.

In summary, the VUCA framework is crucial in the context of entrepreneurship, where volatility, uncertainty, complexity, and ambiguity are widespread. Thriving entrepreneurs are those who cannot only navigate these challenges but also leverage them as opportunities.

1.1.2 Entrepreneurial Thinking

Entrepreneurial thinking refers to a mindset and set of cognitive approaches characterized by innovation, opportunity recognition, risk-taking, and a bias toward action. It is a way of approaching problems and opportunities that is typical of successful entrepreneurs. It also refers to a mindset characterized by a set of attitudes, behaviors, and cognitive approaches that are commonly associated with successful entrepreneurs.

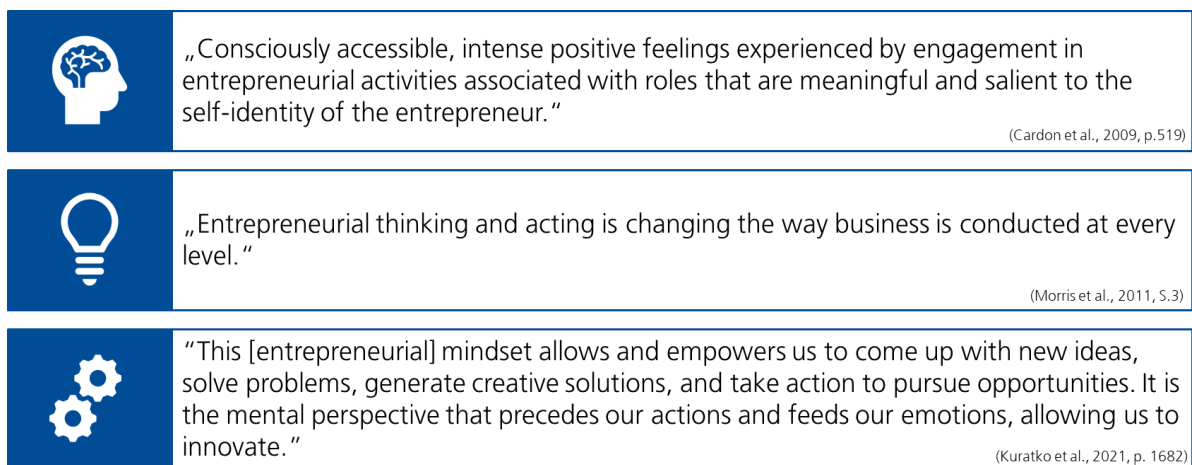


Figure 3 What is entrepreneurial thinking?

These definitions collectively illustrate that entrepreneurial thinking is a dynamic and multifaceted mindset that empowers individuals to find and act on opportunities, navigate uncertainty, and drive innovation and progress in various contexts. It is a mindset that is not limited to starting new businesses but can be applied in diverse settings to effect positive change and achieve ambitious goals.

1.1.3 Who are the Entrepreneurs?

What is the standard mindset of individuals in Germany? Currently, there are no official statistics that comprehensively capture all aspects of the entrepreneurial founding process. When exploring the entrepreneurial mindset, it is necessary to begin by examining definitions, characteristics, and behaviors. Entrepreneurs are individuals who initiate, organize, and manage business ventures or projects to create value, in the form of goods, services, or innovative solutions. Entrepreneurs are

recognized for their willingness to undertake calculated risks, their capacity to recognize opportunities, and their capability to innovate.

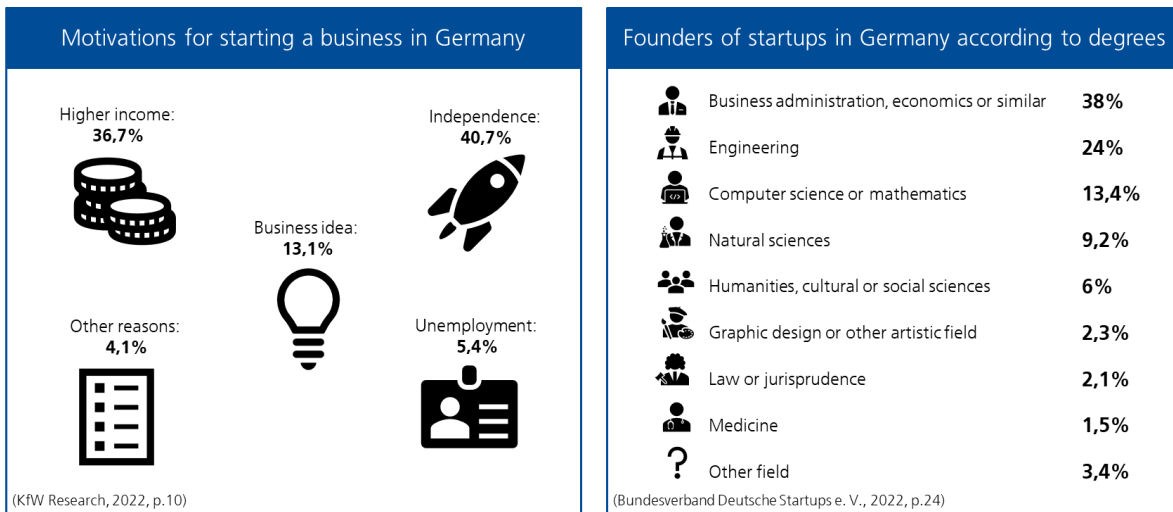


Figure 4 Who are entrepreneurs?

What is the motivation to be an entrepreneur? Motivation to become an entrepreneur varies from person to person and can be influenced by a combination of personal, professional, and external factors. Here are some common motivations that drive individuals to pursue entrepreneurship from KfW research in 2022:

- Independence (40,7%)
- Higher income (36,7%)
- Business idea (13,1%)
- Unemployment (5,4%)
- Other reasons (4,1%)

Independence is a crucial and highly prized aspect of entrepreneurship, attracting many individuals due to the opportunity to achieve autonomy in various professional areas. Nevertheless, despite motivating many entrepreneurs, this independence necessitates taking on several responsibilities and challenges. As a result, entrepreneurship demands that individuals undertake multiple roles and wear diverse hats within their businesses. While successful entrepreneurship may result in increased income, it is important to note that individuals venture into such pursuits for diverse reasons. Only 13% of all business founders initiate their enterprise with a distinct business idea in mind. Hence, the incentives for commencing one's own business can vary significantly. The existence of academia has a profound impact on the startup ecosystem, with 84.5% of startup founders possessing an academic degree. Significantly, nearly two-thirds of these individuals have achieved a master's degree or higher qualification. Within this group, half hold a degree in STEM (Science, Technology, Engineering, or Mathematics), with business-related programs coming in second place. The remarkable number of scholars and the broad range of degrees earned emphasize the significant role universities play in the overlap between innovation and entrepreneurship. Of particular importance in this context are the networks and connections that emerge within university environments. They play a crucial role in supporting the development of ideas, and collaborations, and providing support to aspiring entrepreneurs. These platforms offer valuable

opportunities for the exchange of knowledge and experiences, as well as for the creation of innovative concepts. In general, the strong link between academia and the startup ecosystem provides a fertile environment for inventive ideas and business ventures. The variety of academic backgrounds contributes to the creation of innovative solutions in diverse industries, guaranteeing the sustained expansion of the startup landscape. The most prevalent academic backgrounds for startup founders in Germany are Business Administration and Economics, constituting 38% of such founders, with Computer Science following at 24%, and Information Systems at 13%. These results indicate that a considerable number of German startup founders possess technical, engineering, and business-oriented qualifications. Many entrepreneurs possess expertise in technology, engineering, and business management, which are essential areas for launching and expanding prosperous startups. This tendency highlights the demand for a mixture of technical abilities, business acumen, and economic comprehension among German startups. This multidisciplinary approach can be advantageous when addressing the complex challenges and opportunities that startups face in today's dynamic business landscape.

Average age of CEO's from start-up companies in 2020 per industry

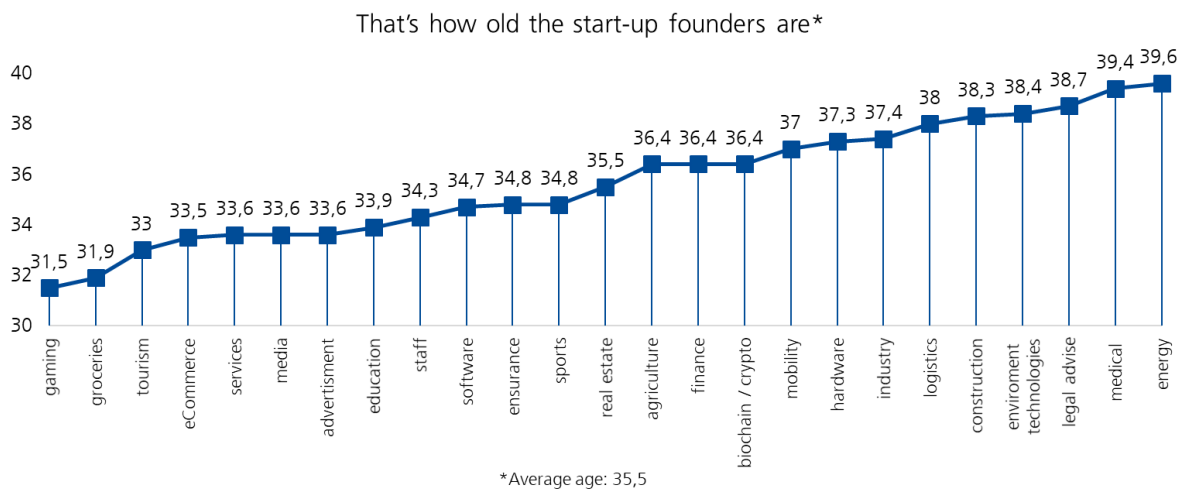


Figure 5 Top 50 Start-ups, n.d.

The age range of startup founders varies depending on region, industry, and startup type. However, multiple studies and surveys have illuminated the general age bracket of startup founders. Firstly, it is prevalent for young entrepreneurs to establish startups, with many prospering ones being founded by individuals in their twenties or early thirties. There is no doubt that youthfulness is a valuable attribute since it brings with it a sense of vigor, ambition, and flexibility. Some noteworthy instances comprise Mark Zuckerberg, a co-founder of Facebook at the age of 19, and Evan Spiegel, who co-founded Snapchat in his early 20s. Additionally, individuals in their 30s to 50s frequently initiate their businesses, driven by greater industry expertise, a broader network, and financial stability, which may aid them in starting and growing a startup. Additionally, individuals in their 30s to 50s frequently initiate their businesses, driven by greater industry expertise, a broader network, and financial stability, which may aid them in starting and growing a startup. It is also pertinent to consider entrepreneurs in their later career stages. Additionally, individuals in

their 30s to 50s frequently initiate their businesses, driven by greater industry expertise, a broader network, and financial stability, which may aid them in starting and growing a startup. Some individuals choose to begin their enterprises later in life, often in their forties or fifties, after gaining extensive experience in their respective fields. These aspiring entrepreneurs with a delayed start in their careers may utilize their expertise and industry contacts to establish thriving businesses. The age of startup founders varies significantly among diverse sectors and industries. For instance, technology startups are typically founded by younger individuals, whereas older founders are more prevalent in the healthcare and biotechnology industries due to their expertise and specialization in these areas. It should be noted that the entrepreneurial landscape is constantly changing, and the age of founders is subject to shift over time. There is no set age to begin a startup. Successful entrepreneurship relies on several factors: innovative concepts, market timing, determination, and access to resources. The conventional image of an entrepreneur is of a young student in their early 20s who pursues bold and clever business endeavors. This stereotype, tailored to tech startups, aligns with the popular notion of young, bold founders. However, as the startup landscape continues to evolve, it becomes clear that entrepreneurship knows no age limits. Recent data from Top 50 Start-ups challenges the established stereotype and reveals a more varied and developed entrepreneurial landscape. These statistics suggest that the average age of founders is 35, which indicates that many prosperous startups are established by individuals who have gained substantial industry experience and knowledge before embarking on their entrepreneurial journeys. This shift in the typical age of founders highlights the dynamic nature of entrepreneurship. It demonstrates that the path to entrepreneurship can be taken at various stages of one's career and life. While young entrepreneurs bring fresh perspectives and innovative ideas to the table, older founders often leverage their expertise, networks, and industry insights to build thriving businesses. The text does not require improvement. The world of startups is as diverse as the ideas it fosters, and the age of founders is just one dimension of this rich tapestry. Entrepreneurship is available to anyone at any age who is passionate, determined, and willing to face the challenges and opportunities of innovation and business creation. The journey requires dedication and perseverance, but it can ultimately lead to achievement.

In summary, Germany necessitates increased innovation to advance long-term entrepreneurship in a world characterized by volatility, uncertainty, complexity, and ambiguity (VUCA). Given the rapid changes and ever-evolving challenges that businesses encounter, innovative approaches and ideas are crucial. Innovation enables companies to adapt to changing circumstances, establish competitive advantages, and achieve long-term success. Germany has enormous potential for innovation due to its strong research and development infrastructure, as well as its highly skilled workforce. However, in today's ever-changing and ambiguous world, creating a more dynamic landscape for entrepreneurship requires a thorough commitment to innovation at all levels. This requires not only governmental bodies and businesses but also educational institutions to increase their efforts in fostering an environment that encourages innovation. This may entail actions such as promoting research and development, aiding new ventures, educating skilled professionals, and providing incentives for entrepreneurial mindset and actions.



1.2 Why digital?

1.2.1 Digital innovations

Digital innovation is a foundational concept within the realm of Information Systems, and it is discussed in numerous contexts and from diverse perspectives. Broadly defined, digital innovation involves the creation of new combinations of digital and physical components to produce novel products or services. It represents a change in thinking, especially when compared to non-digital or traditional innovation, where the focus is primarily on physical products. At the core of digital innovation is the emergence of a layered modular architecture, a fundamental framework that has redefined the way we approach innovation.

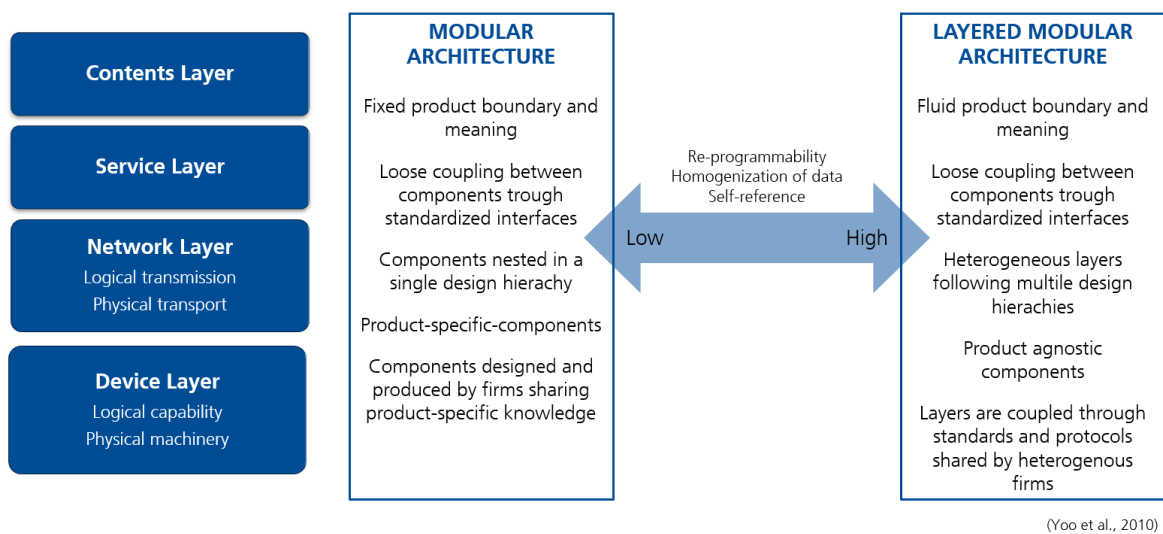


Figure 6 Modular Architecture vs. Layered Modular Architecture

Digital Innovation Defined:

Digital innovation is about the art of combining digital and physical elements to introduce new and transformative products or services. These innovations give rise to a unique product architecture characterized by its layered and modular nature, setting it apart from the traditional innovation landscape.

The Layers of Digital Innovation:

- **Device Layer:** This is the foundational layer, consisting of the physical machinery, such as computer hardware, that forms the basis of digital systems. It is the tangible infrastructure on which digital innovations are built.
- **Logical Capability Layer:** Sitting atop the device layer, this layer encompasses the operating system and software components that provide the logical framework for digital innovation. It's the software that brings hardware to life.
- **Network Layer:** This layer deals with the physical transport of data and the logical transmission methods. It includes the physical infrastructure like cables and transmitters, as well as the network standards that enable data exchange across digital systems.

- **Service Layer:** Moving higher in the architecture, this layer encompasses the functionality of applications directly serving end-users. It's where the real-world value of digital innovations becomes apparent.
- **Content Layer:** At the top of the architecture, the content layer is concerned with the data itself – be it images, text, or other media. It's the content that enriches the services and applications provided by digital innovations.

Layered Modular Architecture:

The layered modular architecture of digital innovation is a defining characteristic that sets it apart from traditional innovation. In this framework, components can be rearranged in numerous ways, and elements of products or services can be reused and recombined with flexibility. Digital innovation components are inherently product-agnostic, and there exists a loose coupling between them. Standardized interfaces facilitate communication between these components, and the boundaries of the final product are fluid, allowing for adaptability and customization.

Standards and Protocols: The layers of digital innovation are interconnected through established standards and protocols, enabling different companies and stakeholders to share and reuse these components. This interoperability is a driving force behind the rapid pace of innovation in the digital sphere.

Unique Characteristics of Digital Technologies: Digital innovation's nature is profoundly influenced by the distinctive traits of digital technologies. These include programmability, enabling the alteration of functionality through software, self-referential nature, where digital systems can reflect on their processes, and the homogenization of data, ensuring uniformity in data handling. Understanding the layered modular architecture of digital innovation is pivotal for businesses and researchers alike. It allows us to appreciate the dynamic nature of digital entrepreneurship and how digital technologies are reshaping the landscape of innovation. In the chapters that follow, we will delve deeper into the implications of this architecture, explore real-world applications, and dissect the factors driving digital innovation in contemporary society.

1.2.2 The Digital Revolution: Transforming Products and Services

The transition from analog to digital has revolutionized the way we access products and services, making them more convenient and accessible than ever. This chapter delves into the fundamental shifts brought about by the move toward digital offerings, using the evolution of movie rentals as an example.

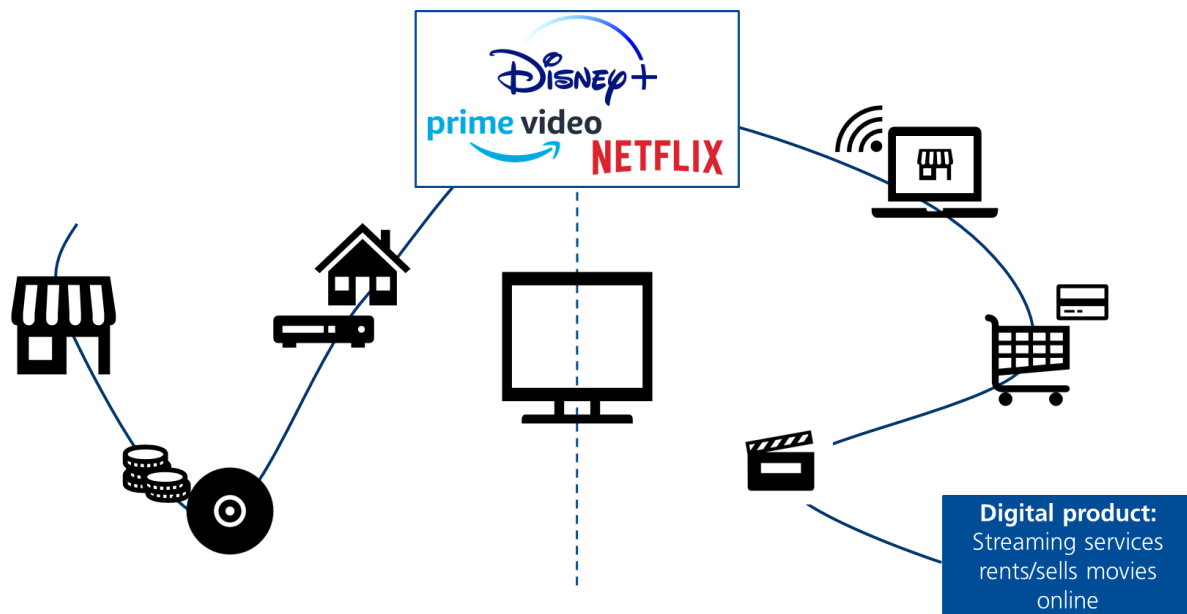


Figure 7 Digital products

During the analog era, obtaining a physical medium rental necessitated visiting a video rental store. These establishments offered a wide range of tangible media options for lease, including DVDs, Blu-rays, and even classic VHS tapes. The rental process was made seamless: you chose your preferred movie, paid a charge for borrowing rights, and took the physical disc or tape home. The item must be returned within a specific period. The traditional film rental model has been a long-standing custom for many years and has become deeply entrenched in our daily lives. Nevertheless, the rise of digital transformation has shifted this paradigm. Digital products and services have emerged as a new form of entertainment, greatly changing the industry's landscape. Advancements in technology have revolutionized the entertainment industry, with companies such as Disney, Prime Video, and Netflix transforming the traditional movie rental business model. Digital products and services have emerged as a new form of entertainment, significantly changing the sector's landscape. In today's era of digitalization, physical stores, tangible media, and late fees have become antiquated. A world of entertainment awaits at your fingertips with a basic internet connection. Digital products and services offer unique benefits, such as On-demand access, and have made physical presence unnecessary. Comfortably enjoy films, series, or any digital content from the comfort of your home, at your preferred time. The limitations of business hours and physical store locations are now outdated. The internet offers a plethora of choices, including a wide selection of movies, television programs, and digital content. In contrast to physical stores limited by their available shelf space, online platforms can feature extensive databases, catering to a diverse range of personal interests and preferences. Utilizing modern technology makes personalization possible. Digital services utilize data and algorithms to customize content suggestions, enabling users to discover films and programs based on their preferences. This tailored experience is a significant advantage of the digital platform. Subscription-based models are ubiquitous within the digital domain, offering flexible payment choices to users. Instead of paying for every individual film or program, viewers can opt for monthly or annual subscriptions, granting access to an extensive selection of content. This cost-effective choice enables customers to access boundless content for a fixed charge. Furthermore, digital services provide easy accessibility and portability as the content is not limited to physical media and can be accessed via various devices, including

smartphones and smart TVs. This highly convenient and easily transferable feature is one of the notable advantages offered by digital services. Instant gratification is ensured through the service's ability to instantly stream content as requested, eliminating the previous need to wait for rentals and out-of-stock titles. Digital platforms have made way for instantaneous accessibility, thus eradicating the necessity to wait. The shift from analog to digital goods and services has caused a significant disruption in our world's interactivity. The advancement of digital technology has the potential to enhance our livelihood and streamline the economic ecosystem. The implications, obstacles, and opportunities arising from these changes warrant further examination.

1.2.3 Digital business models

A digital business model is a structured strategic plan employed by businesses or organizations, informed by extensive research and market analysis, to leverage digital technology and online resources for the creation, delivery, and monetization of value in the digital economy. These models are designed based on insights gathered from thorough market research, consumer behavior analysis, and industry trends. They dictate how a company generates revenue, interacts with its target audience, and manages its resources in an era defined by digital transformation. Digital business models are characterized by their reliance on digital tools, platforms, and networks, which may include the development of digital products, services, or experiences. They are informed by comprehensive research into customer needs, preferences, and pain points, enabling businesses to tailor their offerings to the evolving demands of the market.

Digital business models

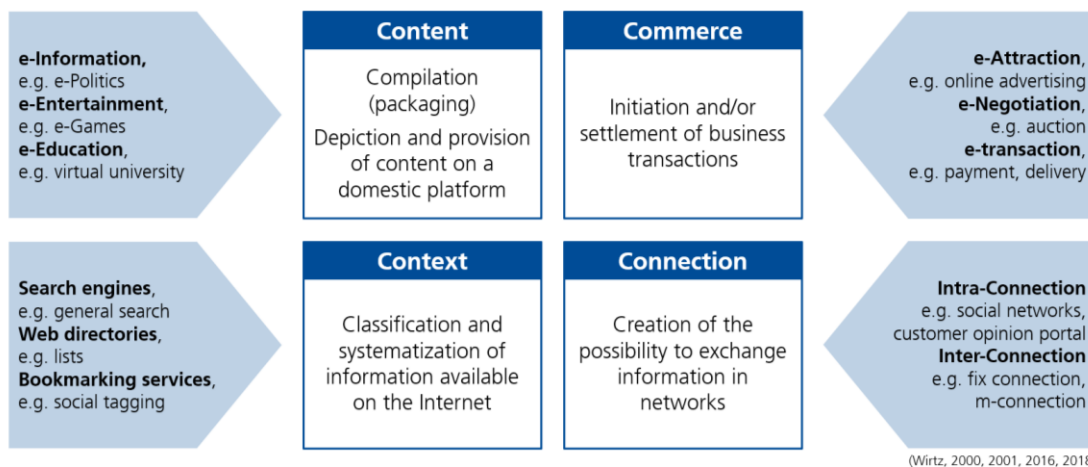


Figure 8 Digital business models

In today's dynamic business environment, the digital revolution has revolutionized not only the products and services on offer but has also led to a new age of business models. The times when businesses solely relied upon physical products stocked on shelves or services rendered in brick-and-mortar establishments have passed. In the digital era, the fundamental way of earning has transformed, creating numerous innovative digital business models.

1. Content Business Model

The Content Business Model is one of the leading digital business models. This model prioritizes the creation and delivery of valuable content through digital platforms. The content can be in various forms, including articles, videos, podcasts, and more. An excellent example of this model is a virtual university, where the primary focus is on developing teaching materials and delivering them to students via the Internet. Specialized knowledge and educational resources are offered by these enterprises, which they make profitable through subscriptions, one-time purchases, or advertising revenue. The digitization of information has facilitated the creation of novel revenue streams, and educational opportunities through the Content Business Model, which has a broad global reach.

2. Commerce Business Model

The Commerce Business Model is a prominent participant in the digital sphere. Its function is to facilitate and initiate commercial transactions in the online space. The model creates digital marketplaces, channels, or platforms that connect buyers and sellers, allowing them to engage in various forms of e-commerce. This includes online payment systems, e-commerce websites, and auction platforms. The Commerce Business Model has transformed the retail industry, revolutionizing how businesses sell and consumers purchase products and services, due to the surging growth of online shopping. Amazon, eBay, and Shopify are prime illustrations of how firms capitalize on the digital terrain to establish flourishing marketplaces.

3. Context Business Model

The Context Business Model centers on organizing, systematizing, and categorizing internet information. Prominent digital entities in this realm comprise search engines and web directories. Leveraging algorithms and data analytics, these platforms arrange and display information in a user-centric manner. Consequently, these enterprises enrich the user experience by extracting insights from the copious digital data. Search engines such as Google provide targeted search results, while web directories categorize websites, facilitating efficient searching for users. Revenue is typically generated through advertising, as contextual ads are presented alongside search results or directory listings.

4. Connection Business Model

The Connection Business Model facilitates the exchange of information within digital nets. Social networks, instant messaging platforms, and various communication tools exemplify this model. These platforms facilitate connections among individuals, permitting them to exchange information, communicate, and collaborate, frequently in real-time. Platforms such as Facebook, Twitter/ X, and LinkedIn have harnessed the influence of the Connection Business Model to generate substantial and engaged communities. Their monetization strategies comprise advertising, premium functionalities, and data analytics that provide valuable insights to firms aiming to target particular audiences.

Repetition



In conclusion, digital business models differ from traditional models in their approach to value creation. Instead of relying on physical inputs, processes, and outputs, digital business models harness the power of digital technology to create value in innovative and often transformative

ways. These four distinct types of digital business models - Content, Commerce, Context, and Connection - exemplify the broad spectrum of opportunities and possibilities that the digital age has ushered in. Businesses that adapt and leverage these models effectively are poised to thrive in the ever-evolving digital landscape.

1.2.4 Digital Transformation of Value Chains

To gain a deeper understanding of digital value creation, it's valuable to compare the traditional value chain model proposed by Porter with the digital value chain specific to the content business model. These comparisons will elucidate how the transformation into the digital landscape has redefined the methods through which value is created.

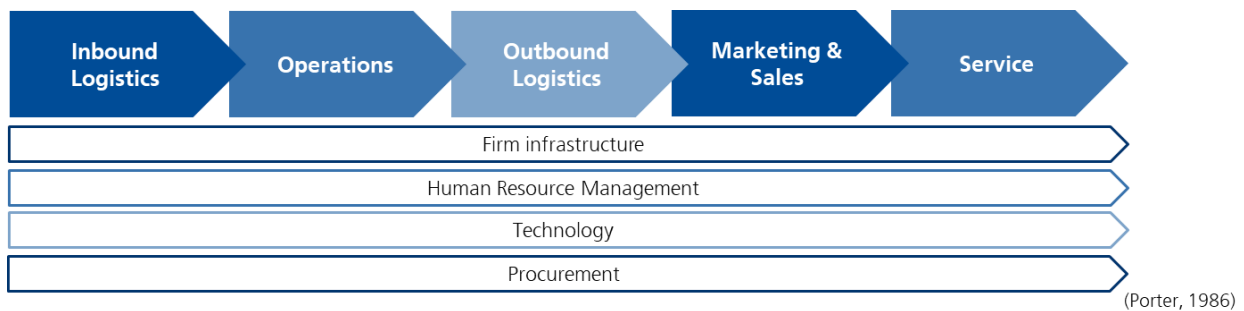


Figure 9 Traditional (analog) value chain

Traditional (analog) value chain: The standard value chain in the context of a furniture manufacturer. In an inbound organization, the company acquires raw materials, including wood, which it then uses to build furniture. After this, the wood undergoes a variety of operational processes to produce tables. Finally, the company engages in outbound logistics to transport and deliver the finished tables to retail outlets. The promotion and sale of tables in stores, particularly through advertising such as television commercials, plays a pivotal role in creating brand recognition amongst potential customers. To further enhance customer satisfaction, it is vital to offer high-quality customer service and promptly address any issues related to table breakage or dissatisfaction with the product's quality. Selling tables in stores and promoting them through advertising, such as television commercials, are crucial in creating brand awareness among potential customers. Additionally, it is imperative to provide high-quality customer services, especially for addressing issues like table breakage or dissatisfaction with the product's quality.

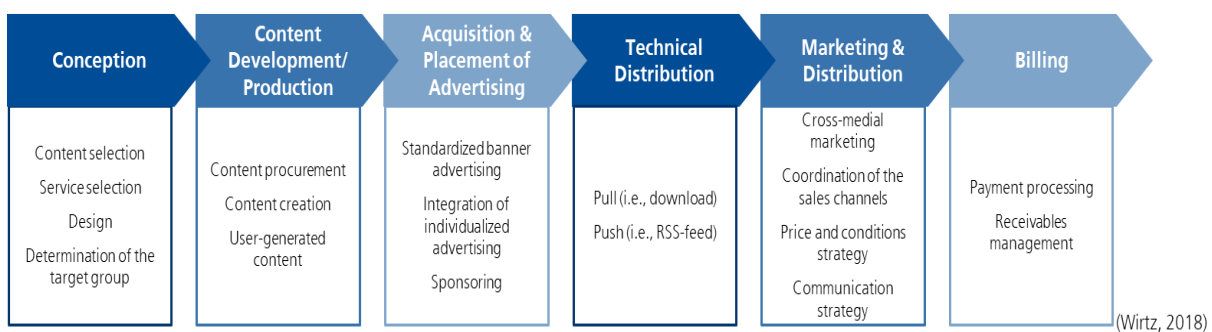


Figure 10 Digital value chain

Digital value chain (content business model): In contrast, the digital value chain within the content business model takes a different path, primarily because there are no physical products involved. Instead, the process revolves around the creation and distribution of digital content, such as learning videos. **Conception:** The process begins with conceptualization, where the content to be provided is ideated. For example, the creation of learning videos on the concept of entrepreneurship for Information Systems students. **Content development and production:** selecting and designing the content, tailoring it to your target audience. This may entail arranging the content, drafting a script, and strategizing the delivery method. During the production stage, the digital content is generated, usually in a video studio, bringing the educational videos to fruition by the predefined plan. Finally, the **placement of advertising** is crucial. Unlike conventional advertising, the digital content model employs strategies such as sourcing sponsorship from start-up firms or partnering with other online platforms. **Marketing and Distribution:** The dissemination of digital content depends on various techniques, including the pull principle (e.g. granting access via platforms like Moodle) and the push principle (e.g. sending links to the video via email). **Marketing and Distribution Channels,** it is necessary to deliberate on the means and locations for delivering the content. This could involve university websites, Department Chairs' platforms, or other channels. **Pricing Strategy:** Deciding how the content will be monetized is a crucial step. Will it be freely accessible, pay-per-view, or restricted to enrolled students who pay a fee?

Repetition



Summing Up: In summary, a comparison between the traditional and digital value chains of the content business model uncovers significant differences in value creation phases. Digital business models necessitate a change in mindset as intangible assets are utilized, and digital tools are leveraged to generate value. Recognizing these distinctions and comprehending how each stage contributes towards value creation is crucial when designing a digital business model. Adopting the digital value chain involves adjusting to the burgeoning technological environment, shifting audience trends, and the ceaselessly expanding prospects that the digital realm presents. This comprehension is crucial to guarantee that your digital business model is not just inventive but thriving in creating value in the digital era.

1.3 Why digital Entrepreneurship?

1.3.1 Definition

There are a variety of perspectives and definitions regarding digital entrepreneurship. This chapter presents a comprehensive analysis of differing interpretations of digital entrepreneurship and highlights the distinctive features that set it apart from conventional business practices. We will explore how experts and scholars define and understand this ever-changing industry.

Defining features

“Digital entrepreneurship embraces all new ventures and the transformation of existing businesses through novel digital technologies. Digital enterprises are characterized by a high intensity of utilization of novel digital technologies (particularly social media, big data analytics, mobility, cloud and the digitization of manufacturing) to improve business operations, invent new business models and engage with customers and stakeholders” - (European Commission, 2014)

Digital entrepreneurship is fundamentally characterized by the adoption of novel digital technologies. These technologies encompass a wide spectrum, including cloud computing, big data analytics, social media platforms, and the digitalization of manufacturing processes. The objective is to leverage these technologies to enhance business operations, invent innovative business models, and establish connections with new customers and stakeholders. In essence, digital entrepreneurship is about harnessing technology to propel ventures forward.

1. The Digitization of Traditional Business:

Digital entrepreneurship is a subcategory of entrepreneurship in which some or all of what would be physical in a traditional organization has been digitized. - (Hull et al., 2007, p.293)

Hull et al. views digital entrepreneurship as the digitization of all components that were once physical in a traditional organization. This perspective highlights the fundamental shift from physical to digital, where everything from product development to communication and transactions occurs in the digital realm. It signifies a profound transformation in the way businesses operate and interact with their environment.

2. A New Era of Business Creation:

Digital entrepreneurship is defined as the reconciliation of traditional entrepreneurship with the new way of creating and doing business in the digital era. - (Le Dinh et al., 2018, p.1)

Le Dinh et al. and Davidson & Vaast emphasize digital entrepreneurship as a new approach to creating and conducting business in the digital age. It entails pursuing innovative opportunities that arise from emerging Internet technologies. This perspective underscores the ever-evolving nature of business and the need to adapt to the digital era's unique dynamics.

3. Radical, Risk-Taking, and Innovative Endeavors:

Entrepreneurship [...] is [...] defined as occupying niches, monetizing business opportunities, as well as being innovative, radical, and risk-taking. - Richter et al., 2017, p.66

Richter et al. view entrepreneurship, including its digital form, as inherently radical, risk-taking, and innovative. This perspective underscores the entrepreneurial spirit that drives individuals to explore uncharted territories and develop groundbreaking solutions. In the digital context, this spirit is harnessed to navigate the complexities of the digital landscape.

5. Generating Revenue from Digital Goods:

[Digital entrepreneurship is] the creation of ventures to produce and generate revenue from digital goods across electronic networks. - (Guthrie 2014, p.116)

Guthrie's definition of digital entrepreneurship centers on the generation of revenue from digital products and the establishment of digital ventures. This perspective highlights the financial aspect of digital entrepreneurship, underlining the potential for profitability within the digital domain.

6. A Comprehensive Digital Venture:

Digital entrepreneurship may be defined as entrepreneurship in which some or all of the entrepreneurial venture takes place digitally instead of in more traditional formats. - (Hair et al., 2012, p.2)

Hair et al. offer a comprehensive view, asserting that all aspects of the entrepreneurial venture take place digitally. This perspective encompasses not only digital products or support by digital means but the entirety of the entrepreneurial process being conducted in the digital realm.

In conclusion, digital entrepreneurship is a complex concept with various definitions and perspectives. What unifies these definitions is acknowledging that digital entrepreneurship represents a fundamental change in how businesses operate, innovate, and interact with customers in the digital age. It is identified by embracing innovative technologies, digitalizing traditional practices, and pursuing creative opportunities in the digital era. Digital entrepreneurship encompasses innovation, risk-taking, and transformative practices, shaping a new era in the business world.

1.3.2 Digital Entrepreneurship in Information Systems Research

Digital entrepreneurship has become a prominent area of interest for Information Systems (IS) researchers. This chapter examines the different perspectives used to analyze digital entrepreneurship in IS research, including traditional entrepreneurship and digital innovation. Additionally, we introduce the emerging digital entrepreneurship perspective, which highlights the complex and multifaceted nature of this evolving field. Within IS research, digital entrepreneurship is commonly viewed from the perspective of traditional entrepreneurship, which highlights the establishment of new economic activities. Scholars in this field predominantly concentrate on individuals and ventures, and key tenets revolve around entrepreneurial agents' functions, such as recognizing opportunities, gathering resources, and creating new ventures. This lens explores the traits of entrepreneurs and start-ups, illuminating the dynamics of entrepreneurship within the digital domain. The field of digital innovation research, which is well-established in IS, focuses on the creation of innovative products, services, or processes through digital technologies. The main emphasis is on artifacts and organizations. The perspective assumes that digital technologies are leading to enhancements in products and services. Scholars examine the development and adoption of digital innovations and study their impact on organizations and industries. This perspective extends beyond the creation of new ventures to the evolution of existing entities through digital innovation. Digital entrepreneurship research in Information Systems (IS) combines traditional entrepreneurship and digital innovation perspectives to explore the creation of new economic activities facilitated by digital technologies. The predominant belief is that these technologies blur the boundaries of entrepreneurship processes and outcomes. Consequently, researchers analyze artifacts, ventures, and outcomes across multiple levels of analysis to gain a comprehensive understanding. The focus can encompass various aspects, such as technology characteristics, organizing methods, and their impact on digital entrepreneurship. Within scholarly literature, each of these research streams narrows its focus. Traditional research on entrepreneurship examines the characteristics of founders, new ventures, and the entrepreneurial process. Digital innovation research studies the development and adoption of digital innovation, digital platforms, and their impact on organizations. Digital entrepreneurship research investigates the technical aspects of

technology and the methods of organizing within the digital realm and analyses the outcomes of digital entrepreneurial initiatives.

In conclusion, Information Systems research offers different perspectives for studying digital entrepreneurship. These perspectives include creating new economic activities, promoting innovation using digital technologies, and the emerging concept of digital entrepreneurship. By examining different perspectives and areas of focus, scholars in the field of Information Systems increase our understanding of the opportunities, challenges, and trends that exist within the realm of digital entrepreneurship.

	Entrepreneurship	Digital innovation	Digital entrepreneurship
Focal phenomenon	Focuses on creating new economic activities	Focuses on creating new and improved products, processes, or services through digital technologies	Focuses on creating new economic activities embodied in or enabled by digital technologies.
Dominant assumptions	Entrepreneurial agents exploit opportunities by assembling resources in new ventures	Digital technologies give rise to new or improved products, processes, services, or business models	Digital technologies blur boundaries of entrepreneurship processes and outcomes. Digital technologies disperse entrepreneurial agency across a broader range of actors
Primary levels of analysis	<p>Individuals and ventures:</p> <ul style="list-style-type: none"> ▪ Entrepreneurial agents ▪ New ventures, typically referring to emerging, independent, and professionally funded firms ▪ Entrepreneurial ecosystems 	<p>Artefacts and organizations:</p> <ul style="list-style-type: none"> ▪ Digitized products, processes, services, and business models ▪ Incumbent organizations ▪ Both new and established markets 	<p>Artefacts, ventures, and outcomes:</p> <ul style="list-style-type: none"> ▪ Digital technology objects, such as artefacts, platforms, or infrastructure ▪ Entrepreneurial endeavors ▪ Digital environments, such as ecosystems ▪ Societal outcomes
Selected foci in the literature	<ul style="list-style-type: none"> ▪ Entrepreneurial opportunities ▪ Founder characteristics ▪ Modes of organizing ▪ New venture characteristics and performance ▪ Entrepreneurial strategies ▪ Ecosystem characteristics 	<ul style="list-style-type: none"> ▪ Development and adoption ▪ Technology architectures ▪ Technology appropriation and recombination ▪ Organizational structures and change ▪ Business value ▪ Competitive dynamics ▪ Digital platforms 	<ul style="list-style-type: none"> ▪ Development and commercialization ▪ Technology characteristics ▪ Technology appropriation and recombination ▪ Modes of organizing ▪ Distribution and scaling of entrepreneurial endeavors ▪ Digital platforms ▪ Business and social outcomes

(von Briel et al., 2021)

Figure 11 Digital Entrepreneurship Research

1.3.3 Digital entrepreneurship research – Role of digital technologies

In the realm of digital entrepreneurship, the interplay between digital technologies and entrepreneurial activities is both intricate and multifaceted. In this chapter, we will explore the pivotal role of digital technologies within the context of entrepreneurship. Researchers have identified at least three primary ways in which digital technologies intersect with digital entrepreneurship, each offering unique insights into this dynamic relationship.

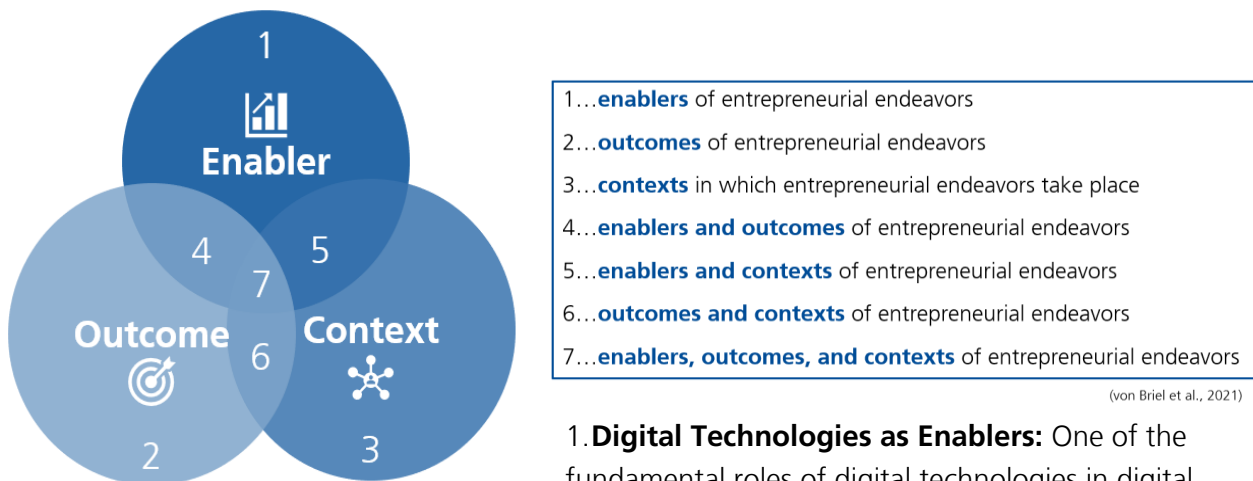


Figure 12 Digital entrepreneurship research – Role of digital technologies

1. Digital Technologies as Enablers: One of the fundamental roles of digital technologies in digital entrepreneurship is that of an enabler. Digital technologies empower entrepreneurial endeavors by providing tools, platforms, and solutions that facilitate the creation, management, and scaling of new businesses. This may involve the use of artificial intelligence, digital platforms, or e-commerce solutions to drive sales, streamline operations, and enhance customer experiences. Entrepreneurs harness the capabilities of digital technologies to bring their innovative ideas to fruition.

2. **Digital Technologies as Digital Outcomes:** In some cases, digital technology itself represents the realized value proposition of entrepreneurial activities. Virtual products in video games serve as a prime example. Here, digital technology is not merely a means to an end but is the end itself—a product or service that holds intrinsic digital value. Entrepreneurs in this space focus on creating digital artifacts that cater to the demands and preferences of a digital-savvy audience.

3. **Digital Technologies as Digital Contexts:** Digital technologies can also be viewed as the contextual backdrop within which entrepreneurial endeavors unfold. These technologies form an integral part of the external environment in which businesses operate. For entrepreneurs, understanding and adapting to the digital context is vital. This may include navigating the intricacies of digital marketing, data analytics, or the evolving digital landscape. Digital technologies set the stage for entrepreneurial activities, influencing market dynamics, consumer behavior, and competitive forces.

4. **4-7. Combined Roles of Digital Technologies:** The relationship between digital technologies and digital entrepreneurship is not confined to a single role. Instead, these roles can intermingle and overlap. Digital technology can simultaneously serve as an enabler, an outcome, and a context (4-7). For instance, a digital platform that enables online transactions (1) can also represent the

realized value proposition itself (2) and operate within the larger context of the digital marketplace (3). This versatility highlights the dynamic and interconnected nature of digital entrepreneurship in the digital age.

In summary, the role of digital technologies in digital entrepreneurship is multifaceted and cannot be attributed to a single dimension. These technologies enable shape outcomes, and form the digital context within which entrepreneurial activities thrive. Entrepreneurs navigate these multifarious roles as they harness the power of digital technologies to innovate, create value, and drive success in the ever-evolving digital entrepreneurial landscape.

1.4 What to expect

Preview



In the following chapters, this course on digital entrepreneurship will provide more specific content.

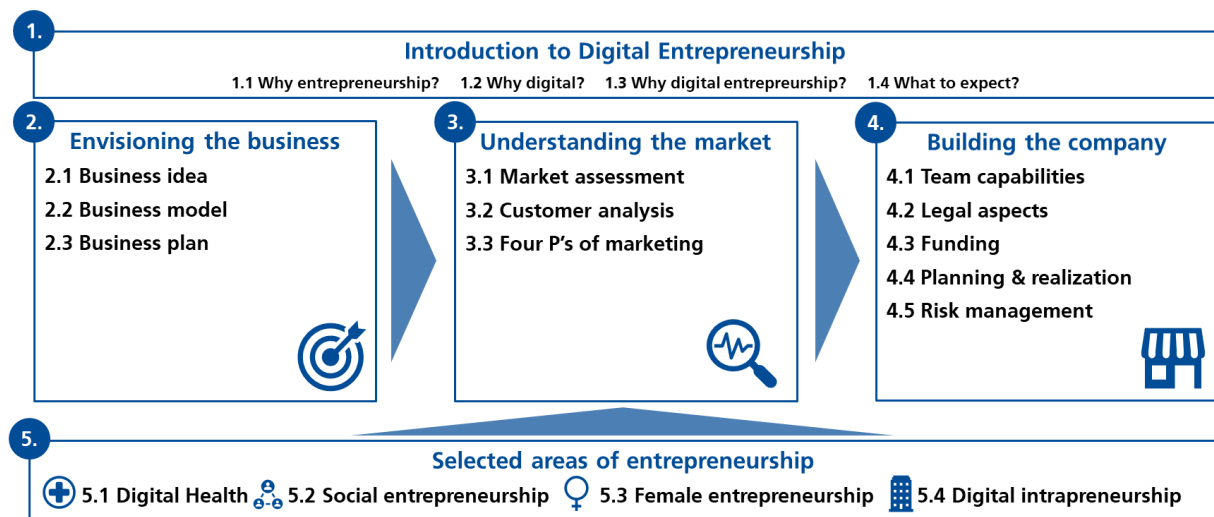


Figure 13 What to expect?

Takeaway



Key Takeaways

It is essential to internalize the following key takeaways:

- **Entrepreneurial Mindset:** In a landscape defined by high uncertainty, the absence of a prototypical digital entrepreneur is compensated by the indispensability of a resilient and entrepreneurial mindset.
- **VUCA World Challenges:** Discern the challenges intrinsic to a Volatile, Uncertain, Complex, and Ambiguous (VUCA) world, impacting both established entities and nascent ventures.
- **Digital Innovation:** Acknowledge the profound disparities between digital and conventional innovation paradigms, necessitating a bespoke approach to value creation.
- **Role of Digital Technology:** Grasp the multifaceted role of digital technology, transcending its identity as an enabler, outcome, and contextual backdrop for entrepreneurial pursuits.

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