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# Next Generation Entrepreneurship

*Edited by Burak Erkut and Vildan Esenyel*





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Edited by Burak Erkut and Vildan Esenyel

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# Meet the editors



Dr. Burak Erkut obtained a BSc in Economics and Management Science and an MSc in Economics from Leipzig University, Germany. He obtained his Ph.D. from Technische Universität Dresden, Germany, with research focused on product innovation and market shaping from the perspective of evolutionary economics. During his Ph.D., he was a visiting researcher at York University, Canada as well as GGS Indraprastha University and AIIMS New Delhi, both in India. Currently, he is an associate professor at Bahçeşehir Cyprus University and a fellow of the Institute for Research in Economic and Fiscal Issues. His research interests include innovation, entrepreneurship, evolutionary economics, and the history of economic thought.



Vildan Esenyel is an accomplished and detail-driven postdoctoral fellow and researcher. As an assistant professor, Dr. Esenyel has focused on the innovative side of human resource management in her research, teaching, and academic activities. Her research interests include human resources management, corporate reputation, inter-organizational power relations, and entrepreneurship. In particular, she is interested in looking at various stages of the employment cycle and how corporate reputation can positively impact the organization. As an entrepreneur, she has received a grant from the Ministry of Economy and Energy - KOBİGEM to start an entrepreneurship education program.



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# Preface

The world is changing and so is entrepreneurship. The question is in which ways, how, through which focal directions, and by what means? This is the primary question we explore in *Next Generation Entrepreneurship*.

Turkish philosopher İhsan Fazlıoğlu once said that to further develop and change a discipline or an academic field, one must leave past knowledge about the field behind but also make sure that the history of knowledge is being preserved. This poses a big challenge for entrepreneurship. On one hand, the entrepreneurial activities of human beings are as old as the history of humanity. On the other hand, the character of entrepreneurship is changing and requires new explorations based on what is going on and what the future of entrepreneurial activities will be.

The book starts with the section “Entrepreneurship Education and Young Perspectives”. The first chapter in this section, “Entrepreneurship Education for the Next Generation of Higher Education in Taiwan” by Jen Chia-Chang, focuses on the relevance of entrepreneurship education in general and the Taiwan case specifically. The author gives best practices of entrepreneurship education and provides a perspective for the future. The second chapter, “The TIPE Model for Teaching Technology-Based Entrepreneurship” by Hongyi Sun, focuses on different models of technology-based entrepreneurship education to present a conceptual model called Technology, Idea, Product, Enterprise (TIPE) for further usage in entrepreneurship education. The third chapter in this section, “The Antecedents and Determinants of Entrepreneurial Intention among Business Students in Vietnam” by Cuong Nguyen, presents an emerging market case and provides empirical evidence in favor of supporting Vietnam’s economic development by means of enhancing potential entrepreneurs.

The second section, “New Challenges for Entrepreneurship,” begins with the chapter, “Entrepreneurship in a Different Era” by Li Xiong, which contributes to our understanding of how entrepreneurship differs in the industrial era, the network economy era, and the next generation of intelligent economies. The second chapter in this section, “What’s “Next”? On the Future of Digital Entrepreneurship” by Burak Erkut and Vildan Esenyel, deals with the concept of digitalization and digital entrepreneurship and provides next-generation models of digital entrepreneurship in which the three main components are business model, customer base, and social networks.

The book finishes with the section “Shaping the Next Generation of Entrepreneurship,” which includes a contribution by Camilo Pena Ramirez and Alberto Levy titled “Network Strategy for Entrepreneurs”. The authors provide two case studies from Brasil and Chile to highlight the relevance and pattern of network strategies for next-generation entrepreneurship. The second chapter in this section, “Volunteering as an Explanatory Factor of Social Entrepreneurship: An Analysis of an Educational Context” by Francisco J. Garcia-Rodriguez, et al., highlights that social entrepreneurship should be considered independent of other entrepreneurial activities; volunteering is found to be a key determinant in this setup. The final chapter of this

section (and the book), “Bricolage and Growth-Hacking: Two Smart Concepts of Creating a Business Lacking Resources” by Thomas Baaken, Liguang Liu, and Lea Lapornik, highlights the concepts of bricolage and growth-hacking as being relevant to two different stages of a start-up process.

Overall, this book aims to contribute to our understanding of what next-generation entrepreneurship will be and how we should shape its processes and market.

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Section 1

Entrepreneurship Education  
and Young Perspectives

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# Entrepreneurship Education for the Next Generation of Higher Education in Taiwan

*Jen-Chia Chang and Hsiao-Fang Shih*

## Abstract

2019/2020 The Global Entrepreneurship Monitor (GEM) analyzes the status of early entrepreneurship in various countries. Taiwan is higher than other countries' averages in the national entrepreneurial environment index, such as cultural and social norms, physical infrastructure, market entry control, and internal market vitality, business and legal infrastructure, transformation of research and development results, school-leaving entrepreneurship education and training, on-campus entrepreneurship education and training, government entrepreneurship plans, taxation and administrative systems, government policies and entrepreneurial financing, etc. Starting from 2020, the Ministry of Education has divided the innovation and entrepreneurship courses into two models, namely fundraising practical learning and training course modules and entrepreneurial management and action learning course modules. The themes and implementations of the courses include "Concepts and Practices in Entrepreneurship and Practice Simulation Learning Platform", "Concept Development and Practice-Business Operation-Company Establishment-Company Closure" and "Concept Proposal-Maker Practice-Business Model Briefing" and other aspects. This article will discuss, in the context of the development and current situation of entrepreneurship education in Taiwan, trends in entrepreneurship education for the next generation of Taiwan, and use examples from Taiwan's higher education system to promote entrepreneurship education to serve as a reference by education circles in other countries.

**Keywords:** entrepreneurship education, virtual fundraising, startups, higher education

## 1. Introduction

### 1.1 The importance of entrepreneurship education

According to the statistics of Taiwan's Ministry of Economic Affairs (MOEA) the number of small and medium enterprises (SMEs) in Taiwan in 2019 totaled 1,491,420, accounting for 97.65% of all the enterprises and a 1.72% increase compared to 2018. The number of employees in SMEs reached 9,054,000 people, accounting for 78.73% of the working population and a 0.99% increase compared to 2018. The number of SMEs and the number of employees have hit record highs in recent years. From 2009 to 2019, the total number of newly established companies

in Taiwan increased from 31,882 to 41,870, showing an upward trend [1] and indicating Taiwan's steady and prevalent entrepreneurship trends.

The comparison of national power in the new century is determined by national economic strength and educational empowerment. The fostering of national innovation and entrepreneurial capability have become important tasks in talent cultivation [2]. According to the 2019/2020 National Entrepreneurship Context Index (NECI) rating results of the Global Entrepreneurship Monitor (GEM), the world's top six countries are Switzerland, the Netherlands, Karta, China, the United Arab Emirates, and India. Taiwan ranks 7th, ahead of the United States (10th), South Korea (15th), and Japan (25th). Based on the rating results, Taiwan achieved the best performance in physical infrastructure, ranking second in the world. Taiwan also excelled in such aspects as entrepreneurial finance, government policies, taxes, administrative systems, R&D transfer, and internal market burdens [3]. Clearly, Taiwan provides entrepreneurs with a sound foundational environment for start-ups.

The United Nations Educational Scientific and Cultural Organization (UNESCO) convened the World Conference on Higher Education in Paris in 1998. In the "World Declaration on Higher Education for the Twenty-First Century: Vision and Action", it is clearly pointed out that "in order to assist graduates in getting a job, higher education should focus on the cultivation of entrepreneurial capability and an initiative spirit, and the entrepreneurial capability and entrepreneurial spirit should be the basic goals of higher education. In addition, graduates are no longer job seekers but will become creators of job positions" [4]. This shows that today's graduates should not limit themselves to being job seekers; instead, they should become entrepreneurs that create jobs for others. With the development of the Internet, variations in social network models, and the convenience of information acquisition, entrepreneurship is no longer a difficult task to achieve. With the rise of emerging industries such as Internet celebrities, E-commerce, cultural and creative industries, social enterprises, etc., it has been proven that creativity is all it takes to build a career of one's own.

The European Commission (2008) believes that the development of an entrepreneurial spirit is the key to breaking away from the current economic recession. Higher education institutions that have the necessary infrastructure and professional knowledge play important roles [5]. In the past, innovation and entrepreneurship mostly refer to product innovation or process innovation, while traditional entrepreneurship education mainly emphasizes the creativity, economics, management and financial issues of new ventures [6], and cultivates students with the motivation, knowledge and skills to succeed in entrepreneurship [7].

In the modern society of communication convenience, information explosion, and rapid changes, the employment environment young people are faced with is unlike that of the past. Climbing unemployment rates and epidemic turmoil all affect young people's future work conditions. Entrepreneurship can perhaps lead young people towards a different future, enabling them to search their own direction and create a bright future in spite of the chaotic environment they are in. Zhang and Cain observed in their research that more than 50% of students receiving entrepreneurship education plan to start their own business after completing entrepreneurship education [8]. Kubberød and Pettersen also found in their study that most students who have received entrepreneurial training expressed proactive views on entrepreneurship [9]. Virginia & Carlos confirmed the important role of entrepreneurship education in the development of the entrepreneurial capabilities of engineers through their study on the entrepreneurial intention of future engineers [5]. Jena also found in their study on the entrepreneurial intention of students from India that entrepreneurship education has a positive impact on entrepreneurial intention [10]. Obviously, higher education shoulders a major responsibility in providing students with relevant knowledge and skills training.

## 2. The implication of the entrepreneurial spirit

Entrepreneurship is an adventurous action that creates value, a realization of self-accomplishment, and a dynamic process rather than a static state. Entrepreneurs must be clear about their own intentions, have adequate relevant knowledge, be emotionally involved and focused in order to create the value of innovative entrepreneurship [11]. According to the viewpoint of the ethical subject of the French philosopher Michael Foucault on practices of the self, entrepreneurship can be regarded as the entrepreneur's understanding of the self, a reflection of life situations, and an understanding of valuable viewpoints. It is also a process of connecting with group society. Schumpeter believes that entrepreneurship is the realization of a combination of innovative activities [12]. They include the development of new products, the launch of new production methods, the expansion of new markets, the acquisition of new supply sources, the development of new forms of organization, and other activities. Entrepreneurs can be seen as innovators who transfer economic resources from places of lower productivity to regions of higher productivity [13], which can be seen as an innovative entrepreneurial activity. With the changes in economic activities, the types of entrepreneurship are also different, and the essence of entrepreneurship comes from changes in employment types, such as the current gig economy or the conversion of digital work methods [14], and even the emergence of social media applications and their use in business activities have changed personal behavior patterns [15], which in turn changed the activity patterns of entrepreneurship.

The Australian school economist Kirzner was the first to propose the "theory of the entrepreneurial spirit". He believes that the core of an entrepreneurial spirit lies in a "sensitivity towards undiscovered opportunities". He also believes that entrepreneurs have a keen sensitivity towards the market environment, able to perceptively seek any market opportunities [16]. Knight believes that the entrepreneurial spirit is a concept whereby one shoulders risks and uncertainties in order to obtain profits [17]. Lumpkin and Dess believe that the entrepreneurial spirit may cover autonomy, risk taking, innovativeness, proactiveness, and competitive activeness [18]. In view of the above, the entrepreneurial spirit is expressed as a keen sensitivity towards unknown opportunities in the market environment, demonstrating the spirit and concept of innovativeness, adventurousness, competitiveness, and the courage to take risks, to be able to seek opportunities in the market undetected by others and to actively create profits.

British financial institution Hiscox conducted a survey targeting 500 successful entrepreneurs in 2011. The survey results showed that 53% of successful entrepreneurs believe that they were born with entrepreneurial capability and 13% believe that entrepreneurial capability can be obtained through education or learning. In the hearts of these entrepreneurs, the intrinsic conditions for the establishment of a successful business can be ranked in the following order: 81% of entrepreneurs believe it is analytical ability, 73% believe it is creativity, 66% believe it is strong motivation, and 63% believe it is excellent community skill [19]. Fitzsimmons & Douglas pointed out that on the level of skills, entrepreneurial capability can be acquired through training [20]. It can be seen that in addition to entrepreneurial capability having inherent characteristics, entrepreneurial skills can also be acquired through cultivation.

Entrepreneurial spirit does not just refer to the action of starting a whole new business, but widely means "solving various problems in an original way that has never been learned before (including "the problem that cannot find a suitable job in existing vacancies")" [21]. A white paper on creative education by Taiwan's Ministry of Education (2002) states: "In a broad sense, innovative capability

comprises creativity, innovative mechanisms and entrepreneurial spirit. The concrete results are the creative performances of the general public in various fields. Entrepreneurial capability is an important indicator in the knowledge economy and in social development, while creativity is an educational indicator of learning effectiveness. In a narrow sense, creativity is the basis of innovative knowledge, and innovation is the concrete implementation of creativity. 'Creativity' and 'innovation' can be described as two sides of the same coin, complementing each other. The generation of creativity relies on the demonstration of creativity and intelligence; The performance of creativity depends on the demonstration of innovative results." [22]. Drucker believe that innovation can see change as a new opportunity, which is used to develop different new businesses or provide different services [13]. The entrepreneurial spirit can be regarded as the expression of innovation [23]. The entrepreneurial spirit is an activity that requires the proper mentality and entrepreneurship education. Through appropriate training, students can acquire the necessary knowledge, skills, and practical experiences of the entrepreneurial process, thereby improving their entrepreneurial inclination [10]. Innovative capability applied in entrepreneurship is the entrepreneurial spirit; entrepreneurial spirit is not just the practical activity of entrepreneurship, but more importantly, it is the spirit of entrepreneurship. This spirit can be regarded as the integration of such concepts as innovation, creativity, and willingness to try new things, which is displayed at work or in creating a career. Therefore, higher education should focus on fostering the entrepreneurial spirit of students, enabling them to strive for innovation and change in setting up start-ups or during practical work in the workplace [24]. With the rapid development of technology and the high penetration of communication technology to promote the interconnection of the global economy, economic competition has become more intense, and this phenomenon will increase the speed of innovation [25]. Entrepreneurship not only requires an entrepreneurial spirit, but also needs to follow the trend of the times and develop a suitable business model based on the current situation.

### **3. The development of entrepreneurship education in Taiwan**

The goal of entrepreneurship education is for students to substantially interact and have a dialog with the environment they are in through concrete experiences in the social environment and within an interactive environment perceive realistic problems. They can think about, respond to, and solve problems, while at the same time they must reflect on their subjective awareness and explore their entrepreneurial intention and value concepts, and perceive their subject position throughout the entrepreneurial action [26]. Innovative entrepreneurship courses not only impart entrepreneurial knowledge to students, but also affect their non-cognitive ability. Through the learning process, students are assisted in cultivating the integration of thoughts and knowledge [27], thus shaping their entrepreneurship, adventurousness, willingness to take risks, and positive ambition when engaging in activities related to entrepreneurship.

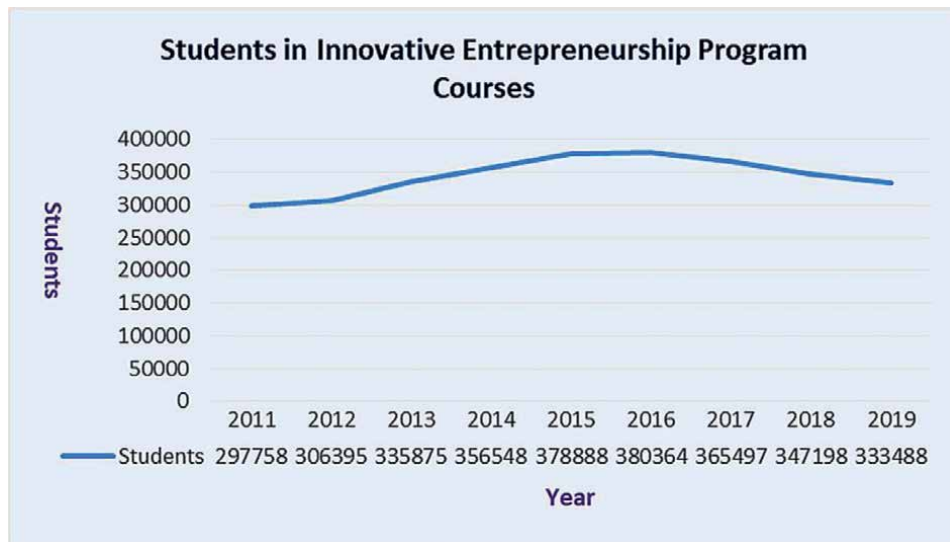
In November 1989, the United Nations Educational, Scientific and Cultural Organization, UNESCO discussed the educational philosophy in the Report to UNESCO of the International Commission on Education for the Twenty-first century. Entrepreneurship education was listed as the "third education passport" of learning; entrepreneurial capacity, academic and vocational education were elevated to the same status; entrepreneurship education was defined as cultivating innovative individuals, which is equally important for wage earners. Since most enterprises at present value the inventions, innovativeness, and adventure spirit

of wage earners, including technology, entrepreneurship, and independent work ability [4], enterprise employers hope to create new products, marketing models, and innovative operational models for the company through the wage earner's innovative entrepreneurial capability. Clearly, entrepreneurship is not only applied in entrepreneurial actions, but it is also displayed in employment-based work.

In the past, the main goal of entrepreneurship education is to encourage individuals to discover business opportunities that lead to enterprise development. Through appropriate learning processes, independent and autonomous entrepreneurship and attitudes can be developed [28]. Entrepreneurship education now emphasizes changes in attitudes, changes in knowledge and skills, feasibility, entrepreneurial intentions, socio-economic impact, entrepreneurial rate and corporate performance [29]. Emphasize that the core ability of entrepreneurship education is to cultivate students' entrepreneurial spirit and entrepreneurial ability [30]. Entrepreneurship is a manifestation of innovation. Hence, some scholars have proposed the extension of entrepreneurship education - "innovation education" — hoping to identify, develop, and transform children's talents through various educational practices, turning students into future creators [31]. "Business start-up" or "entrepreneurial spirit" may be implemented at various stages in education, but they are most extensively covered in higher education [32], because students who enter society and the work environment after higher education are have to face a new phase and challenges, whether they seek employment or start their own business. Therefore, entrepreneurship education imparted in higher education can better enable students to apply their knowledge in the future. Entrepreneurship education from the previous classroom theory courses to the current combination of extracurricular activities, using life labs, internships, and internships to strengthen the knowledge learned in the classroom [14], or let students operate and simulate The process of starting a business allows students to truly experience the complete experience of starting a company. From Babson College's Entrepreneurship Program, Cambridge University's Graduate Entrepreneurship Program, Massachusetts Institute of Technology's Entrepreneurship Education Program, Ireland's Kerry County Young Entrepreneur Program, and Renmin University of China's Entrepreneurship Program. In the content of the development plan, it can be found that the courses are all emphasizing the cultivation of students' entrepreneurial thinking, entrepreneurial spirit, and practical entrepreneurial practice [33].

The number of students taking up innovative entrepreneurship programs in higher education in Taiwan has increased every year since 2011. Although the number of people enrolled in courses has declined slightly since 2017, the number of people enrolled still stood at more than 300,000, and in 2019 there were still 333,488 people enrolled. From 2011 to 2019, although the number of innovative entrepreneurship courses offered by technical colleges decreased from 11,846 to 8,671, the figure stabilized after 2013, with 8,000 to 9,000 courses set up. In 2020, 82 technical colleges in Taiwan offered business entrepreneurship related courses, such as entrepreneurship talent cultivation, cultural and creative industry experiential planning, entrepreneurs' experience sharing and practices, creativity, innovation, entrepreneurship, and other micro-courses (**Figure 1**) [34].

The main objectives of innovative entrepreneurship courses promoted by the Ministry of Education (MOE) have changed and improved every year. The innovative entrepreneurship promoted from 2012 to 2014 aimed to lay the foundation for setting up innovative entrepreneurship courses in universities. From 2015 to 2016, with guiding changes in the campus entrepreneurship teaching environment as the main subject, entrepreneurship education was put into practice. In 2017,



**Figure 1.**

*Trend diagram of innovative entrepreneurship program courses in Taiwan's higher education from 2011 to 2019 [34].*

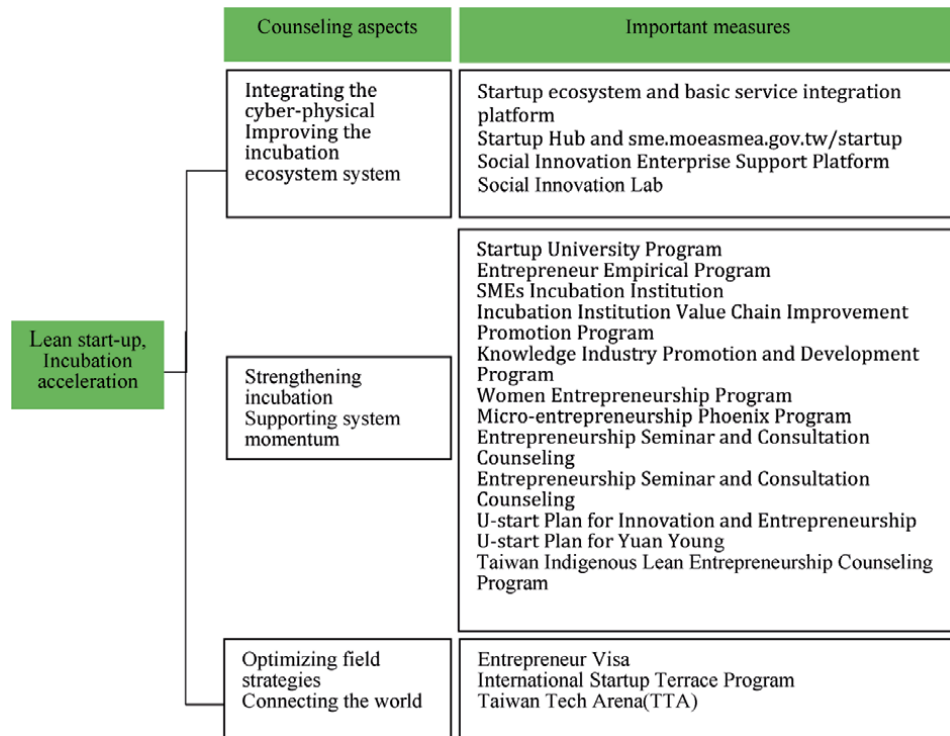
the companionship guidance by teams of coaches strengthened the continuity of conceptualization. From 2018 to 2019, entrepreneurship education on campus was deepened in order to cultivate students' problem-solving abilities. The "entrepreneurial management and action learning plan" and "fundraising practical learning program" were allotted. Through practical exercises, the rapid correction by student teams of innovative concepts was deepened, and the resource integration and problem-solving abilities of students were cultivated. The learning programs included formal school system inter-disciplinary curriculum module planning and non-credit short-term training courses. The course themes and hands-on activities included aspects such as "simulated learning platform of concept implementation combined with entrepreneurship practice", "concept implementation - business operation - company establishment - company closedown", and "concept proposal - maker implementation - business model" [35].

In order to improve the overall quality of courses and establish an innovative entrepreneurship talent cultivation system on campus, the MOE promoted EC-SOS in 2020. In addition to continuing the "entrepreneurial management and action learning" and "fundraising practical learning" course modules from 2018 and 2019 and with the teachers' innovative teaching quality as a starting point, the capabilities of teachers have been linked with intensive course module training, and resources have been invested in the sites where teaching takes place, hoping to achieve complementary effects. This can also achieve the cultivation of talented people with entrepreneurship, start-up, and practical industrial experience, links between school R&D results and industrial needs, the enhancement of technical transfer and industry-academia cooperation opportunities, the creation of a virtuous circle of innovation and entrepreneurship, and consistency among innovative entrepreneurship campus policies, teaching imparted by teachers, and learning by students. The objectives and focuses of innovative entrepreneurship course promotion can be improved on the basis of generational changes and differences in the environment [35]. The objective of EC-SOS is to strengthen links among schools, industries, academia, and incubation organizations, thereby promoting key technology R&D in universities and colleges in line with industrial needs; campus innovation entrepreneurship course modules can also be promoted to convert

innovative knowledge and provide school funds, courses, and consultation to student entrepreneurship teams and innovative enterprises, thereby putting innovative incubation mechanisms into practice. An innovative start-up ecosystem can also gradually be constructed and activated on campus, thus encouraging students to have the courage to try new things.

In addition to the promotion of entrepreneurship education courses, in order to create opportunities for inter-school exchanges and paradigmatic teaching curriculum demonstrations, Taiwan’s Ministry of Education has since 2016 promoted SOS-IPO. Using virtual fundraising means, a virtual entrepreneurial environment was created. Through courses conducted in stages, assistance is provided to teams, from concept development, prototype practice, to market model and market verification. The schools’ maker spaces were combined to guide the course results through market verification and putting the start-up into practice, gradually implementing “entrepreneurship education” and prompting students to move towards “actual entrepreneurship”. As of 2020, SOS-IPO has offered training to 64,129 students. There are 2,820 start-up teams in campuses leading to the establishment of 331 spin-off companies. The spin-off teams registered on actual fundraising platforms have raised NT\$22.18 million in total [2].

In order to create a better entrepreneurial learning environment for university and college students of innovation and entrepreneurship, the MOE has since 2020 established Taiwan’s largest start-up platform Startup Terrace. As the starting point of experimental innovation and entrepreneurship applications, the platform has linked Taiwan’s enterprise ecosystem, industries, and global markets. Startup Terrace has attracted at least 132 domestic and foreign teams to participate. This platform has established a bridge for contact between Taiwan and the world, making Taiwanese entrepreneurs seen by the world [1].



**Figure 2.**  
 The framework of SME entrepreneurship incubation measures [37].

Under the impact of global competition, innovative transformation, and industrial upgrade, tertiary institutions in Taiwan are acclaimed for having shifted from independence and autonomy to collaboration with three sides, namely, society, industry and government. Innovation and entrepreneurship have been promoted in universities, more closely integrating the technology and knowledge of universities with industry [36]. The government has not only promoted entrepreneurship education at the tertiary education level, but has also continued to improve Taiwan's start-up services and environment. Promotional programs for counseling (the framework of entrepreneurship and incubation measures is as shown in **Figure 2**), assisting young people or women with business start-ups, or proposing relevant policies, this is all intended to optimize Taiwan's start-up environment. In order to assist entrepreneurial teams to develop and connect with the world, two programs were implemented at the Taiwan Tech Arena in 2020. The first was to domestically manage the Taiwan Tech Arena by importing world-class accelerators and domestic and foreign technology and innovation enterprises to set up bases in Taiwan and link with the supply chain resources of large enterprises; the second was to internationally connect with innovative and ecological international resources such as Silicon Valley. Teams were selected for training overseas and to participate in the InnoVex [37]. In addition to innovation and entrepreneurship education, Taiwan's government attaches importance to the business start-up situation of young graduates and provides related resources, supports start-up companies, and continues to promote the establishment of the most advantageous technology start-ups in Taiwan.

#### **4. Examples of entrepreneurship education**

Through the promotion of EC-SOS, the MOE has since 2012 adhered by the objective of improving innovation and entrepreneurship course quality in public and private universities, in hopes of establishing industrial links, linking industry-academia cooperation momentum, and promoting the startup trend. In order for readers to gain a better insight into the current situation of entrepreneurship education in Taiwan's higher education, the innovation and entrepreneurship promotion strategies promoted by two well-known universities in Taiwan are introduced below:

##### **4.1 National Yang Ming-Chiao Tung University**

The "Innovation and Entrepreneurship Base" established by the National Yang Ming-Chiao Tung University is the incubation center of cross-departmental integrative school entrepreneurship and the development center of industrial accelerators and patent strategies [38]. In addition to offering entrepreneurship courses, one-stop services are created for start-up student teams. From the discovering of original technology on campus, seeking capital input, applying for government guidance, providing an entrepreneurial space, to entering domestic and overseas markets, the school assists in the commercialization of campus research results and assists students in moving towards commercialization through students' entrepreneurial ideas and innovative products. The school's entrepreneurship education courses include four aspects: basic courses, start-up initiation, team establishment, and resource expansion, as follows:

###### *4.1.1 Basic courses*

Entrepreneurship and innovation courses are linked to the unique strengths of alumni, EMBA, and technology, thereby connecting the Hsinchu Science Park,



Industrial Technology Research Institute, and other industrial networks for industrial cultivation, in order to cultivate entrepreneurial leaders.

#### *4.1.2 Start-up initiation*

Entrepreneurship lab planning consists of three core parts: courses, incubation, and entrepreneurship. From the period of students' course selection to innovation and entrepreneurship initiation, start-up seminars and visits are regularly conducted with well-known foreign universities such as Stanford University.

#### *4.1.3 Team establishment*

Targeting entrepreneurship teams stationed on campus, entrepreneurial training, practical courses, and start-up seminars have been planned and imparted by successful international entrepreneurs, international angel investors, and domestic and foreign practitioners throughout. The courses are diverse and rich.

#### *4.1.4 Resource expansion*

Students were guided to expand their innovative global outlook and meet entrepreneurs from the United States, India, Japan, China, and European countries for a period of three months. The youth entrepreneurs were assisted in cultivating their international entrepreneurship.

One of the greatest features of entrepreneurship education at National Yang Ming-Chiao Tung University is one-stop service. From the development and implementation of students' initial creative idea to the final start-up actions, the school provides students with relevant consultations and services to increase students' chances of start-up success. Additionally, the school is located next to the Hsinchu Science Park. Due to the accessible location, both enterprise resources or manpower resources can be conveniently acquired, which further enable students to smoothly achieve relevant start-up success.

### **4.2 National Kaohsiung University of science and technology**

The school has set up the Center for Entrepreneurship Education to promote innovation and entrepreneurship courses and activities [39]. Its entrepreneurship education can be divided into two parts. One is innovation and entrepreneurship courses; the other is innovation and entrepreneurship resources. The contents are as follows:

#### *4.2.1 Innovation and entrepreneurship courses*

Providing secondary expertise courses related to innovation management and entrepreneurship practice, creative innovation and entrepreneurship credit programs, maker micro-credits, inter-disciplinary practical projects, entrepreneurship practice – practical projects, innovation and entrepreneurship materials, and other innovation and entrepreneurship courses for students to take up.

#### *4.2.2 Innovation and entrepreneurship resources*

Campus Creative Idea Development Contests, Creative Star Class, Entrepreneurship Contest Scholarships and Grants, Practical Projects on Commercialized Value-Adding for University Students, Incentives for Postgraduates, Entrepreneurship Incubation Office, Micro Start-up Trials, and other activities are held for students.

#### *4.2.2.1 Creative idea development contests*

In order to create a creative vibe on campus, the center conducts two creative idea development contests every year to encourage inter-departmental students to form teams to elicit more diverse inter-disciplinary creativity.

#### *4.2.2.2 Creative star class*

Through training in the Creative Star Class and by guiding students through design thinking, business briefings, simulated exercises, and professional mentor guidance, the teams in the Creative Idea Development Contest can re-examine their implementation ability and strengthen the contents of proposals.

#### *4.2.2.3 Entrepreneurship competition award subsidy*

Entrepreneurship Contest Scholarships and Subsidies Cash prizes awarded at each contest are subsidies with amounts of NT\$10,000 to NT\$20,000.

#### *4.2.2.4 Practical project on commercialized value-adding for university students*

University students and practical projects are integrated to implement product or technology commercialization. A subsidy of up to NT\$40,000 shall be awarded for each case, provided a written business proposal is reviewed and approved.

#### *4.2.2.5 Incentives for postgraduates*

A postgraduate student shall serve as a host. A subsidy of up to NT\$80,000 shall be awarded for each case, provided the postgraduate joins and is chosen as a finalist in an innovation and entrepreneurship contest designated by the school.

#### *4.2.2.6 Entrepreneurship incubation office*

The center has set up seven incubation offices for potential start-up teams made up of teachers and students to apply for entry into the start-up preparatory office. Each team has an instructor and professional manager who offer companionship and guidance. They are fully supportive of the start-up team and assist in achieving start-up success.

#### *4.2.2.7 Micro start-up trials*

Students and alumni are provided with a start-up space to have a chance to experience being an employer. Students will be able to creatively market products, engage in start-up trials, and directly face consumers reactions, thereby keeping abreast of current market situations.

A feature of entrepreneurship education at the school is the coordination of courses and practices. The school also provides start-up funds for students to substantively realize their start-up intention.

## **5. The next generation of entrepreneurship education in Taiwan**

According to the 2019/2020 research survey results of the Global Entrepreneurship Monitor (GEM) Taiwan's National Entrepreneurship Context

Index (NECI) is higher than that of the average of different countries. Cultural and social norms, physical infrastructure, market access control, internal market vitality, commercial and legal infrastructure, R&D result transformation, off-campus entrepreneurship education and training, school entrepreneurship education and training, government start-up plans, taxation, and administrative systems, government policies and entrepreneurial finance are some examples. In addition, the NES ranking reflects the technical transfer capability of academic and research institutions in Taiwan [1]. Taiwan ranks second in the world ranking, indicating that the government has provided many resources to support the practice of emerging and growing companies to commercialize. However, despite Taiwan's higher score in off-campus entrepreneurship education and training and in entrepreneurship education and training compared to the average score, there is still much room for improvement. This shows that more effort should be put in planning entrepreneurship education, cultivating the entrepreneurial spirit of students, willingness to engage in innovation and entrepreneurship, or applying innovation and creativity at work. This will in turn lead to the creation of win-win benefits for oneself and companies.

In order to strengthen entrepreneurship education in higher education, the MOE has set up the SOS-IPO which provides a channel platform for students with innovative start-up ideas to raise funds in support of their start-up dream. In terms of off-campus entrepreneurship education, the MOE has planned the "U-start Plan for Innovation and Entrepreneurship" to encourage universities and colleges to optimize the innovation and entrepreneurship environment on campus, combine school incubation guidance resources, and provide youth with sites and resources to experiment with start-ups, cultivate entrepreneurship talents, and assist young students in start-up implementation [2]. This plan is promoted in two stages every year. In the first stage, off-campus youth groups file joint applications for start-up plans, while school incubation units file applications for guidance plans. Those that pass the selection will be subsidized with start-up funds in the amount of NT\$50,000. The subsidized teams will undergo 6-month start-up incubation counseling and training; for selected teams with excellent start-up performances in the second stage, the start-up teams that have passed subsidies in stage 1 and have completed company establishment and registration will file an application. Selected teams will receive a start-up scholarship/grant in the amount of NT\$250,000 to NT\$1,000,000. They will then receive counseling from the school incubation unit for one year. Furthermore, the MOE will carry out start-up consultation, counseling, and effectiveness tracking on start-up teams that have received subsidies and have achieved excellent performance [2].

The 2019/2020 Global Entrepreneurship Monitor (GEM) conducted an analysis on the conditions of entrepreneurs from different countries during the early start-up stage. Among them, the NES ranking reflects the technical transfer capability of academic and research institutions in Taiwan. According to the GEM's E06 index, "in Taiwan, engineers and scientists have abundant resources and support towards ideas put forth and the commercialization implementation of emerging and growing companies" [1]. This makes it clear that young people in Taiwan have a sound start-up environment and many resources to support their start-up and realize their creativity. In recent years, Taiwan's government has actively promoted school entrepreneurship education and off-campus entrepreneurship education and has established platforms to assist students in raising funds to realize their start-ups. Projects are also funded to guide young people through start-ups. These measures are all intended to encourage young people to start their own business, bring new life into old economic modes, and promote economic development.

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## References

- [1] Ministry of Education. SOS-IPO. 2020. Available from: <https://ecsos.moe.edu.tw/plan> [Accessed: 2021-04-02]
- [2] Kuo Fu-Hung. Technology Innovation Center of Technical and Vocational Schools in Taiwan and Innovative Talent Cultivation Model. *Business Education Quarterly* December. 2017;141:21-25.
- [3] Bosma, N., Ionescu-Somers, A., Kelley, D., Levie, J., & Tarnawa, A. The Global Entrepreneurship Monitor 2019/2020 Global Report. 2020. Available from: <https://www.gemconsortium.org/file/open?fileId=50443> [Accessed: 2021-04-02]
- [4] Chang Jen-Chia. Exploring the Relationship between Entrepreneurship Education and Student's Entrepreneurial Abilities in Technological Colleges/Universities. Research Center for Humanities and Social Sciences. 2017;11(4):1-24.
- [5] Barba-Sánchez, V., & Atienza-Sahuquillo, C.. Entrepreneurial intention among engineering students: The role of entrepreneurship education. *European Research on Management and Business Economics*. 2018;24(1):53-61.
- [6] Hsu, J. L., & Pivec, M. Integration of Sustainability Awareness in Entrepreneurship Education. *Sustainability*. 2021;13:4934.
- [7] Cope, J. Toward a dynamic learning perspective of entrepreneurship. *Entrepreneurship theory and practice*. 2005;29(4):373-393.
- [8] Zhang, P., & Cain, K. W. Reassessing the link between risk aversion and entrepreneurial intention: The mediating role of the determinants of planned behavior. *International Journal of Entrepreneurial Behavior & Research*. 2017;23(5):793-811.
- [9] Kubberød, E., & Pettersen, I. B.. Exploring situated ambiguity in students' entrepreneurial learning. *Education and Training*. 2017;59(3): 265-279.
- [10] Jena, R. K. Measuring the impact of business management Student's attitude towards entrepreneurship education on entrepreneurial intention: A case study. *Computers in Human Behavior*. 2020;107:106-275.
- [11] Johannisson, B. Limits to and prospects of entrepreneurship education in the academic context. *International Journal*. 2016;28:403-423.
- [12] Schumpeter, J. A. The theory of economic development. MA: Harvard Business Press. 1934.
- [13] Drucker, P. F. Innovation and entrepreneurship: Practice and Principles. New York: Harper & Row. 1985.
- [14] Ratten, V., & Usmanij, P.. Entrepreneurship education: Time for a change in research direction?. *The International Journal of Management Education*. 2021;19(1): 100367.
- [15] Erkut, Burak. Hayek on product innovation and market shaping: opening the black box. *Liberal Düşünce Dergisi*. 2020;25.100:169-189.
- [16] Kirzner, I. M. Competition and entrepreneurship. Chicago: University of Chicago Press. 1973.
- [17] Knight, F. Risk, uncertainty and profit. Boston: Houghton Mifflin. 1921.
- [18] Lumpkin, G. T. & Dess, G. G.. Clarifying the entrepreneurial orientation construct and linking it to performance. *Academy of Management Review*. 1996;21(1):135-172.

- [19] Hung Yi-Yen. Innovation, a Talent? Cheers Happy Worker Magazine. 2011;127. Available from: <http://www.cheers.com.tw/article/article.action?id=5027853> [Accessed: 2021-04-29]
- [20] Fitzsimmons, J. R., & Douglas, E. J. Entrepreneurial attitudes and entrepreneurial Intentions: A cross-cultural study of potential entrepreneurs in India, China, Thailand and Australia. Paper presented at Babson-Kauffman entrepreneurial research conference, Wellesley, MA. 2005.
- [21] Chen Wan-Chih. Book Review: World Class Learners: Educating Creative and Entrepreneurial Students. Bulletin of Educational Research. 2016;62(1):117-127.
- [22] Ministry of Education. White Paper on Creative Education. Taipei: Ministry of Education. 2002.
- [23] Timmons, J. & Spinlli, S.. New venture creation (6th ed). NY: McGraw-Hill/Irwin. 2004.
- [24] Chang Jen-Chia. Developing the Future of Technological and Vocational Education: An Analysis of the Direction that Vocational Education Should Take. Secondary Education Quarterly. 2014;65(2):21-31.
- [25] Kaya, T., Erkut, B., & Thierbach, N. Entrepreneurial intentions of business and economics students in Germany and Cyprus: a cross-cultural comparison. Sustainability. 2019;11(5):1437.
- [26] Yang Shi-Chi, Wu Meng-Chen. Between “Philosophy” and “Business start-up”: Entrepreneurship practice education and foucault’s ethical subject theory. Sun Yat-Sen Management Review. 2018;26(1):35-53.
- [27] Cavanaugh, J. M., Giapponi, C. C., & Golden, T. D. Digital technology and student cognitive development: The neuroscience of the university classroom. Journal of Management Education. 2016;40(4):374-397.
- [28] Garavna, T. N. & O’Cimmeide, B. Entrepreneurship education and training programmes: a review and evaluation, Journal of European Industrial Training. 1994;18(8):3-12.
- [29] Nabi, G., Liñán, F., Fayolle, A., Krueger, N., & Walmsley, A. The impact of entrepreneurship education in higher education: A systematic review and research agenda. Academy of Management Learning & Education. 2017;16(2):277-299.
- [30] Fu, H. Research on the integration of entrepreneurship education and professional education curriculum system. Frontiers in Economics and Management. 2020;1(6):34-37.
- [31] Shavinina, L. V. Innovation education - The emergence of a new discipline. the routledge international handbook of innovation education. Oxon: Routledge. 2013:1-13.
- [32] Fretschner, M., & Weber, S. Measuring and understanding the effects of entrepreneurial awareness education. Journal of Small Business Management. 2013;51(3):410-428.
- [33] Abdullah, S. H., Rahim, M. S., & Zakaria N.. Riding the practice of technopreneur development: Innovative entrepreneurial teaching and learning in institutes of higher learning. International Journal of Economic Research. 2017;14:213-225.
- [34] Course Information Website. Search results of innovation and entrepreneurship courses established by technical colleges. 2020. Available from: <http://course-tvc.yuntech.edu.tw/Web/index.aspx>[Accessed: 2021-04-08]

[35] Ministry of Education. U-start Innovative Entrepreneurial Program. 2020. Available from: [https://www.edu.tw/News\\_Plan\\_Content.aspx?n=D33B55D537402BAA&sms=954974C68391B710&s=ADADA312F9FC69A2](https://www.edu.tw/News_Plan_Content.aspx?n=D33B55D537402BAA&sms=954974C68391B710&s=ADADA312F9FC69A2) [Accessed: 2021-04-25]

[36] Hsu Wen-Jui. The Revelation of the Policy of “University Spin-offs” in Major Countries on the Innovative Transformation of Higher Education in Taiwan. National Academy for Educational Research Educational Pulse E-Journal. 2018; 13:1-14.

[37] Small and Medium Enterprise administration, Ministry of Economic Affairs. 2020 White Paper on Small and Medium Enterprises. Taipei City: Ministry of Economic Affairs. 2020.

[38] National Yang Ming Chiao Tung University. NYMCTU Innovation and Entrepreneurship Base. 2021. Available from: <https://rd.nctu.edu.tw/tron4> [Accessed: 2021-04-30]

[39] National Kaohsiung University of Science and Technology. Center for Innovation and Entrepreneurship Education. 2021. Available from: <https://ciee.nkust.edu.tw/> [Accessed: 2021-04-30]





# The TIPE Model for Teaching Technology-Based Entrepreneurship

*Hongyi Sun*

## Abstract

It is widely believed that the technology-based entrepreneurship has great potential to increase wealth and competitiveness. Researchers believe that Technology-based Entrepreneurship Education (TEE) may raise students' awareness about the technology entrepreneurship and the opportunities for technology commercialization. However, TEE has a relatively shorter history than conventional entrepreneurship education in business schools and there are fewer cases. This paper will use a revised 4W1H framework to review existing models of TEE and then present the TIPE model that has been implemented at a university in Hong Kong since 2001 for master students. Educational and policy implications are explored finally.

**Keywords:** Entrepreneurship education (EE), technology-based entrepreneurship education (TEE), technology transfer (TT)

## 1. Introduction

The first entrepreneurship course was introduced as early as in the 1940s at Harvard University. In the 1970s, entrepreneurship education began to gain more attention and many business schools started to offer one or more courses in small business or entrepreneurship. Entrepreneurship education has developed very fast across the world since the 1990s until now [1–7]. Although entrepreneurship education growing fast, technology-based entrepreneurship education for engineering students was rather later and fewer [8, 9]. In a survey of 160 academic institutions, Streeter et al. [10] found that entrepreneurship-related courses have been offered in nearly 90% of the bachelor programs in business schools while less than 40% engineering bachelor programs contain entrepreneurship courses. On research side, Bailetti [11] reviewed 93 articles on technology entrepreneurship, but none of these articles is related to technology-based entrepreneurship education (TEE).

It has been widely believed that the technology-based entrepreneurship has great potential to increase wealth and competitiveness at both national level [12, 13] and regional level [14]. Researchers believe that Technology Entrepreneurship Education (TEE) may raise students' awareness about the entrepreneurial opportunities for technology and commercialization [15]. Starting a new company (entrepreneurship) or a new business in an existing company (intrapreneurship) is the final step to commercialize a new technology via providing values to the end users.

This paper will first use the 4W1H framework by Fayolle [16] to review previous TEE models and then summarize the basic factors and TEE model as well as its

difference from market-driven entrepreneurship. The paper will then introduce the TIPE Model (Technology-Idea-Product-Enterprise) as a detailed example with a view to elaborate the 4W1H framework at the operational level. The PIPE model was implemented in a course titled Technological Innovation and Entrepreneurship for master students since 2001 in one department and now has expanded to five master programs in systems engineering, mechanical engineering, computer science, health-care & bio-engineering and electrical engineering as an elective or core course.

## **2. Literature review of previous TEE models**

In this section, the 4W1H framework by Fayolle [16] is used to systematically review eight previous models on TEE courses or programs in engineering schools. The 4W1H framework by Fayolle [16] contains five dimensions: i.e., “For whom” (the audience or students), “Why” (the objectives), “What” (the contents), “How” (the teaching methods) and “For which results” (the evaluation and assessment levels). Another dimension is added in this paper, i.e., “By who” (the offering schools/departments). This structure is very similar to other review papers on entrepreneurship courses or programs (e.g., [9, 17]). The structured review is illustrated in **Table 1** and elaborated below.

### **2.1 The audiences (whom)**

The reviewed models serve either undergraduate or postgraduate students or both (graduate students in US terms in some reference such as [15]). They range from a single course, a minor program or a multi-semester program. For those undergraduate entrepreneurship programs in engineering schools, a concern is how the credits from those entrepreneurship courses can be recognized in an engineering field. Lacking space and time for elective credits in engineering degree programs is a major and common barrier to entrepreneurship courses for engineering students Standish-Kuon, [8]. This is not a big problem in the business school since entrepreneurship courses are accepted as management or management related courses. For master level courses or programs, it is not very clear whether the TEE course is a credit bearing course in a master program or an extra curriculum course (e.g., [21]).

### **2.2 The objectives (why)**

Markham et al. [15] believe that TEE may raise their awareness about the entrepreneurial opportunities to promote technology commercialization. There are basically two types of objectives among the reviewed programs/courses, namely, a) nurturing students’ generic entrepreneurial skills and enhance entrepreneurial awareness [18, 23], b) nurturing students’ entrepreneurial skills and enhance entrepreneurial awareness based on new technologies. Three courses claim their objectives are launching, managing, and growing technology-based businesses which can be regarded as TEE (e.g., [15, 21]). Therefore, not all entrepreneurship programs/courses for or by engineering schools are necessarily TEE. Some course or programs offered by engineering schools can be similar to those offered at the business school except the audiences are engineering students.

### **2.3 The contents (what)**

All entrepreneurship courses and programs offer pretty similar set of contents including creativity, innovation, opportunity identification and business plan.

Ref & country	For whom (Students) and by who (host)	Why (Objectives)	What (Contents)	How (Methods)	What result? (Assessment)
Markham et al. [15]	Engineering and management graduate students, by College of Engineering and Management, USA	Turn engineers into technology entrepreneurs by technology evaluation and commercialization (TEC)	Technology search, Product idea generation, potential analysis Commercialization strategy and business plan	Use technology startup as a pedagogical tool teach technology entrepreneurship in a 3-semester program.	Student can initiate their own technology companies after graduation or enter corporate venturing division
Kingon, et al. [18]	Two engineering entrepreneurship minor programs, by both engineering and business schools USA	create awareness among engineering students of entrepreneurial opportunities, and the business dimension of product development,	Business models, Communication, Cross functional teams, and Entrepreneurial thinking	From experience-based teaching to process-based teaching approach	Creation associated with the development of the entrepreneurial opportunity and finally a business proposal, create, rather than a new venture creation.
Collet and Wyatt [19]	A degree program for undergraduate students in biotechnology, by a Department of Biotechnology, Australia	Provide students with commercial imperatives and meet the demand of bio-industry for talents with skills in product development, business, IP, law and commercialization.	32 subjects: 19 for bio technologies, 8 for entrepreneurship, innovation and management, 1 for IP and law and 4 for project in virtual student companies.	Student self-driven, team-based learning in a virtual company environment or company based internship projects.	<ul style="list-style-type: none"> <li>• Self and peer assessment of entrepreneurship project,</li> <li>• Industry employment and recognition of graduate capabilities.</li> </ul>
Boocock et al. [20]	Master students in a MBA program, based on the TEC Algorithm [15]	Understanding of academic knowledge about technology based product ideas development and application of business concepts to technologies Selection	Search & ideation, assessment & analysis, commercialization strategy	n/a	From a business proposal up to a few new businesses,
Hartmann [21]	An elective course for master, PhD students and employees of a technical university, by Department of Innovation management and entrepreneurship, the Netherlands,	Connect technological research with education using patented technologies developed at the research faculties of a technical university	The technology and patent, the problems, the solutions based on the technology, the potential end users, the potential price and the alternatives in the market.	Seven four-hour sessions that combine lectures, participant-centred case studies, classroom exercises, real-life case studies, and trial presentations by interdisciplinary teams.	Cases of new technology startup

Ref & country	For whom (Students) and by who (host)	Why (Objectives)	What (Contents)	How (Methods)	What result? (Assessment)
Karim [22]	An entrepreneurship course for civil engineering students, by Department of Civil Engineering, Malaysia	To nurture the ability to venture development and leadership in energy related business, and engages in activities to enhance knowledge in their professional works.	New product development Idea generation Market research Feasibility of idea Finance Production Management Teamwork Business Marketing Management	Didactic (read/lecture) Skill building (case studies group discussions, presentations, problem solving, simulations, teamwork, projects) Discovery	Personal development, entrepreneurship and management knowledge, problem solving skills, decision making, presentation, risk taking) Career development.
Kazakeviciute et al. [9]	Undergraduate students in science, health, engineering, design, information technologies etc. (By lecturers from business school and guest speakers)	Knowledge about entrepreneurship itself, the importance of skills, values to entrepreneurial mindset and entrepreneurial skills.	Individual, team-based and business-related topics and activities, while applying the lean business model as well as the fundamentals of technology entrepreneurship.	Theory and cases, interaction sessions and monitoring sessions.	The first is based on students' evaluation of course delivery and content, the second on students' evaluation of their progress.
STVP [23]	STVP program for both undergraduate and postgraduate students, by An entrepreneurship center at the School of Engineering, USA	To learn about identifying market opportunities and assuming leadership roles in business.	A series of courses on creativity, innovation and entrepreneurial marketing, finance, strategy, and other management areas.	Conventional course, large public lecture series and intensive, year-long extracurricular programs such as the Mayfield Fellows Program	STVP produces a large and growing collection of online content and experiences for people around the world.

**Table 1.**  
*The review of previous TEE models based on the 4W1H framework [16].*

However, TEE courses and programs provide unique contents on technology search and identification, new product development and intellectual property etc., which normal EE courses may not need to cover. This is perhaps the major uniqueness of TEE in terms of the content.

#### **2.4 The method (how)**

Talking about the teaching methods, the business schools have traditionally used case study method but more new methods are being adopted such as action learning, project-based learning and team learning. Whether the entrepreneurship projects will be presented to real investors for investment depends on the relationship with industries and the support from the universities.

In relation to teaching approach to initiate the entrepreneurship project, EE in business schools is mostly based on the market-pull approach while TEE courses in engineering schools are technology-push approach [24, 25]. The “Turning Technology into Business” approach is a clear example of technology-push [21]. Business schools follows the following path: Market opportunity, customer need, a product idea and business plan while. In contrast, the TEE course follows the path from technology identification, business idea, product concept, and then business plan with a view to transferring the technologies and at the same time solve a problem.

The two different approach was even reported in the same university, for example, MIT [25]. The grand challenge project by the X Prize Lab at MIT takes a very obvious “market-pull” approach. Students identify a market need first via the empathy with customers and then think about how to solve it later. However, the Innovation Teams course at MIT takes a technology-push approach by which students develop commercialization strategies for MIT ready technologies.

#### **2.5 The results (for which)**

Talking about the assessment of the results, there are two levels on the reviewed courses and program [16]. One level is the contribution to the community development and economy and the other level is the success of the programs in terms of startup new companies. However, as an education course or program, there is a missing in the assessment of students learning. No references report the detail learning assessment criteria and the methods to assess the learning objectives of the courses or programs, which most teachers will be interested to know.

#### **2.6 The deliver (by who)**

Traditional entrepreneurship courses and programs are mostly offered by business schools, the offers are very obvious. However, for those entrepreneurship courses in engineering schools, who offer these courses is a concern and an important issue. Standish-Kuon (2002) reported three models in terms of who is the host schools of engineering entrepreneurship courses, namely, business school (model A), engineering school (model B) and combined (model C). Among the TEE courses/programs reviewed in this paper, two are offered by business schools [9, 20, 21], four are offered by engineering schools [15, 19, 22, 23] and only one is offered jointly by engineering and business school [18].

After reviewing and comparing the above eight TEE models, it can be found that technology-based entrepreneurship (TEE) education programs offered by engineering schools or in collaborations with business schools aim to teach engineering students to identify business opportunities from existing or under developing technologies with a view to transferring and commercializing the technologies

from universities to research laboratories. The teaching approach by TEE is mainly based on technology-push strategy. The audiences are mainly science and engineering students but business and other students are not excluded. Technology-based entrepreneurship education (TEE) incorporates the key elements of conventional entrepreneurship education, but concentrates on the creation of economic value from technology and innovation [20]. The direction and objectives of TEE are very obvious and unique. However, a major problem with the programs and courses reviewed is that they miss a clear and simple model on the operational level. The model and details are still general (maybe due to space limitation in the papers) and the assessment of student learning is mostly missing.

It is necessary to distinguish the EE by business schools from the TEE in engineering schools since the audience and teaching approaches are different [18]. Back to the 1990s, there has been EE courses offered to science and engineering students. However, these courses are not necessarily technology-based entrepreneurship but similar to traditional EE. The only difference is the audiences (target students). Authors suggested that TEE programs should be designed differently especially when it is taught to engineering students [18, 20]. In the next section, a model for TEE at a university in Hong Kong will be introduced.

### **3. The TIPE model for teaching technology entrepreneurship**

The TIPE is an acronym stands for Technology, Idea, Product and Enterprise. The TIPE model is a step-by-step concise and effective teaching tool that aims to help students to identify technologies, generate new business ideas, design a new product and finally develop a simple business plan. The PIPE model was implemented in a course titled Technological Innovation and Entrepreneurship for a master program and doctor students since 2001. The TIPE model will be introduced following the 5W1H model [16] as highlighted in **Table 2** and elaborated below.

#### **3.1 The audience (for whom)**

A course based on the TIPE model was first offered in 2001 for a master program in manufacturing engineering and engineering management. The students are both part-time and full-time. The class sizes range from 50 to 80. So as to the background, most students have a bachelor degree in engineering or science subjects while a few from management schools majoring in information systems or technology management. For the moment, about 60% are from mainland China, 15% from Europe (mostly from France) and 25% from local.

Now it is planned to be expanded to 5 master programs in its college of engineering including system engineering and engineering management (core), bio-engineering (core), mechanical engineering (elective), e-commerce and computer science (elective), and electrical and electronical engineering (elective). For this expansion, two or more classes will be offered due to the number of students increase.

#### **3.2 The deliverer (by who)**

The course was developed and offered by the Department of Advanced Design and Systems Engineering, College of Engineering. The course was run by one lecturer plus one tutor plus one or two guest speakers with entrepreneurial experiences. Students can also join entrepreneurship competitions run by Technology Transfer Office (TTO) and the other external organizations.

<b>TIPE Details:</b>	<b>Technology</b>	<b>Idea</b>	<b>Product</b>	<b>Enterprise</b>
Content (What)	Exploration and discovery	Creativity and creative thinking	Innovation and new product development	Entrepreneurship and business plan
Learning objectives (Why)	To identify technologies from patents or their own research	To generate new business ideas based on the technology	To propose and design a product under the business idea	To incorporate all the above factors into a business plan
Teaching and learning activity (How)	Eye (Explore & search)	Brain (think creatively)	Hand (Design and make)	Feet (Go to market)
Assessment criteria of the learning outcome (For which)	<ul style="list-style-type: none"> <li>• The source of technologies</li> <li>• Technology readiness level (TRL)</li> <li>• Relevant to team background</li> </ul>	<ul style="list-style-type: none"> <li>• Originality and attractiveness</li> <li>• Number of ideas generated</li> <li>• Impact of the ideas</li> </ul>	<ul style="list-style-type: none"> <li>• Technology support,</li> <li>• Technical feasibility,</li> <li>• Product uniqueness and IP protection</li> </ul>	<ul style="list-style-type: none"> <li>• Market feasibility</li> <li>• Financial feasibility</li> <li>• Team spirit and collaboration</li> </ul>
Milestone assessment (How assess)	Technology search report	Business idea report	Product design report	Business plan report

**Table 2.**  
 The PIPE model for teaching technology-based entrepreneurship.

### **3.3 The objectives (why)**

The course based on the TIPE model aims to train students to identify business ideas from new technologies of their interest with a view to commercializing the technologies via new startups. The objective is shortened as turning engineers into technology entrepreneurs or technology transfer service and consultation in the future. One uniqueness of this TIPE model is the step by step process along which the learning objectives of students can be elaborated and implemented. Along the 4 steps of the PIPE model, the student learning objectives under the outcome-based education theory are:

1. To identify technologies from patents database or their own research,
2. To generate new business ideas based on the technology,
3. To propose and design a product under the business idea and finally
4. To incorporate all the above factors into a simple business plan.

### **3.4 The content (what)**

The content of this course is highlighted by the TIPE model, including abilities to identify technologies, generate new business ideas, design a new product and finally develop a simple business plan, which are corresponding to discovery, creativity, innovation and entrepreneurship. The course was designed to be a 39-hours course bearing 3 credits according to the credit calculation formula by the university. The course was run in one semester. So far there is no concern about the credit in terms of time and space for this technology entrepreneurship course since it is either a core or elective designed into the master and doctor programs.

The content of this course is at the stage of preparing technology-based entrepreneurship. Implementation is not a compulsory due to time limitation. In the future, the implementation or execution should be considered. That means more hours or courses will be needed. One course is not sufficient to deal with both preparation and the implementation.

### **3.5 The method (how)**

The TIPE model was designed to guide student-centered learning from multi-disciplinary perspectives. The course is based on a team project. The team contains of 5–8 students. The final outcome is a business plan to pitch to an industrial panel. The project is also the learning vehicle, by which students work together and learn collaboratively. The course is process-oriented. It goes step by step along the TIPE model. Students know where they are at any time. However, process orientation does not mean the learning is a linear process instead, there are a lot of back and forth along the process, which students have to get familiar with. The course following the philosophy of learning by doing or experiential learning. It is student centered: i.e., the course is for the students, the project is run by the students, and ideas come from the students. At each step, students know what to do and how to do. Teachers are more or less a facilitator and helper. Case studies are used to the minimum level while mini-cases are presented as examples to stimulate students. The technology-push action case is encouraged for engineering students. For example, we normally started with previous student examples of our university. The following is a recent one:



An engineer developed a tiny equipment that can generate various types of smell and registered in the US and China Patent Offices. That research project finished! A group of students who were involved in an entrepreneurship competition try to use this patent technology to develop new products. The end of the day, the proposal is a new VR with smells of flowers! They joined the local competition and earned the ticket to join the poster competition in the US Grand Challenge Scholar Program.

Then two assignments will follow the mini-cases for students to practice the concept “from technology to product ideas”:

- a. A scientist develop an instrument that can understand the singing of a bird. He registered a patent of the technology, can you think of any business ideas based on this technology?
- b. Nano-materials can be so clean that they do not need to be washed. Can you think of any product ideas that are based on this feature of the Nano-materials?

To initiate the team projects, the students will be encouraged to search patents database of the university as well as any other public patents sources that the students may get access to with a view to looking for technologies that they are familiar with and interested in. They can also talk to their technical professors that they are familiar with during previous bachelor studies about this possibility to commercialize the professors’ technologies. In the past years, roughly 40% technologies are from university patent data base, 30% from public patent websites, 10% from students’ previous studies and 10% from others sources such as their own research, companies and parents.

Although technology-push approach is strongly recommended in this course, it does not mean the market-pull approach is excluded. A few students who do not have technological backgrounds may come out of business ideas based on a market need. But they are encouraged to look for technologies to solve the problem so that their projects are still regarded as technology-based. If they still cannot make a technology-based project, they are advised to join other teams based on technologies.

### **3.6 The assessment (for which result)**

There are two levels of assessment criteria and assessment scheme, one is about the assessment of student learning while the other is about the effectiveness of the course in terms of startup or contribution to the community. As a credit bearing formal course, the top important one is the assessment of student learning since the all students joining the course has to be graded.

The student outcomes assessment under the TIPE model cover two aspects, namely, the accomplishment in terms of the learning objectives and the preparation of a simple business plan. The assessment scheme is based on continuous assessment philosophy at 4 major milestones by presentation or discussion with the lecturer/tutor, as shown in **Table 2**. The assessment reports include: the technology search report, the business idea report, the product design report and finally the Business plan report for pitching to industry panel.

The whole assessment scheme includes class activities and assignment (30%), group project (30%), final test (30%) and within team peer assessment (10%). The within team peer assessment was introduced recent years since it was found that some students tended to take a lift during the whole semester. It was also found that the peer assessment can pretty easily identify those who take a free ride.

The course based on the TIPE model can be regarded as successful from education perspective. Students’ feedback are very positive and the teacher got teaching excellence award twice for this course. However, there is no data to justify whether

it is a successful course in term of real technology commercialization and startups. There are mainly two reasons to explain this.

First, the master program is a one year program for full-time students and two years for part-time students. For the moment, the course is in the last semester and focuses on the preparation stage and does not require the implementation due to time and resources limitation. The part-time students will be busy with their work and will not have additional time to follow up the startup of a companies, while the full time students will leave the universities for jobs one year after and do not have time to utilize the startup supports from the TTO and the government. Some students are international and will go back to their home countries after the graduation.

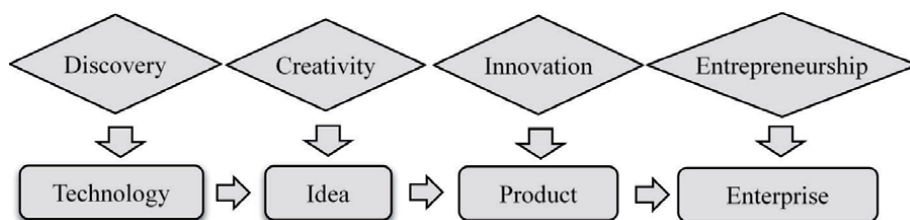
Second, although the university encourages technology commercialization and promulgated a very clear policy on technology commercialization, the academic promotion and annual evaluation of the faculties (researchers) are still based on academic performance like publishing academic papers and raising research fund. Academic faculties are happy to support the students who selected their technologies in their project but will not have time and incentives to go further for real commercialization afterwards.

#### 4. Discussions and implications

Technology-based Entrepreneurship is related to discovery, creativity, invention, innovation and technology, which are likely to be confused and are difficult to be taught in one course [26]. It is not useful to discuss which covers which since there are overlapping. The TIPE model distinguishes discovery, creativity, and innovation and entrepreneurship, focuses on the core of these concepts and then integrates them into one model. It is based on the technology-push approach to support technology transfer, although the market-pull approach is not forbidden since a few students do not have strong engineering backgrounds.

The PIPE model is not only for designing and developing a TEE course, but most importantly also for the students to learn the course by doing the projects. The model should be simple and clear without too complicated managerial theories and concepts. Engineering students are relatively logical and linear thinkers and are action oriented. They are weak in management theories. So the model has to be simple, concise, visual and easy to remember and understand at the first glance and then can be elaborated step by step. **Figure 1** is the simplified visual version of the TIPE model shown to students in the first introduction class. The diamonds stands for so-called diamond thinking, starting with divergent thinking and ending with convergent thinking.

The TIPE model has been running for many years and will be expanded to more master programs. The preparation of this paper provides an opportunity to study previous TEE models, review the TIPE model and the course, identify limitations and explore implications for future development. The paper and the program trigger the following discussions.



**Figure 1.**  
The TIPE model for teaching and learning technology-based entrepreneurship.

#### **4.1 The collaboration between business schools and engineering schools for an interdisciplinary program**

Talking about the content, the course based on the TIPE model covers only the stage of preparing technology-based entrepreneurship. Implementation is not a compulsory. In the future, the implementation or execution should be considered. One course is not sufficient to deal with both preparation and the implementation in one semester. That means more hours or more courses are needed for the implementation in terms of investment, marketing, company management, and company registration etc. For a master program in engineering direction, there will be space and time limitation to include more management courses. So a more entrepreneurship oriented program jointly offered by business and engineering school may solve the problem. This focused program may be run by the college of engineering, instead of individual departments. If students are weak in management, it will be difficult to implement the business plan.

This limitation is not alone with the TIPE model. Audretsch et al. [27] found that technological entrepreneurs out of the university context focus much more on the scientific and technological aspects of their start-up ideas than managerial aspects. When reviewing a TEE self-study manual by Swamidass [28], Hutchinson [29] found out the major weakness is the insufficient coverage of business model and the business plan. This is perhaps a common problem in other TEE courses as well. How to turn engineers into entrepreneurs need not only technology but also managerial contents. With only one course on entrepreneurship is a good beginning to plant the seeds of technology entrepreneurship but may not be sufficient to prepare technological entrepreneurship in terms of business model and business plan, which can be two separate courses in a MBA program by business schools. This problem is related to both the content, the length of the course or program and the deliverers of the course. This implies that the collaboration between business school and engineering school is necessary to develop an interdisciplinary comprehensive program on TEE.

#### **4.2 The balance between technology-push and market-pull to see the two sides of the same coin**

As the previous models of TEE, the teaching methods in the TIPE model include team-based project, student centered learning, and pitch to an industry panel etc., which will be maintained in the TIPE model in the future. However, these methods are not really unique with TEE. What is really unique and special with TEE is the way to initiate the entrepreneurial project. As reviewed before, there are two opposite approaches to initiate entrepreneurial projects, namely, market-pull and technology-push [24]. It is very obvious that the TIPE model is based on the technology-push approach. Having said that, it does not mean market is ignored along the TIPE process. Comparing the two different approaches used simultaneously by two programs, respectively, at MIT, Wolfson [25] believes that market-pull and technology-push is the two sides of the same coin of entrepreneurship. A successful startup needs both a well-defined problem to solve and a well-formed technology that solves the problem. However, a project has to start somewhere, either market or technology. Technology-based entrepreneurship from the technology transfer perspective will start with technology normally. But no matter where to start with, the market need or the problem (the pain) and the technology or solution will meet sooner or later. It is only a time issue. In fact, it is better for the technological solution and the market need to meet as early as possible to justify the match or fit. Whenever talking about a match, it involves two sides, like a man and a women in love. Consistent with the discussions on the content, TEE students need to know both technological and managerial

concepts like customer and market need in order to match and integrate both. Munro and Noori [24] has recommended the integration between the market-pull and the technology-push approaches in new product development. The balance mindset between the technology and the market should be introduced into TEE.

While we emphasize the priority of technology-push in this paper, it does not mean all technology-based entrepreneurship course always starts with a technology. Kang and Lee [30] report a capstone course of technology entrepreneurship at a software department, where students identify a social problem first and then try to solve the social problem with technologies like Arduino, Raspberry Pi, and sensors.

### **4.3 The balance of short term and long terms effectiveness of TEE**

In the assessment of the TEE effectiveness at community level, some TEE models report cases of startup after the course running. Number of startups is attractive and impressive and should be encouraged. However, the number of short term startups may not reflect the real future potential of TEE from education point of view [10]. Pretty much research on what factors influence the intention and action of students and finally becoming entrepreneurs in the future has been conducted in the context of EE in business schools. The effectiveness of TEE from a long term perspectives has not been well researched. Such research on TEE seems to be at the preliminary stage without solid theoretical basis (i.e., Militaru et al. [31, 32]). The theory of planned behavior (TPB) [33] and empirical research methods (i.e., [7, 34]) can be applied in the TEE context as well.

### **4.4 Downstream entrepreneurship policy**

As discussed before, there are two levels of outcome of entrepreneurship courses. One is student learning in terms of achieving learning objectives while the other is the effectiveness of the course in terms of startup or contribution to real technology transfer and commercialization. Since a course normally lasts just one semester, it normally ends with preparation of a business plan and there is not enough time and resources to implement what students have proposed in the course. Therefore, there should be relevant downstream policies for going further.

Nelson and Monsen [35] reviewed several references on technology commercialization and concluded that technology commercialization covers a broad range of activities, including startups, spinouts, licensing, collaboration, contract research, consulting and open innovation [36–39]. Therefore, it is necessary to explore relevant policies in the following areas:

- How to encourage students to go further to implementation?
- Where students can find investment?
- Where students can find managerial training and supports?
- Where students can find support to explore potential clients and market?
- Where students can find suppliers and materials?
- Are there sufficient incubation capacity in the community?
- Are there relevant tax polices for new technology start-up?

## **5. Conclusions**

This paper reviewed previous models on TEE and reveals that entrepreneurship education (EE) and engineering entrepreneurship education (EEE) are not very different except audiences and delivering departments. However, TEE and EE are quite different in terms of the objectives, the contents and especially the teaching

approaches. What makes TEE special is the technology-push approach and the possibility to be linked with another stream of research and education, namely, technology transfer (TT).

The TIPE model introduced in this paper distinguishes technology, creativity, and innovation and entrepreneurship and then integrates them into one process-oriented model. It helps to remove the confusion among creativity, innovation and entrepreneurship. The TIPE model belongs to the category of TEE in term of the audience, objectives and teaching approach. The TIPE model is implemented in a one-semester course for master programs in an engineering school. The step by step continuous assessment of student learning was reported. However, the effectiveness in terms of students' startups cannot be justified yet since it focuses on the preparation stage due to time limitation.

There are a few limitations of the paper which can lead to future research. First, compared with entrepreneurship education at business schools, there are not many examples of technology-based entrepreneurship models to review. This can be enhanced in the future if more cases emerge. Second, although the TIPE model have been implemented for some times, we did not conduct assessment yet. The assessment models by Kazakeviciute et al. [9] and Purzer et al. [40] can be adopted for this purpose. Finally, this paper reviews the TEE at a course level, future research can also review TEE at program level. There was report of technology entrepreneurship course for PhD student [41], which was not included in this paper since this paper covers only undergraduate level. Of course, the policy issues for downstream technology entrepreneurship action will be a new area of future research. Whatever, the review and the model in this paper can be a reference for any teacher to develop technology-based entrepreneurship education courses.

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## References

- [1] Arasti, Z., Falavarjani, M. K. and Imanipour, N. (2012), "A study of teaching methods in entrepreneurship education for graduate students", *Higher Education Studies*, Vol. 2 No. 1, p. 2-10.
- [2] Hamzah, H., Yahya, Z., Sarip, A. G., & Mohd Adnan, Y. (2016). Impact of entrepreneurship education programme (EEP) on entrepreneurial intention of real estate graduates. *Pacific Rim Property Research Journal*, 22(1), 17-29.
- [3] Kaya, T., Erkut, B., & Thierbach, N. (2019). Entrepreneurial intentions of business and economics students in Germany and Cyprus: A cross-cultural comparison. *Sustainability*, 11(5), 1437-1455.
- [4] Koch, L. T. (2002), "Theory and practice of entrepreneurship education: a German view".
- [5] Kuratko, D. F. (2005). The emergence of entrepreneurship education: Development, trends, and challenges. *Entrepreneurship Theory and Practice*, 29(5), pp. 577-598.
- [6] Levie, J. (1999). Entrepreneurship education in higher education in England: A survey in UK, the Department for Employment and education of UK.
- [7] Sun, H, Lo, C, Liang, B. and B Wong (2017) The Impact of Entrepreneurial Education on Entrepreneurial Intention of Engineering Students in Hong Kong", *Management Decision* 55(7):1371-1393.
- [8] Standish-Kuon, T., & Rice, M. P. (2002). Introducing engineering and science students to entrepreneurship: Models and influential factors at six American universities. *Journal of Engineering Education*, 91(1), 33-39.
- [9] Kazakeviciute, A., Urbone, R., & Petraite, M. (2016). Curriculum development for technology-based entrepreneurship education: A cross-disciplinary and cross-cultural approach. *Industry and Higher Education*, 30(3), 202-214.
- [10] Streeter, D. H., Kher, R and Jaquette, J. P. (2011) University-wide trends in entrepreneurship education and the rankings: a dilemma, *Journal of Entrepreneurship Education*; 14: 75-92.
- [11] Bailetti, T. (2012), "Technology entrepreneurship: overview, definition, and distinctive aspects", *Technology Innovation Management Review*, 2(2): 5-12.
- [12] Audretsch, D. and Phillips, R. J. (2007) *Entrepreneurship, State Economic Development Policy and the Entrepreneurial University*, Discussion Paper No. 1107, Max Planck Institute, Jena.
- [13] Hannon, P. (2006) *Graduate Entrepreneurship in the UK: Defining a Research and Education Policy Framework*, NCGE Working Paper 012/2006.
- [14] Botham, R. and Mason, C. (2007) *Good Practice in Enterprise Development in UK Higher Education*, NCGE Research Report 004/2007.
- [15] Markham S, Baumer, D. Aiman-Smith, L, Kingon, K. & Zapta M. (2000). An Algorithm of High Technology Engineering and Management Education. *Journal of Engineering Education*, 89(2): 209-218.
- [16] Fayolle, A. (2013). Personal views on the future of entrepreneurship education. *Entrepreneurship & Regional Development*, 25(7-8), 692-701.
- [17] Bolzani, D., Munari, F., Rasmussen, E., & Toschi, L. (2021). Technology transfer offices as providers of science

and technology entrepreneurship education. *The Journal of Technology Transfer*, 46(2), 335-365.

[18] Kingon, A. I., Markham, S., Thomas, R., & Debo, R. 2002. Teaching high-tech entrepreneurship: Does it differ from teaching entrepreneurship? (And does it matter?). *Proceedings of the American Society for Engineering Education Annual Conference & Exposition*, Albuquerque, NM: American Society for Engineering Education:1-13.

[19] Collet, Chris; Wyatt, David. (2005) "Bioneering" - teaching biotechnology entrepreneurship at the undergraduate level, *Education & Training*; London 47.6/7 (2005): 408-421.

[20] Boocock, G., Frank, R., & Warren, L. (2009). Technology-based entrepreneurship education: meeting educational and business objectives. *The International Journal of Entrepreneurship and Innovation*, 10(1), 43-53.

[21] Hartmann, D. (2014). Turning Technology into Business Using University Patents. *Technology Innovation Management Review*, 4(12):37-43.

[22] Karim, M. S. A. (2016). Entrepreneurship Education in an Engineering Curriculum. *Procedia Economics and Finance*, 35, 379-387.

[23] STVP (2107) <http://stvp.stanford.edu/>, Retrieved 8 September 2017.

[24] Munro, H., & Noori, H. (1988). Measuring commitment to new manufacturing technology: integrating technological push and marketing pull concepts. *IEEE Transactions on Engineering Management*, 35(2), 63-70.

[25] Wolfson, A. (2010) "Entrepreneurship from Technology-Push vs. Market-Pull", *The MIT Entrepreneurship Review*, 25 May 2010,

<http://miter.mit.edu/articleentrepreneurship-technology-push-vs-market-pull/>

[26] Sun, H. (2011). The 3-3-3 Framework and 7P Model for Teaching Creativity, Innovation and Entrepreneurship. *Journal of Chinese Entrepreneurship*, 3(2):159 – 166.

[27] Audretsch, David B; Lehmann, Erik E; Paleari, Stefano. (2015) Academic policy and entrepreneurship: a European perspective, *Journal of Technology Transfer*; Indianapolis 40(3): 363-368.

[28] Swamidass, P. (2016), *Engineering Entrepreneurship, From Idea to Business Plan*, Cambridge University Press, NY.

[29] Hutchinson, Charles E. (2017) *Engineering Entrepreneurship, From Idea to Business Plan, Technology and Innovation*; 19(1): 451.

[30] Kang, Younah, and Keeheon Lee. (2020) "Designing technology entrepreneurship education using computational thinking." *Education and Information Technologies* 25: 5357-5377.

[31] Militaru, G., Pollifroni, M., & Niculescu, C. (2015). The Role of Technology Entrepreneurship Education in Encouraging to Launch New Ventures. In *Balkan Region Conference on Engineering and Business Education* (Vol. 1, No. 1).

[32] Badri-Harun, Azamudin; Mansor, Kamarul Ariffin; Shaari, Zullina Hussain; Zainol, Md Radzi; Amar, Amzairi. (2017) Factors Influencing Students of Technology-Based Universities to Become Entrepreneurs, *International Review of Management and Marketing*; Mersin, 7(1): 319-325.

[33] Ajzen, I. (1991). The Theory of Planned Behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179-211.

[34] Fayolle, A., Gailly, B., and Lassas-Clerc, N. (2006), "Assessing the impact of entrepreneurship education programmes: a new methodology", *Journal of European Industrial Training*, Vol. 30 No. 9, pp. 701-720.

[35] Nelson, A., & Monsen E. 2014. Teaching Technology Commercialization: Introduction to the Special Issue. *Journal of Technology Transfer* 39(5): 774-779.

[36] Link, A. N., & Siegel, D. S. (2005). University-based technology initiatives: Quantitative and qualitative evidence. *Research Policy*, 34(3), 253-257.

[37] Markman, G. D., Siegel, D. S., & Wright, M. (2008). Research and technology commercialization. *Journal of Management Studies*, 45(8), 1401-1423.

[38] Rothaermel, F. T., Agung, S., & Jiang, L. (2007). University entrepreneurship: A taxonomy of the literature. *Industrial and Corporate Change*, 16, 691-791.

[39] Siegel, D. (2009). From the guest editors: New developments in technology management education. *Academy of Management Learning and Education*, 8(3), 321-323.

[40] Purzer, S., Fila, N., & Nataraja, K. (2016). Evaluation of Current Assessment Methods in Engineering Entrepreneurship Education. *Advances in Engineering Education*, 5(1), n1.

[41] Duval-Couetil, N., Reed-Rhoads, T., & Haghghi, S. (2011). The engineering entrepreneurship survey: An assessment instrument to examine engineering student involvement in entrepreneurship education. *The Journal of Engineering Entrepreneurship*, 2(2), 35-56.



# The Antecedents and Determinants of Entrepreneurial Intention among Business Students in Vietnam

*Cuong Nguyen*

## Abstract

For recent decades, entrepreneurial intent and start-up movement have gained the intensive attention from business graduates and policymakers around the world. Recently, Vietnam strategized to become a “start-up” nation and entrepreneurship has emerged as an important issue for both academic research and economic development policies. This fact has drawn scholar’s attention to what intrinsic and extrinsic antecedents and determinants might shape such decision-making away from seemingly more secure corporate and government jobs toward an entrepreneurial career. Since that phenomenon, the entrepreneurial intention is widely discussed and studied worldwide. Across emerging economies in Asia, entrepreneurial intention studies have been conducted in many countries. However, the reason and determinants of entrepreneurial intention still lack empirical. The call for further research in entrepreneurial intention encourages the research question: “What intrinsic and extrinsic determinants impact the decision (intent and agency) of business students in Vietnam to become entrepreneurs?”. This book chapter provides the answers and implications for the research question mentioned.

**Keywords:** entrepreneurial intention, antecedents, determinants, business students, Vietnam

## 1. Introduction

This chapter reports the results and implications of the antecedents and determinants of entrepreneurial intention among business students in Vietnam from the author’s doctoral thesis [1]. It is essential to investigate the antecedents and determinants that influence Vietnamese people’s entrepreneurial intention to promote entrepreneurial activities. In this research, the target to research entrepreneurial intention is young business graduates and business students in Vietnam. Kent [2] Entrepreneurship at the school level aims to nurture students as job creators and not job seekers. Moreover, people mostly decide to establish their firms between the ages of 25 to 34 [3]. Therefore, it is significant to measure the entrepreneurial intention of young business graduates and business students in the Vietnamese context. The significance of entrepreneurship has been widely appreciated. The entrepreneurial intention is considered the first step in establishing new ventures leading to

entrepreneurial activities. It is significant to transform a potential entrepreneur into a nascent one. Many academic pieces of research on different aspects of entrepreneurship are on the rise [4]. Among those aspects, the entrepreneurial intention has become an exciting topic for academicians in developed countries and rising among developing countries and especially emerging economies, including large transitional economies like China and Russia. Inevitably, the changes in market structure and economic policies in developing and transitional economies tremendously expand new venture creations and entrepreneurial activities. As a result, to understand and identify better the external and internal factors and mechanisms that impact entrepreneurial intent and agency, this book chapter will contribute in four ways:

Firstly, scholars will add a new theory that includes a comprehensive conceptual framework of intrinsic and extrinsic factors and their related relationships. Scholars can use this theory to understand Vietnam's entrepreneurial structure better and develop it into a complete integrated model in the future.

Secondly, the work benefits from a new theory for entrepreneurial research scholars in Vietnam, but it also determines which decisive factors are vital, universal, and identify with differences in the context of research in Vietnam.

Thirdly, this book chapter is intended to enrich references to startups' characteristics, motives, and prefixes. The theoretical and experimental overview results from model testing will provide additional experimental evidence in the Vietnamese context.

Lastly, the stakeholders of entrepreneurial activities will have more facilities to promote their entrepreneurial intention among Vietnamese youth. Angel investors or hedge funds in the entrepreneurial sector can rely on the project's research results to better view the entrepreneurial movement of Vietnam's youth. In addition, policymakers can refer to the recommendations in the works to create favorable conditions for Vietnamese youth to start their businesses to solve jobs for young people and enhance socio-economic development for Viet Nam. Entrepreneurial strategies must nurture a supportive and favorable business environment to transform potential entrepreneurs into nascent ones. Nascent entrepreneurs will not only be self-employed but also will be job creators for others. Business graduates tend to be self-employed and are less attracted to be organizational employees [5]. In rigorous recognition of the importance of entrepreneurship and entrepreneurial intention research, many Vietnamese academicians started researching the topic [6–11] but it is still not sufficient literature in comparison with other emerging economies Asian region. This fact calls for further researches on entrepreneurial intention in the Vietnamese context.

## **2. The outlook of entrepreneurial intention research**

### **2.1 Global perspective of entrepreneurial intention**

The intention to start a business or decision to become an entrepreneur has become an increasingly popular phenomenon among business graduates worldwide [12] and more recently in an emerging economy, Vietnam [13]. The intention to start a business is of interest to academics studying startups because the intent of a purposeful behavior can be a press against that behavior [14]. This fact has attracted the attention of scholars about the intrinsic and extrinsic factors that can shape entrepreneurial decision-making [4, 15]. Since that phenomenon, the intention to start a business has been discussed and studied widely worldwide. For instance, Fatoki [16] studied entrepreneurial intention of students in South Africa. Teixeira

et al. [17] researched entrepreneur's intention and Entrepreneurship in European countries. Across emerging economies in Asia, research on entrepreneurial intention has been conducted in Singapore, China, India, Pakistan, Malaysia, and Vietnam [1, 6, 13, 18–22]. However, the reasons and decisive factors of starting a business still lack experimental evidence [4, 23]. Researchers worldwide have called for further research into entrepreneurial intention, which encourages the development of the research question of this work: "What intrinsic and extrinsic factors influence the decision of business students in Vietnam to become entrepreneurs?". Antonioli et al. [24] report two types of motivation for performing a task: intrinsic motivation and extrinsic motivation. When reality motivates a person to act for pleasure or challenge requires something and not external benefits, pressures or rewards [25]. Extrinsic motivation is a structure that involves an operation carried out to achieve some results. Extrinsic motivation is, therefore, the opposite of intrinsic motivation. Extrinsic motivation refers to carrying out an operation to enjoy the operation rather than its tool value [25].

## **2.2 Vietnamese perspective of entrepreneurial intention**

In order to promote entrepreneurial activities, it is essential to study the prefixes and decisive factors affecting the entrepreneurial intention of Vietnamese people. In this research, the survey subjects are graduates who have started their businesses and business students in Vietnam. Kent [2] argues that university-level unemployment aims to train students as job creators and not job miners. Moreover, people mostly decide to set up their company between the ages of 25 and 34. The importance of startups has been appreciated and widely appreciated in the current society of Vietnam. The intention to start a business is an essential in entrepreneurial research. The decisive factors of starting a business in general still lack empirical evidence [4, 23], especially in the Vietnamese context. In order to seriously recognize the importance of entrepreneurial research and entrepreneurial intention, many Vietnamese scholars have begun to study this topic [1, 6, 7, 9–11], but it still does not have enough theoretical basis compared to other emerging economies in Asia. According to Nguyen and Phan [26], young Vietnamese have great enthusiasm, openness, responsibility and materialistic entrepreneurial characteristics, and relatively low risk and confidence. The needs and motivations of youth entrepreneurship include physical and psychological needs. Tran et al. [13] state that the situational element is considered to be the antecedent of personal attitudes and, in return, is expected to affect business intentions. Nguyen [1] investigate the significant and direct relationship between subjective norms and entrepreneurial intention in the context of Vietnam's transition economy. The results show that although structural support has a positive impact on business attitude and control of perceived behavior, it also has a negative impact on subjective norms and entrepreneurial intentions. Phong et al. [21] suggest that if business students in Vietnam lack confidence in their ability to start a business, they should receive more training and education to develop soft skills, rather than focusing solely on textbook knowledge. Do and Dung [27] shows that subjective norms did not directly affect entrepreneurial intention; however, they had a strong indirect influence on entrepreneurial intention through entrepreneurial self-efficacy, attitude toward entrepreneurship, and perceived behavioral control. Maheshwari [22] suggested that educational support has no impact on entrepreneurial intentions, but individual factors such as self-efficacy, risk propensity and need for power and all the Theory of Planned Behavior's components influenced entrepreneurial intentions. Nguyen [28] tried to predict the influences of various factors on the entrepreneurial intention among undergraduates and

postgraduates in Vietnam. This fact requires further research on the intention to start a business in the socio-economic context of Vietnam.

### **3. Research methods**

This chapter consists of three papers consecutively. The first paper consists of two parts: part 1-A and part 1-B. Part 1-A investigates the entrepreneurial intention of business students in Vietnam by applying Planned Behavior Theory (TPB) [29, 30]. Part 1-A uses Exploratory Factor Analysis (EFA), and data were collected from 250 Vietnamese business students. The results are consistent with many previous studies that concluded that attitudes toward entrepreneurship, subjective norms and perceived behavior control are positively related to starting a business. Part 1-B investigates the entrepreneurial intention of international business students in the context of Vietnam becoming a member of the Trans-Pacific Partnership (TPP), and it is now officially known as the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPTPP). Part 1-B uses Exploratory Factor Analysis (EFA) and multiple regression data from 372 international business students. The study results confirm that attitudes toward entrepreneurship and perceived behavior control positively affect students' entrepreneurial intention. Subjective norms do not make a significant impact on the intention to start a business.

The second paper [31] assess the influences of demographic factors, experience with previous self-employment and family background on the entrepreneurial intention of business students in Vietnam. The sample size include 272 respondents who come from Ho Chi Minh City University of Industry, FPT University and Nguyen Tat Thanh University. Data analysis methods include Independent Sample T-test and One-way ANOVA. Demographic factors include gender, age and education level, family background, including parental employment status and parental immigration status.

The third paper [32] aims to qualitatively investigate the intent to start a business using the theoretical framework provided by Planned Behavior Theory (TPB). The study uses two stages of a face-to-face interview in a semi-structured direction. In the first phase, a select set of samples sampled without probability was used to interview 20 business students (12 men and 8 women, ages 21 to 26). The second phase is a post-hoc study on the entrepreneurial motivations of 15 Vietnamese entrepreneurs (10 men and 5 women, aged 28 to 45). Post-hoc is a logical fallacy in which an event is believed to be the cause of a later event simply because it occurred earlier. The study results confirm the validity of the Theory of Planned Behavior (TPB) in explaining the entrepreneurial intention of business students and the practical experience of small business owners already. Theory of Planned Behavioral (TPB) contributes mainly to explaining the decision to become an entrepreneur of business students. The study also found that other factors such as contextual factors, driving factors from the external environment and factors that wish to improve and innovate could influence the entrepreneurial intention of Vietnamese youth.

### **4. Results**

The chapter concludes with an integrated conceptual framework that includes intrinsic and extrinsic factors to understand Vietnamese entrepreneurial intention better. The implications for theory can support future research on an integrated research model. The research question of this chapter is “What intrinsic and

extrinsic determinants impact upon the decision (intent and agency) of business students in Vietnam to become entrepreneurs?”. The following table concludes the influences of the Theory of Planned Behavior [29] on Entrepreneurial Intention (**Table 1**).

The first paper affirms the validity of the application of TPB planned behavior theory in predicting the intention to start a business in Vietnam. However, part 1-B does not affirm that subjective norms are a significant decisive factor to the entrepreneur’s intention of international business students in Vietnam. Therefore, these findings from this work raised conformity to include subjective norms in the model to measure entrepreneurial intention. In addition, Elfving et al. [33] stated that proven social norms are poorly capable of predicting predictability, both theoretically and experimentally. In addition, Antonioli et al. [24] report that intrinsic motivation and extrinsic motivation are also influenced by the context in which individuals are present. Social norms hinder or enhance an individual’s intrinsic motivation or extrinsic motivation in performing a behavior. This reasoning also applies to motivating startups. Therefore, further research is needed to clarify the Planned Behavioral Theory model [29] in various contexts worldwide. The goal is to assess conformity and whether subjective norms are the deciding factor for starting a business.

The following table illustrated all contributions of the second paper to the theory by identifying the antecedents of entrepreneurial intention (**Table 2**) [31]:

The second paper [31] determines whether demographic factors, family backgrounds, and prior exposure to self-employment affect students’ entrepreneurial ideas. These findings are expected to contribute to the literature by identifying the premises of entrepreneurial intention among business students in the Vietnamese context. These findings confirm that Vietnamese students are more likely to choose to start a business as a career option than female students. From the findings, it is clear that gender is an essential factor in starting a business. In the context of Viet Nam, women are more likely to spend time and effort taking care of family life than participating in business activities. Recent research in Vietnam confirms that Vietnamese men are more likely to participate in entrepreneurial activities than women [34]. Besides, Kaya et al. [35] confirm that male students are more likely to establish their own firms than female students in Northern Cyprus and East Germany.

Meanwhile, other studies report that there are no meaningful differences between men and women regarding starting a business [36–40]. This fact calls for more research to investigate what obstacles or barriers prevent women from participating in business activities. Comparative research between different contexts should be conducted to determine whether gender is an essential determinant of entrepreneurial intention. Another contribution to the theory is that the results in this section confirm no significant difference between the age group and the entrepreneur’s intention of the business student. This result is surprising because it is not consistent with many previous studies. In general, people believe

Components of Ajzen’s planned behavior model	The determinant of entrepreneurial intention	Category of determinant
Attitude toward entrepreneurship	Affirmative	Intrinsic
Perceived behavioral control	Affirmative	Intrinsic
Subjective norms	Inconclusive	Extrinsic

**Table 1.**  
*The influences of the theory of planned behavior [29] on entrepreneurial intention.*

Demographic and family background factors	The antecedent of entrepreneurial intention
Gender	Supported
Age	Not supported
Education Level	Not supported
Prior experience in self-employment	Not supported
Children of self-employed parents	Not supported
Children of immigrant parents from rural areas.	Not supported

**Table 2.**

*The confirmation of demographic and family background factors as antecedents of entrepreneurial intention in Viet Nam.*

that they will mostly decide to set up their company between the ages of 25 and 34 [3, 23], and older people are less likely to start a business than young people [41–44]. This fact has led to Vietnam calling for further research to determine if age is an essential determinant of entrepreneurial intention, especially in different contexts worldwide. Based on the above study results, it is not enough to conclude whether the intention to start a business will decrease over time or other unknown factors that reduce the entrepreneurial intention of the elderly. At the educational level, this find concludes that there is no significant difference between the educational levels in terms of the entrepreneurial intention of a business student. This result is not a surprise because the relationship between higher education in the general and entrepreneurial spirit, in general, is not so strong and remains controversial [45, 46].

As a result of the study, there is insufficient clear experimental evidence to conclude that education is an essential factor in the intention to start a business in Vietnam. However, this result generated a call for more research as other researchers still confirmed a positive relationship between education and entrepreneurial spirit [47–51]. Regarding past experience and self-employment experience, the surprising results are not confirmation that students with prior self-employment experience show greater dependence than students with no experience. Self-employed before. These results are in contrast to other studies that confirm a positive relationship between prior experience in self-employment and entrepreneurial intention. Previous self-employment experience should be an essential element of entrepreneurship [50, 52–57]. Regarding family background, the results did not identify any relationship between family background and entrepreneurial intentions of business students. There is not enough statistical evidence to conclude that children of self-employed parents exhibit higher entrepreneurial intentions than children whose parents are not self-employed. The results also do not confirm that children of immigrant parents have higher entrepreneurial intentions than children of non-immigrant parents. These results contribute to the literature by affirming that family background does not significantly affect entrepreneurial intention. Meanwhile, the relationship between role models and entrepreneurial spirit has been confirmed by numerous studies around the world [40, 50, 52, 58–62].

The third paper [32] uses in-depth interviews to further probe into the realities of individuals, to understand the decisive factors in the theory, including the whole complexity and cause-and-effect relationship in the field of study. The study results in the third paper confirm the validity of the Planned Behavior Theory (TPB) model in predicting actual entrepreneurial behavior through the lens of quad quad-study of pre-and post-entrepreneurial behavior. The Theory of Planned Behavior

(TPB) has provided reliable atheisms for explaining the intended entrepreneurial and role factors in the model to entrepreneurial decisions or self-mastery decisions. Therefore, TPB's affirmative results help scholars study the decisive factors and the prefixes of entrepreneurial intention. Many scholars have supported this result [20, 29, 63–65]. However, TPB may not fill gaps in the theory. This fact shows the complexity of the intention to start a business. The TPB model may not consider contributing other factors such as environmental factors to the factors that drive the entrepreneur's intention of business students in Vietnam.

## 5. Conclusion

The first and second papers assessed the impact of factors on entrepreneurial intention and examine hypotheses related to demographic factors and the self-business experience of business students. The contribution to the theory benefits scholars of Vietnam's entrepreneurial intention research by confirming the suitability of Ajzen's Planned Behavioral Theory (TPB) model in predicting entrepreneurial intention and determining which structure is strong, universal, consistent with contextual differences. Intrinsic and extrinsic factors influence the decision of business students to become identified entrepreneurs. These decisive factors are essential factors of intrinsic motivation: self-determination, capacity, task participation, curiosity, enjoyment, and interest. External motivations include competition, reviews, recognition, money or other tangible incentives, and criticism by others. The popularity of the entrepreneurial phenomenon draws the attention of scholars to what decides students want to become an entrepreneur. Business decisions imply critical decisions that choose a student's career. Different approaches in economics will guide judgment decisions, such as choosing safe wage jobs or investing seriously in creating a new business. In addition, students can make career choices in favor of a specific type of self-business. This work enriches the theoretical overview of the characteristics, motives and markets of startups. In addition, it also provides theoretical and experimental results for the development of the private, financial and labour economy sectors.

The third paper [32] confirms the validity of the Planned Behavior Theory (TPB) model in predicting actual entrepreneurial behavior through the lens of quad quad-study of pre-and post-entrepreneurial behavior. Kapasi and Galloway [66] claim that TPB helps gain personal information. However, in the way TPB is used in entrepreneurial research, it cannot provide information about other factors. These factors are primarily external and contribute to the trend of becoming an entrepreneur of business students. The results from the paper using a method of dosing revealed three additional factors that contribute to the actual business experience of small business owners and self-entrepreneurs. These new elements include the driving factors, the desire for innovation, and contextual factors. These new elements show each interviewer's critical understanding of their own experiences of the real-world business entrepreneurial story. According to Khan et al. [67], the driving factors and context factors are decisive external factors of the intention to start a business. The factors that desire to innovate are the intrinsic factors of the intention to start a business. Khan et al. [68] also reported that improving predictable entrepreneurial intention is associated with micro-variables or intrinsic factors (motivations) and macro variables or external decision-making factors (infrastructure and business environment factors).

Furthermore, Lee et al. [69] discuss that to understand the intention of starting a business, it is the individual's story in the context and experience of their life and thus facilitates such an understanding of startups. Therefore, for studies, it is

necessary to find ways to understand the experiences of individuals and the relevant meaning. Especially with complex phenomena, the pursuit of a decision method is essential [70]. In addition, many previous studies confirm that the perception that generates behavioral intention is essential. Scholars also point out that experiences exposed to the process of self-trading or startups create the existence of cause and effect relationships [71]. The third paper's contribution helps to emphasize that the trim approaches to studying entrepreneurs intention are significant because it allows small business owners and self-entrepreneurs to tell their entrepreneur journey. Through this, scholars can understand many other factors, including complex phenomena that affect real entrepreneurial decisions [32].

## **6. Recommendations**

### **6.1 Recommendations for entrepreneurial policymakers**

Entrepreneurial policymakers can develop an action program based on the research results of this work. Policymakers can support the private sector and create the right conditions to promote the entrepreneurial movement among young people, especially business students in Vietnam. The conditions need to be improved, including administrative, legal, financial management, organization, and entrepreneurial courses for all interested people. From there, Vietnam can build a business community of young entrepreneurs and enhance economic development. Corporate policymakers must recognize a strong correlation between private sector development and a country's economic growth [72]. Entrepreneurship and small business are the leading solutions to unemployment reduction and economic development issues [73]. This work shows that Controlling perception behavior is a significant deciding factor in the entrepreneurial intention of business students in Vietnam. Like other emerging markets worldwide, Vietnam still has a developing legal system and needs to be reformed to develop a dynamic market economy. In fact, despite the many efforts, Vietnamese entrepreneurs have been able to find alternatives to weak management structures and enhance competitiveness in the context of Vietnam's deep integration into the world economy. The challenge for start-ups in emerging economies is that entrepreneurs continue to work in the same thinking system as before and play a role in driving structural change to encourage the development of the financial system, legal structure and labour market. These factors are the foundations needed to facilitate strongly developed entrepreneurial activities [74]. In addition, Phan and Wang [54] said that if the government can identify characteristics and determinants to promote startups, then the government can develop programs to turn entrepreneurial enthusiasts into real entrepreneurs, with real business projects implemented. Therefore, the Government of Vietnam needs to improve the business environment by stabilizing macro policy, removing barriers, improving the business investment environment to improve people's attitudes toward entrepreneurship, especially among business students. The research results from the third paper in this work strongly support these policies to encourage startups. In terms of macroeconomic policy, the Government of Vietnam needs to consistently implement macroeconomic stability measures, control inflation and reduce lending rates for Vietnamese entrepreneurs. These policies should be anticipated and forecasted for people to be able to develop their business plans. Government officials must also monitor the implementation process to ensure that local governments implement policies correctly.

On the other hand, the Vietnamese government needs to remove barriers to startups, reviewing the rules and regulations related to startups not to obstruct



entrepreneurial activities. In business law, the government must avoid criminalizing business activities. In particular, the government must eliminate the conditions of sub-business that prevent business activities. The government must also maintain the transparency of policies, facilitating entrepreneurs' access to information and technical support and financial support. Moreover, the government should create an environment that encourages fair competition across all business elements in Vietnam. As a result, entrepreneurs in the private sector will not notice that they are discriminated against during access to business resources. Vietnamese policymakers can also develop programs to strengthen Business Student Awareness Behavior Control for entrepreneurial penmanship by providing loans to support young entrepreneurs. The Government of Vietnam needs to set up funds to support startups effectively, especially among small and medium-sized enterprises. Policymakers should encourage private models for venture capital funds such as venture capital funds, angel investment funds, and community capital savings for poor households. Financial services for newly established enterprises must be consistent with the characteristics of business activities. In addition, the Government of Vietnam must constantly improve infrastructure to suit the needs of enterprises such as transport systems connecting economic regions in a synchronization, electricity production and distribution systems, high-speed Internet systems, water systems, waste treatment and well-planned industrial parks. The Government must help businesses and entrepreneurs access government assistance programs to facilitate the exploitation of social resources in society. The digitalized management system will help provide much necessary information for students in a successful entrepreneurial business. The government should also positively increase business awareness to assess their business capacity to start a business. Therefore, people's perception of entrepreneurial intention will be increased, and they are likely to start their business ideas.

The results of this work also affirm that the attitude to startups is a significant decisive factor for the entrepreneur's intention to start a business in Vietnam. Therefore, corporate policymakers should improve the dissemination of information about business opportunities to understanding market needs. From there, individuals can outline business ideas that often come from addressing the needs of people's everyday lives. Harnessing business opportunities from the practical demands of the market will help young entrepreneurs have a higher chance of success and more opportunities to expand their business. The government needs to disseminate typical entrepreneurs who overcome difficulties to accomplish their business goals in the media. Successful examples of young entrepreneurs should be appreciated in society, especially among young people. In addition, successful entrepreneurs should also share tips to overcome the initial difficulties in the entrepreneurial process. The dynamic and creative spirit will create a positive attitude of society with the entrepreneurial movement. A positive attitude to the entrepreneurial movement can be improved by honoring and acknowledging the economic and social contributions of successful young entrepreneurs in society. Therefore, it can create positive social pressure to encourage newly-ed students to set up their company instead of becoming ordinary employees for companies.

Furthermore, the results of the second paper [31] also call on the Vietnamese government to increase the provision of information regarding its commitment to global integration so that entrepreneurial activities can have a higher international orientation. With the comprehensive and progressive agreement for Trans-Pacific Partnership (CPTTP) ratified, greater economic integration between member countries will bring many opportunities for entrepreneurial activities in Vietnam. Indeed, the Government of Vietnam must announce a timely and fast free trade agreement for people and businesses. The government needs agencies to guide and explain the content of commitments to partners. In addition, the Government needs

to establish a coordination mechanism among authorities on integration commitments through providing information and advice to individuals and startups to support them to expand their business effectively on a global scale.

The study results also showed that male students intend to start a business higher than female students in Vietnam. Other studies also report that women are less likely to set up businesses than men [54, 59]. Vietnamese policymakers need to provide support programs to encourage female graduates to become young entrepreneurs from this perspective. Support programs can include particular loans at low-interest rates for women to start their business or lower the tax rate for female entrepreneurs within five years of their company's founding. Besides, Harris [75] confirmed that limited financial and social resources often limit women's entrepreneurial spirit. Vietnamese policymakers should also provide several training programs to equip female students with practical knowledge and skills to run a successful business. Although the study results found no relationship between family background and entrepreneurial intention, family business households still play an essential role in Vietnam's economy. Therefore, the government should encourage the transition from business household to business and complete the entrepreneurial stage quickly. In particular, the government must make a solid commitment to reforming the administrative system in the business registration process. The Government needs to support newly established enterprises to operate effectively so that business households are no longer afraid of converting into enterprises. The government must build a network of services to support businesses through the development of private service providers following the characteristics of startups in the first place.

## **6.2 Recommendations for higher education institutions in Vietnam**

The recommendation of this research work for higher education institutions in Vietnam is that educators can enrich and guide entrepreneurial education programs in the training program. This policy guides and prepares students in basic concepts and concepts of how to become successful entrepreneurs in the future. The research results of this work confirm that the factors of perceived behavior control and The Desire to transform perception are the decisive factors that determine the entrepreneur's intention of business students in Vietnam. Therefore, the Vietnamese government needs to improve the entrepreneurial education ecosystem to promote the entrepreneurial movement in Vietnam, especially among students in higher education institutions. Educational and training institutions need to develop an entrepreneurial curriculum from secondary education to increase creativity, critical thinking, and teamwork. These soft skills are essential for young people to start their own business in the future. Wang and Wong [76] recommend that promote entrepreneurship, and it is necessary to encourage and develop young entrepreneurs when they are students. Students' awareness of the entrepreneur's spirit and establishing their own business will influence students' career choices in the future. Business knowledge is introduced to young students who can navigate their future career paths. Universities and colleges must supplement entrepreneurial training programs for all business students.

Moreover, students in the technical and professional vocational training sectors must be equipped with knowledge and skills to start and run a successful business. Therefore, students can start their own business by combining technical expertise with business knowledge to minimize business failures and enhance their confidence in the entrepreneurial process. Before students graduate and enter the workforce, universities and other educational institutions should develop entrepreneurial career orientation programs to encourage graduates to set up their

businesses in the future [76]. Well-aware business students and graduates improve perceived behavior control by providing solid knowledge of building and running a successful business. Educational and training institutions should also use their graduates networks to invite graduates who have set up successful companies to share practical experiences in the entrepreneurial process. Successful examples from entrepreneurs can promote subjective norms to influence student business intention. It can also change student attitudes to Entrepreneurship by enhancing their desire for success as entrepreneurs. For example, successful entrepreneurs can prove that they can have better financial security, independence and freedom of power, and higher societal status. Therefore, students can start their own business by combining technical expertise with business knowledge to minimize business failures and enhance their confidence in the entrepreneurial process. Before students graduate and enter the workforce, universities and other educational institutions should develop entrepreneurial career orientation programs to encourage graduates to set up their businesses in the future [76]. Well-informed business students and graduates improve perceived behavior control by providing solid knowledge of building and running a successful business. Educational and training institutions should also use their graduates networks to invite graduates who have set up successful companies to share practical experiences in the entrepreneurial process. Successful examples from entrepreneurs can promote Subjective positive norms to influence student business intention. It can also change student attitudes to Entrepreneurship by enhancing their desire for success as entrepreneurs. For example, successful entrepreneurs can prove that they can have better financial security, independence and freedom of power, and higher societal status.

## **Conflict of interest**


The authors declare no conflict of interest.

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## References

- [1] Nguyen, C., 2019. *Three papers on antecedents and determinants of entrepreneurial intention among business students in Vietnam: toward an integrated theory* (Doctoral dissertation, Université Panthéon-Sorbonne-Paris I).
- [2] Kent, C. A. (1990). "Entrepreneurship education at the collegiate level: a synopsis and evaluation". , in Kent, C.A. (Ed.), Quorum Books, Entrepreneurship Education, New York, NY.
- [3] Delmar, F. D., P. (2000). Where do they come from? Prevalence and characteristics of nascent entrepreneurs. *Entrepreneurship and Regional Development*, 12, pp. 1-23.
- [4] Davidsson, P. (1995). *Determinants of Entrepreneurial Intentions*. Paper presented at the RENT IX Workshop in Entrepreneur Research, Piacenza, Italy.
- [5] Duffy, P. B. a. S., H.H. . (1984). "Entrepreneurship and self-employment: understanding the distinctions", in Hornaday, J.A., Tarpley, F., Timmons, J.A. and Vesper, K.H. (Eds) (pp. pp. 461-477): Babson College, Wellesley, MA.
- [6] Bui, H., Thi Lan. (2011). "Entrepreneurial Intention among Vietnamese Business Students: Identifying Key Factors Influencing Their Intention of New Venture Formation. *International Vision, CFVG*, Vol. 15.
- [7] Nguyen, M., Thi Tuyet. (2011). An Exploratory Investigation into Entrepreneurial Orientation In Vietnam: A Study Across Types of Ownership, Firm Sizes, and Entrepreneur's Genders. *International Vision, CFVG*, 15.
- [8] Tu, V. B. (2011). Entrepreneur's Motivation to Track Market: The Case of Seafood Company in the Mekong Delta. *International Vision, CFVG*, 15.
- [9] Nguyen, T.H., Alam, Q., Perry, M. and Prajogo, D., 2009. The entrepreneurial role of the state and SME growth in Vietnam. *Journal of Administration & Governance*, 4(1), pp. 60-71.
- [10] Nguyen Q.A., Mort G.S. (2016) Economic Reform and Entrepreneurship in Vietnam: A Policy Perspective. In: Ateljević J., Trivić J. (eds) *Economic Development and Entrepreneurship in Transition Economies*. Springer, Cham
- [11] Chan, R. C., & Li, L. (2017). Entrepreneurial city and the restructuring of urban space in Shanghai Expo. *Urban Geography*, 38(5), 666-686.
- [12] Urban, B. (2012). Applying A Metacognitive Perspective To Entrepreneurship: Empirical Evidence On The Influence Of Metacognitive Dimensions On Entrepreneurial Intentions. *Journal of Enterprising Culture*, 20(2), 203-225. doi: 10.1142/S0218495812500094.
- [13] Tran, D. G. T., Bui, T. Q., Nguyen, H. T., & Mai, M. T. T. (2017, June). The antecedents of entrepreneurial intention a study among graduate students in Ho Chi Minh City. In *International Conference on the Development of Biomedical Engineering in Vietnam* (pp. 403-410). Springer, Singapore.
- [14] O’Gorman, C. (2019). Entrepreneurial Intentions and Entrepreneurial Behaviour. *Entrepreneurial Behaviour*, 17-37.
- [15] Schlaegel, C., & Koenig, M. (2014). Determinants of Entrepreneurial Intent: A Meta-Analytic Test and Integration of Competing Models. *Entrepreneurship: Theory & Practice*, 38(2), 291-332. doi: 10.1111/etap.12087.
- [16] Fatoki, O. (2014). The entrepreneurial intention of

undergraduate students in South Africa: The influences of entrepreneurship education and previous work experience. *Mediterranean Journal of Social Sciences*, 5(7), 294.

[17] Teixeira, S. J., Casteleiro, C. M. L., Rodrigues, R. G., & Guerra, M. D. (2018). Entrepreneurial intentions and entrepreneurship in European countries. *International Journal of Innovation Science*.

[18] Ariff, A. H. M., Bidin, Z., Ahmad, A. (2010). "Predicting entrepreneurship intention among Malay University accounting students in Malaysia". UNITAR E-JOURNAL, Vol. 6(No. 1), pp. 1-10.

[19] Azhar, A., Javaid, A., Rehman, M., & Hyder, A. (2010). Entrepreneurial Intentions among Business Students in Pakistan. *Journal of Business Systems, Governance & Ethics*, 5(2), 13-21.

[20] Farrukh, M., Alzubi, Y., Shahzad, I. A., Waheed, A., & Kanwal, N. (2018). Entrepreneurial intentions. *Asia Pacific Journal of Innovation and Entrepreneurship*.

[21] Phong, N. D., Thao, N. T. P., & Nguyen, N. P. (2020). Entrepreneurial intent of business students: Empirical evidence from a transitional economy. *Cogent Business & Management*, 7(1), 1747962.

[22] Maheshwari, G. (2021). Factors influencing entrepreneurial intentions the most for university students in Vietnam: educational support, personality traits or TPB components?. *Education+ Training*.

[23] Choo, S. a. W. M. (2006). Entrepreneurial intention: triggers and barriers to new venture creations in Singapore. *Singapore Management Review*, Vol. 28 ì, pp 47-64.

[24] Antonioli, D., Nicolli, F., Ramaciotti, L., & Rizzo, U. (2016). The

effect of intrinsic and extrinsic motivations on academics' entrepreneurial intention. *Administrative Sciences*, 6(4), 15.

[25] Ryan, R. M., & Deci, E. L. (2000). Intrinsic and extrinsic motivations: Classic definitions and new directions. *Contemporary educational psychology*, 25(1), 54-67.

[26] Nguyen, M., & Phan, A. (2014). Entrepreneurial Traits and Motivations of the Youth-an Empirical Study in Ho Chi Minh City-Vietnam. *International Journal of Business and Social Science*, 5(5).

[27] Do, Q., & Dung, P. (2020). Exploring entrepreneurial intention of full-time students at transport universities in Vietnam. *Management Science Letters*, 10(7), 1409-1416.

[28] Nguyen, C. (2021). A review of literature in entrepreneurial intention Research: Global perspectives and Vietnamese perspectives. *Journal of Asia Entrepreneurship and Sustainability*, 17(1), 48-84.

[29] Ajzen, I. (1991). The theory of planned behaviour. *Organizational Behaviour and Human Decision Processes*, 50(2), 179-211.

[30] Nguyen, C. (2015). Entrepreneurial intention in Vietnam: Same as everywhere?. *Journal of Asia Entrepreneurship and Sustainability*, 11(4), 108.

[31] Nguyen, C. (2018). Demographic factors, family background and prior self-employment on entrepreneurial intention-Vietnamese business students are different: why?. *Journal of Global Entrepreneurship Research*, 8(1), 1-17.

[32] Nguyen, C. (2018). A qualitative study of factors that influences entrepreneurial intentions among business students and small business

owners. *Journal of Asia Entrepreneurship and Sustainability*, 14(1), 3-27.

[33] Elfving, J., Brännback, M., & Carsrud, A. (2009). Toward a contextual model of entrepreneurial intentions. In *Understanding the entrepreneurial mind* (pp. 23-33). Springer, New York, NY.

[34] Tran, V. T., Nguyen, T. T., & Tran, N. T. (2019). Gender difference in access to local finance and firm performance: Evidence from a panel survey in Vietnam. *Economic Analysis and Policy*, 63, 150-164.

[35] Kaya, T., Erkut, B., & Thierbach, N. (2019). Entrepreneurial intentions of business and economics students in Germany and Cyprus: a cross-cultural comparison. *Sustainability*, 11(5), 1437.

[36] Kourilsky, M. L. a. W., W.B. . (1998). "Entrepreneurship and female youth: knowledge, attitudes, gender differences, and educational practices". *Journal of Business Venturing*, Vol. 13, pp. 77-88.

[37] Shay, J. a. T., S. , & . (2005). "Entrepreneurial aspirations and intentions of business students: a gendered perspective". Paper presented at the the Babson Entrepreneurship Conference, Boston, MA.

[38] Wilson, F, Kickul, J, Marlino, D. (2007). Gender, entrepreneurial self-efficacy, and entrepreneurial career intentions: Implications for entrepreneurship education. *Entrepreneurship Theory and Practice*, 31(3), 387-406.

[39] Smith, R.M., Sardeshmukh, S.R. and Combs, G.M., 2016. Understanding gender, creativity, and entrepreneurial intentions. *Education+ Training*, 58(3), pp. 263-282.

[40] Chaudhary, R. (2017). Demographic factors, personality and entrepreneurial

inclination: A study among Indian university students. *Education+ Training*, 59(2), 171-187.

[41] Hart, M., Anyadike-Danes, M., & Blackburn, R. (2004). Entrepreneurship and age in the UK: Comparing third age and prime age new venture creation across the regions. *Paper presented at RENT XVIII, Copenhagen*.

[42] Minniti, M., & Lévesque, M. (2008). Recent developments in the economics of entrepreneurship.

[43] Kautonen, T. (2008). Understanding the older entrepreneur: Comparing third age and prime age entrepreneurs in Finland. *International Journal of Business Science and Applied Management*, 3(3), 3-13.

[44] Hatak, I, Harms, R, Fink, M. (2015). Age, job identification, and entrepreneurial intention. *Journal of Managerial Psychology*, 30(1), 38-53.

[45] Galloway, L, & Brown, W. (2002). Entrepreneurship education at university: A driver in the creation of high growth firms? *Education+ Training*, 44(8/9), 398-405.

[46] Pittaway, L, & Cope, J. (2007). Entrepreneurship education: A systematic review of the evidence. *International small business journal*, 25(5), 479-510.

[47] Van der Sluis, J. a. V. P., M. . (2004). "Economic returns to education for entrepreneurs: the development of a neglected child in the economics of education". *Swedish Economic Policy Review*, Vol. 11 (No. 2), pp. 183-225.

[48] Murphy, PJ, Liao, J, Welsch, HP, (2006) "A conceptual history of entrepreneurial thought", *Journal of Management History*, 12 (1), 12-35

[49] Birdthistle, N. (2008). An examination of tertiary students' desire

to found an enterprise. *Education+ Training*, 50(7), 552-567.

[50] Ayalew, M. M., & Zeleke, S. A. (2018). Modeling the impact of entrepreneurial attitude on self-employment intention among engineering students in Ethiopia. *Journal of Innovation and Entrepreneurship*, 7(1), 1-27.

[51] López-Delgado, P., Iglesias-Sánchez, P. P., & Jambrino-Maldonado, C. (2019). Gender and university degree: a new analysis of entrepreneurial intention. *Education+ Training*.

[52] Tkachev, A., & Kolvereid, L. (1999). Self-employment intentions among Russian students. *Entrepreneurship & Regional Development*, 11(3), 269-280.

[53] Lee, D. Y. a. T., E. W. K. . (2001). The effects of entrepreneurial personality, background and network activities on venture growth. *Journal of Management Studies*, 38, pp. 583-602.

[54] Phan H.P., W., P.K and Wang, C.K. (2002). Antecedents to Entrepreneurship among University Students in Singapore: Belief, Attitudes and Background. *Journal of Enterprising Culture*, Vol. 10(No. 2), 151-174.

[55] Barringer, B. R., Jones, F. F., & Neubaum, D. O. (2005). A quantitative content analysis of the characteristics of rapid-growth firms and their founders. *Journal of business venturing*, 20(5), 663-687.

[56] Basu, A., & Virick, M. (2008). Assessing entrepreneurial intentions amongst students: A comparative study. *In National Collegiate Inventors and Innovators Alliance. Proceedings of the... Annual Conference (p. 79)*. National Collegiate Inventors & Innovators Alliance.

[57] Shane, S. (2000). Prior knowledge and the discovery of entrepreneurial

opportunities. *Organization Science*, 11(4), 448-469.

[58] Birley, S., & Westhead, P. (1994). A taxonomy of business entrepreneurial reasons and their impact on firm growth and size. *Journal of business venturing*, 9(1), 7-31.

[59] Crant, J. M. (1996). The proactive personality scale as a predictor of entrepreneurial intentions. *Management*, 29(3), 62-74.

[60] Mcelwee, G., & Al-Riyami, R. (2003). Women entrepreneurs in Oman: Some barriers to success. *Career Development International*, 8(7), 339-346.

[61] Fairlie, RW, & Robb, A. (2007). Families, human capital, and small business: Evidence from the characteristics of business owners survey. *ILR Review*, 60(2), 225-245.

[62] Ohanu, I. B., & Ogbuanya, T. C. (2018). Determinant factors of entrepreneurship intentions of electronic technology education students in Nigerian universities. *Journal of Global Entrepreneurship Research*, 8(1), 1-17.

[63] Liñán, F., & Chen, YW. (2009). Development and cross-cultural application of a specific instrument to measure entrepreneurial intentions. *Entrepreneurship Theory and Practice*, 33(3), 593-617.

[64] Bach, M., Aleksic, A., & Merkač-Skok, M. (2018). Examining determinants of entrepreneurial intentions in Slovenia: Applying the theory of planned behaviour and an innovative cognitive style. *Economic research-Ekonomska istraživanja*, 31(1), 1453-1471.

[65] Munir, H., Jianfeng, C., & Ramzan, S. (2019). Personality traits and theory of planned behavior comparison of

entrepreneurial intentions between an emerging economy and a developing country. *International Journal of Entrepreneurial Behavior & Research*.

[66] Kapasi, I., & Galloway, L. (2014). Theory of Planned Behaviour and Qualitative Approaches: A Tale of Two Studies. *Institute for Small Business and Entrepreneurship, Nov*.

[67] Khan, J. H., Biswas, B. D., & Ahmed, N. (2009). Extrinsic and intrinsic determinants of entrepreneurial growth of Bangladesh: An empirical examination. *RMUTT Global Business and Economics Review*, 4(2), 1-24.

[68] Khan, M. M., Ahmed, I., Nawaz, M. M., & Ramzan, M. (2011). Impact of personality traits on entrepreneurial intentions of university students. *Interdisciplinary Journal of Research in Business*, 1(4), 51-57.

[69] Lee, L., Wong, P. K., Der Foo, M., & Leung, A. (2011). Entrepreneurial intentions: The influence of organizational and individual factors. *Journal of business venturing*, 26(1), 124-136.

[70] Marshall, C. and Rossman, G., 1989. B.(1999). *Designing qualitative research*, 3.

[71] Ackroyd, S., 2004. *Methodology for management and organisation studies: some implications of critical realism*.

[72] Chu, H. M., . Kara, O., Fiorentino, C. (2011). "Bulgarian Entrepreneurship: an exploratory study". *International Journal of Business and Public Administration*, Vol. 8(No. 1), pp. 89-105.

[73] Davidsson, P, & Honig, B. (2003). The role of social and human capital among nascent entrepreneurs. *Journal of Business Venturing*, 18(3), 301-331.

[74] Bruton, G. D., Ahlstrom, D., & Obloj, K. (2008). Entrepreneurship in emerging economies: Where are we today and where should the research go in the future. *Entrepreneurship theory and practice*, 32(1), 1-14.

[75] Harris, M. L. a. G., S.G. . (2008). Examining the entrepreneurial attitudes of US business students. *Education and Training*, 50(7), pp. 568-581.

[76] Wang, C. K., & Wong, P. K. (2004). Entrepreneurial interest of university students in Singapore. *Technovation*, 24(2), 163-172.



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Section 2

New Challenges for  
Entrepreneurship

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# Entrepreneurship in a Different Era

*Li Xiong*

## Abstract

With the development of technology, and the change in economy, population etc. the Industrial economy, internet economy and intelligent economy present different characteristics, and entrepreneurship under these different era varies greatly, and there are great differences in the characteristics and value creation logic of business models under the background of industrial economy era, network economy era and intelligent economy era, and the requirements for successful entrepreneurship are quite different, e.g. educational background, understanding of the economy, methods for market survey, and business model etc. So it is valuable to find the differences and generalize patterns in various era, and provide guidance for entrepreneurship in the digital and intelligent economy era, based on insights of cases, both failure and success.

**Keywords:** entrepreneurship, era, industrial, information, intelligent

## 1. Introduction

Entrepreneurship is the process of seeking and developing opportunities to create value, by integrating resources creatively under the current resource constraints [1]. The essence of entrepreneurship is to meet the undiscovered needs, or to meet the known needs more efficiently. Under the background of different era, the economy, technology and population etc. vary greatly, and the market opportunities and entrepreneurship are also very different. What can we learn from the evolution of technological development? What will be the challenges for future entrepreneurship? We focus these issues by looking back and assessing this research stream, noting key milestones and the contributions it has made to our knowledge.

In the discussion that follows, we first seek to develop a clear understanding of the characteristics of entrepreneurship under industrial economy, network economy and intelligent economy. We then assess the contribution of past research on entrepreneurship and crystalize our findings. We comment on current research streams and how these have advanced our knowledge of entrepreneurship. Finally, we suggest directions for future research on entrepreneurship under the digital economy.

## 2. Entrepreneurship under industrial economy

Under the background of industrial economy, entrepreneurship is usually based on its own key resources and capabilities, and the transaction structure (contractual

relationship) formed by participants in the industrial value chain to realize value creation, transmission, acquisition and distribution. In this case, the business relationship between enterprises, customers and partners is a “linear” business relationship, and entrepreneurship is the relationship and state of value creating activities of the enterprise, and it is the way and logic of all participants’ value activities.

In many researches on entrepreneurship, because of the different research perspectives and research purposes, the definition of entrepreneurship is different accordingly. Generally speaking, the essential characteristics and core logic of entrepreneurship in the context of industrial economy include the following:

First, the essence of entrepreneurship is to create or jointly create value for customers and partners as the ultimate goal. Therefore, entrepreneurship takes value creation as the core, based on the core resources and capabilities of the enterprise, by identifying and mining the value needs of customers, adjusting the transaction structure of stakeholders, improving the transaction efficiency, by delivering the products or services as the value carrier to customers, completing the value transmission and acquisition, and through the value distribution mechanism, enabling customers to obtain value, and all stakeholders (participants) make profits.

Second, entrepreneurship is a structural, holistic and logical generalization of all business activities. Magretta [2] believes that entrepreneurial innovation is the improvement or innovation of industrial value chain, including manufacturing and marketing. Therefore, entrepreneurship and enterprise management theories are closely related, such as value chain theory, operation management theory, marketing theory, and strategic management theory. Entrepreneurship as a general description, in this respect, it covers a wider scope and broader meaning than enterprise strategy.

Third, entrepreneurship is an organic combination of a whole set of business activities, which cannot be summarized by any local activities or contents. Entrepreneurship, as a whole set of methods and procedures, various activities are inter-related and organically combined, which is the sum of business relations and transaction modes of all stakeholders in the process of business activities. Although strategic decision-making and management, customer identification and positioning, market planning and promotion, technical support and improvement are all important and indispensable parts of entrepreneurship, they cannot represent the overall concept of entrepreneurship.

Fourth, entrepreneurship is the transaction structure, profit model or revenue and expenditure mode constructed and dominated by the focus enterprises. Any start-up needs to be supported by the core resources and capabilities of the focus enterprise, and other stakeholders participate in through a specific transaction structure around the focus enterprise. Any enterprise, regardless of its size and strength, must have its own core resources and capabilities. Otherwise it will not survive in the competition. Therefore, any enterprise has two identities in different value networks or industrial chains: one is the “leader” of some value networks or industrial chains, that is, the focus enterprise; Second, as a “participant” of some value networks or industrial chains, that is, a partner. But according to the current research results of entrepreneurship, people pay more attention to the role of the focus enterprise in the value network or industrial chain, and less attention to the participants.

Under the background of industrialized economy, the “linear” characteristics of entrepreneurship in the industrial chain have gradually evolved into the “network” and “integration” characteristics across the boundary of the industrial chain in the era of network economy and intelligent economy.

### 3. Entrepreneurship under network economy

With the development and wide application of Internet technology, the era of industrial economy has evolved into the era of network economy, and entrepreneurship has undergone great changes. The Internet accelerates the speed and frequency of information transmission between transaction subjects, reduces the intermediate links, and eliminates the constraints of time and space, thus greatly reducing the transaction cost. Internet technology has created a large number of well-known enterprises, such as Amazon, Apple, Facebook and Google in the United States, Alibaba, Baidu, Tencent, Jingdong and Xiaomi technology in China, Tata and Infosys in India. It is with the help of the Internet “platform” that these enterprises have created a business miracle, and also spawned and boosted the explosive growth of DHL, FedEx, UPS in US, and SF and “four Tongs and one Da” in China and other express giants in the world.

Entrepreneurship is to enroll consumers in production and value creation, enhance the connection between manufacturers and consumers, and they create and share value together. It is a group of modes in which the supply and demand form a community platform, to realize the isolation mechanism to maintain organizational stability and realize connection dividend, in the uncertain and fuzzy internet environment.

With the development and application of internet technology, the traditional industrial economy has transformed into a network one, and entrepreneurship has the following distinctive characteristics:

First, the production and management boundaries of manufacturers tend to disappear, making the traditional labor division and entrepreneurship ineffective. For example, Xiaomi technology has developed from a *triathlon* entrepreneurship of “hardware + new retail + Internet service” to an ecological cluster consists of more than 90 enterprises, and built a three-tier product matrix of mobile phone accessories, intelligent hardware and consumer products around mobile phones. In China, Meituan car-hailing service and DiDi takes-out service infiltrate each other’s core business in order to compete for the entrance of community local life ... Where is the boundary of internet companies? What industry is your company in? etc. these questions may be difficult to answer. Industry boundaries are blurred.

Second, the uncertainty of the internet makes entrepreneurship random and instable, while traditional enterprises lose the competitive advantage built on their resources and capabilities. At the same time, the resources and capabilities of enterprises are becoming more and more unreliable. On the one hand, the flow of resources and capabilities between different enterprises is more and more frequent, and the traditional theory (e.g. Resource-based view, RBV) of obtaining competitive advantage by relying on the non-flow of resources and capabilities between enterprises or difficult to copy has been greatly challenged [3]. For example, the emergence of open source mode and sharing economy represents the change of resources and capabilities from the view of ownership to the view of use. For example, in 2014, Tesla opened all intellectual property rights free of charge to promote the development of clean energy vehicles. On the other hand, the former core competitiveness may become the core rigidity, which hinders the innovation and development of the enterprises. Path dependence often begins with a successful product or pattern. Once a method or process is found to be particularly effective, we hope to fix it, as eventually leads to low efficiency and degradation of core competence [4]. Today’s advantage is replaced by tomorrow’s trend.

Third, the Internet has realized the decentralization of media. Under the background of network economy, it is no longer a centralized media era controlled and updated by a few particular people or organizations, but a self-media era created,

participated, communicated and shared by the masses. This makes the content and voice of media more diversified, such as Facebook, microblog, Wechat, RenRen etc. The community entrepreneurship can better meet the needs and experiences of the public, and it has been developing rapidly.

Fourth, under the network economy, the core competitiveness of enterprises expands from internal resources and capabilities to external ones, including external resources integrating capability, partnership, customer relationship, etc., which makes the business model of enterprises more “non-replicable”. Today, there are more and more contacts between enterprises and customers, e.g. user forums, social networks, web browsing records, intelligent hardware interaction, etc. These contacts leave traces of customers, helping enterprises better grasp the needs of customers and improve the customization of products or services. Cooperation between enterprises can further enlarge the availability of data. For example, the driving records obtained by Uber can not only be used to optimize the dispatch algorithm, but also can be provided to the insurance company for personalized car insurance customization based on personal driving habits. Finally, the enterprise’s insight into customers will be more and more accurate.

The Internet has subverted the traditional sense of entrepreneurship, making the whole world more and more transparent, geographical distance and artificial distinction tend to be invalid. This kind of “gathering” across time and space makes people’s information communication, knowledge production and diffusion effortless. This in turn accelerates the speed and frequency of entrepreneurial innovation and upgrading [5].

#### **4. Entrepreneurship under intelligent economy**

Germany officially launched industry 4.0 at the Hanover Industrial Exposition in 2013, which is the era of promoting industrial change by using information technology, that is, the era of intelligence. With the development and implementation of industry 4.0, intelligent technology has been promoted and applied, and the network economy has been upgraded to the intelligent economy accordingly. The core of intelligent (industry 4.0) is the deep integration of information system and physical system, including vertical integration within the enterprise, horizontal integration between industrial chain and end-to-end integration. With the deep integration of digital, network, intelligent and manufacturing, a large number of new-type entrepreneurship with intelligent as the core emerge, such as the application of intelligent “robot” application software such as Uber in US and DiDi in China. Business model innovation is crucial to manufacturing. So, in the era of industry 4.0, what is the business model of manufacturing in the future? It is to solve customer problems. Therefore, in the future, manufacturers will not only be limited to hardware sales, but also gain more added value by providing after-sales services and other follow-up services, which is soft manufacturing. The system with “information” function becomes the new core of hardware products, which means that personalized demand and small batch customization will become the trend. Manufacturing enterprises need to increase the added value of products as much as possible, expand higher quality and richer services, propose better and more perfect solutions to meet the personalized needs of consumers and lead the way of “soft manufacturing + personalized customization” (**Table 1**).

In the era of intelligence, manufacturing enterprises, based on CPS, use advanced intelligent technology to form self-learning, adaptive and self-improvement capabilities through vertical integration, horizontal integration and intelligent platform integration, so as to enhance the efficiency of design and

Item	Industrial era	Digital era
Change rule	Continuous	Discontinuous
Environment recognition	Predictable	Unpredictable
Business mode-product	Transaction value	Utility value
Business mode-market	Mass market	Personal market
Business mode-customer	Individual value	Group value
Business mode-industry	Boundary constraints	Cross border collaboration
Corresponding thoughts	Linear thinking	Non-linear thinking

*Source: Chen and Liao [3].*

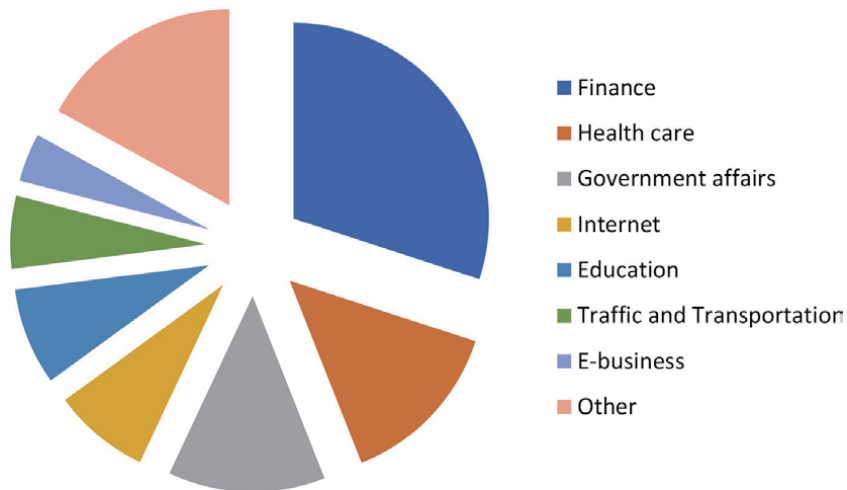
**Table 1.**  
*Comparison between the industrial and digital era.*

development, production and manufacturing, channel sales, logistics distribution, after-sales service and other links in the enterprise value chain, Completely subvert the traditional manufacturing enterprise product or service life cycle operation mode, create a new intelligent business model. For example, a clothing brand, She In.com, with its powerful data acquisition and mining capabilities, has successfully established a digital nervous system and digital reflection arc. Hundreds of clothes are launched every day to face the customers in the form of products. Through these dynamic and real-time updated data, SheIn can more accurately grasp the real needs of consumers. Through MVP dialog with the market and customers to refresh its understanding of the market, SheIn will launch a lot of products every day, quickly realize the obtained cognition, and then update and optimize the products to have a dialog with the market. In this way, SheIn has a great competitive advantage because its cognitive turnover rate of the market is much higher than that of traditional ones. The cognitive turnover rate of traditional clothing enterprises is calculated by year or quarter, while SheIn's cognitive turnover rate is by day.

First, vertical integration. From the perspective of vertical integration, i.e. internal information integration of enterprises, the production mode, physical layout and operation status of equipment and the working mode of employees will be greatly changed, and entrepreneurship will also change to meet the personalized customization needs of end customers.

Based on the industrial Internet and intelligent CPS system, the enterprise integrates information in the original enterprise value chain, such as market research, design and development, manufacturing, after-sales service, respectively, forming four information platforms, such as remote customization platform, global design and development platform, intelligent manufacturing and decentralized production platform, and intelligent service platform.

Second, horizontal integration. From the perspective of horizontal integration, i.e. information integration of industrial chain, enterprises extend from internal information integration to information integration of external suppliers, distributors and customers, break the barriers between traditional enterprises and industries, realize "interconnection" and form an intelligent network system with the industrial chain of enterprises as the basic unit. New changes will take place in manufacturing, information integration, resource sharing, asset form and innovation platform based on industrial value chain. In the future, entrepreneurship with industrial chain as the main body will include three levels: value chain level, industrial level and ecological level.



**Figure 1.** Big data application in various fields in China. Source: China Information and Communication Research Institute [6].

Third, intelligent platform. From the perspective of intelligent platform, that is, information integration of multi industry chain, platform entrepreneurship in the intelligent era provides a new resource integration capability for enterprises, forming a three-dimensional model of “manufacturer – terminal – consumer” with terminal platform as the fulcrum and connecting manufacturers (Intelligent Manufacturing Platform) and consumers. Among them, the terminal platform is divided into three categories: (1) Internet factory, crowdsourcing and crowd R&D platform, through which customers can obtain personalized customized products or services, and also undertake the task of R&D and design, which is also a main work of the current popular “gig economy”. (2) Mobile mall and smart store, customers can search, browse and purchase existing goods at any time and anywhere through the platform. For example, customers can use their mobile phones to purchase goods in “\*\* online mall”, or help customers make purchase decisions through the platform’s intelligent push technology. (3) Intelligent service platform, through which manufacturers can track the relevant data of products or services, and provide consumers with online and offline service support for the whole life cycle of products.

With the continuous enhancement of data capability, when manufacturers and terminal platforms form enough data capability advantages, there will be “capability spillover”, participating in the high profit or low efficiency links in the value chain of other industries, realizing the digital transformation and upgrading of traditional industries, or directly conducting cross-border operations through mergers and acquisitions, new construction and other ways. For example, technology-based giant enterprises, based on their big data capabilities, cross-border into traditional industries, transform the backward links in the traditional industrial chain or add new links, subvert the profit distribution mode of the original industry, and realize the industrialization upgrading. See **Figure 1** for the big data application in various fields in China in 2019.

## 5. Conclusion

In this article, we have summarized the findings of academic papers and practical articles published in highly ranked international business, management, and



finance journals and business journals. We have outlined an agenda for further research on entrepreneurship in the era of digital economy. In conclusion, for the same reason that re-visiting the knowledge problem of economics considering the recent technological developments shows that the “pretense of knowledge” problem exists as before [7], the competitive environment and characteristics of firms evolve over time, and thus the potential sequential adoption of varying international opportunity identification (IOI) processes can be investigated in future research [8].


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## **References**

- [1] Eckhardt J T, Shane S A. Opportunities and entrepreneurship. *Journal of Management*, 2003, 29(3): 333-349
- [2] Magretta J. Why business models matter. *Harvard Business Review*, 2002, 80(5): 86-92
- [3] Chen Chunhua, Liao Jianwen. The Way for Enterprises to Survive in the Digital Age. *Harvard Business Review Chinese edition*. November 2017
- [4] Collis D., How valuable are organizational capabilities. *Strategic Management Journal*, 1994, 15(1): 143-152
- [5] Christiansen J. K., et al., Living twice: How a product goes through multiple life cycles. *Journal of Product Innovation Management*. 2010, 27(6): 797-827
- [6] China Information and Communication Research Institute, October 2020.
- [7] Erkut, B. From digital government to digital governance: Are we there yet? *Sustainability*. 2020. 12, 860; DOI: 10.3390/su12030860
- [8] Ren S, Fan D, Huang X, et al. The micro-foundation of ambidextrous opportunity identification in international expansion. *International Business Review*, 2021, 30(1): 1-13

# What's "Next"? On the Future of Digital Entrepreneurship

*Burak Erkut and Vildan Esenyel*

## Abstract

Digitalization is gaining speed, latest since the global pandemics, even for those industries which only observed it as a supplementary phenomenon to their physical business activities. Despite this ongoing phenomenon and the use of catchwords such as e-business or e-commerce in both academia and practice, there is still confusion when the discussion shifts to the sphere of digital entrepreneurship—especially when it comes to the “who” and “how” of the digital entrepreneurship. The aim of this chapter is to focus on digital entrepreneurship as an ongoing phenomenon in the digital economy. In this chapter, the authors first introduce background and rationale with respect to digitalization and digital entrepreneurship by using a thematic literature review of recent contributions coming from economics and management disciplines. Next, the authors present next-generation models of digital entrepreneurship, with which they specify three important components of digital entrepreneurship as a business model, customer base, and social networks. By doing so, the authors not only aim to answer the questions of who the digital entrepreneur is, and how he/she acts in an entrepreneurial way, but they also aim to provide a knowledge base of digital entrepreneurship for future endeavors, let them be practical or theoretical ones.

**Keywords:** digitalization, entrepreneurship, digital entrepreneurship, technology, business

## 1. Introduction

When Israel M. Kirzner aimed to contribute to our understanding of entrepreneurship, he described the entrepreneur as someone who makes an arbitrage—buying something at a certain price from someone and selling it to someone else with a higher price and making a living out of it [1]. In this sense, Kirzner's definition of an entrepreneur was something like the controversially perceived painting of Kazimir Malevich, the black square, as it was like the point zero of defining entrepreneurial action similar to Malevich's painting being the point zero of defining art [2]. Whereas the basic motivation, namely, to make a living out of the entrepreneurial talent (or “alertness”, as Kirzner mentions), remains valid for people engaging in entrepreneurship, the domain of entrepreneurial action is becoming more and more digitalized. This requires entrepreneurs to think and act in ways that have not been used before and develop unique capabilities that fit the new, digital era—the next generation of entrepreneurship. This different way of thinking implies that creativity and imagination are more and more in the foreground of entrepreneurial activity, as later acknowledged by Kirzner himself [3]. In this sense, the aim of this

contribution is to explore the concept of digital entrepreneurship by focusing on the next generation business models, customer base, and social networks as three relevant fields of action. By doing so, the authors make use of recent contributions from the fields of economics and management. The rest of the chapter is organized as follows: In part 2, the authors present the background and the rationale of the contribution by explaining the concepts of digitalization and digital entrepreneurship. In part 3, the authors present next-generation models with respect to business models, customer base, and social networks in digital entrepreneurship. A conclusion follows.

## **2. Background and rationale**

### **2.1 Digitalization**

Pandemics changed how we perceive digitalization, defined as “the adaption of digital technologies in business, economy, and society” ([4], p. 60), as it dramatically changed our lifestyles and working conditions. Latest after the occurrence of the worldwide COVID-19 pandemics, many of the hitherto “physically occurring” business activities shifted to the digital sphere, and the trend is increasing [5]. Ref. [6] (p. 519) describe this process as “the deep and accelerating transformation of processes, activities, and competencies of companies”, and highlight the importance of digitalization as one of the main topics posing a challenge to the economy and businesses alike. The challenge of digitalization for businesses is that they need a different kind of transition in the ways they manufacture and market their products, and the ways they organize their workforce [7]. In this sense, digitalization offers a transformation channel to overcome the future challenges of sustainable and inclusive growth [8]. Despite this mechanism’s clear impact on how businesses are being made, there is confusion regarding how to transform a business into the digital sphere, and how to decide when there are trade-offs between efficiency and job creation. What is known and important regarding digitalization is that it offers more possibilities for current and potential entrepreneurs. Frank Petry, a well-known figure from German start-up scene, indicates that “What has changed radically, of course, are the possibilities. When I think of the first investments: no social media, no mobile phones, fortunately already email. It was all much slower, not as tightly networked, you had to spend a lot more time going to events, meeting people, a lot of things are digital now, and that makes it much easier. We have moved closer together via digitalization.” ([9], p. 2). In an interview with Dennis M. Steininger of TU Kaiserslautern, Petry emphasizes that digitalization makes the implementation of new ideas faster and easier, but this is not a linear process, as he describes it rather as a U-shaped process. According to him, the 1980s came with a vast amount of people who wanted to be entrepreneurs despite only a handful of newly available technologies. This phenomenon diminished over time, and only recently, a revival phase started to emerge, with important developments in the fields of artificial intelligence, big data, blockchain, quantum and cloud computing, internet of things, robotics, smart and sustainable technologies. Petry mentions that not only did these technologies individually make big leaps in their respective fields, but also made new combinations available, which can be reflected as new business opportunities for digital entrepreneurship.

What Petry is describing in his interview in terms of new business opportunities does not merely indicate that entrepreneurs can set foot in new industries doing the same things they used to do. On the contrary, [10] highlights two channels of a fundamental shift in the way entrepreneurial action is conducted. The first shift occurs

in the entrepreneurial processes, which are made less bounded due to digitalization. With this, [10] highlights both structurally less bounded entrepreneurial processes in the sense of the properties, scope, or the relevant market for the focal product, and in the sense of the spatial and temporal boundaries of entrepreneurial action. The second fundamental shift in the way entrepreneurial action is conducted goes through the pre-definition of the locus of entrepreneurial action. With this second channel, [10] highlights the fact that the set of actors in entrepreneurial action is becoming more diverse and evolving continuously in comparison to a pre-defined entrepreneurial agency that collects and utilizes different pre-defined resources for its pre-defined goals.

Despite the enhancing impact of digitalization on businesses by means of offering efficiency and flexibility as well as saving for resources [4] and making the entrepreneurial agency less bounded and less predefined [10], there can be negative externalities associated with it. In an empirical analysis, [11] focus on how digitalization and artificial intelligence (AI) may impact working individuals in the US labor market. Their findings indicate that there is no direct evidence of digitalization causing higher unemployment, and even if this would be the case, entrepreneurship can still bring people a source of income—hence, the necessity for entrepreneurship may increase in numbers. A more detailed analysis by the authors indicates that one can already find a relationship between automation and unemployment. If there is a low risk of automation of their jobs, people may still switch to entrepreneurship, yet their motivation would be rather opportunity-driven instead of necessity-driven.

## **2.2 Digital entrepreneurship**

In the context of this work, digital entrepreneurship is described by the widely used definition due to ([7], p. 293) as follows: “digital entrepreneurship is a subcategory of entrepreneurship in which some or all of what would be physical in a traditional organization has been digitized”. In the framework of Hull et al., a useful notion of distinction for digital entrepreneurship is the degree of digitalization, which they refer to as mild, medium, and extreme. The case of mild digital entrepreneurship views digitalization only as a supplement to traditional, “physical” entrepreneurial activity. The case of moderate digital entrepreneurship, on the other hand, already involves digital products and digital delivery as well as other components coming from the digital sphere to be included in the business model. The extreme case of digital entrepreneurship has digitalization as the sole form of existence. This includes the production, the goods or services, advertising, distribution, and the consumer group, even the payment in digital currencies can be the case. Based on this typology, [7] suggests six contexts, within which traditional entrepreneurship may differ from digital entrepreneurship. These are “ease of entry, ease of manufacturing and storing, ease of distribution in the digital marketplace, digital workplace, digital goods, digital service, and digital commitment” ([7], p. 296). With the ease of entry, the authors indicate that entry conditions are easy for digital entrepreneurs, as one can even create a digital venture from his coffee table. With the ease of manufacturing and storing, digital entrepreneurs may benefit from concepts such as just in time production, or drop-shipping, the latter indicating that the digital entrepreneur acts in a similar vein to the Kirznerian arbitrage-making entrepreneur. Ease of distribution in the digital marketplace refers to the property of digital entrepreneurs regarding how well they can use the reach of internet and social media networks to make people aware of their products. This necessarily involves a rapid delivery of their products to their customers. In the case of the digital workplace, things may not be as favorable as they are for

traditional entrepreneurs since digital entrepreneurs need to invest time and effort to recruit the right people and manage remote teams of people. Whereas this may sound straightforward, established theories of human resources management may bring little use to the domain of managing remote teams. In addition to the management perspective, which proves itself to be different from the non-digital entrepreneurial case, also the interaction with innovation seems to be quite problematic as extant theories and concepts do not suffice to help digital entrepreneurs manage their interaction with innovations.

Digital entrepreneurs, especially during the early stage of their ventures, face two different channels of innovation shaping their venture [12]: The first one is innovation related to their value proposition, which boils down to the issue of new product development. The second one is innovation related to their business model, which nevertheless cannot be fully separated from the first channel of interaction. These two channels boil down to the issue of whether digital entrepreneurs can successfully adapt their business model to their external environment, or, alternatively, engage in business model innovation to offer a different alternative to the market. The contribution by [12] shows an interplay between three concepts, namely, business model innovation, lean start-up methods, and agile development. Lean start-up philosophy goes back to the contribution by Eric Ries [13] and “favors experimentation over elaborate planning, customer feedback over intuition, and iterative design over traditional “big design up front” development” ([14], p. 65). Agile development, on the other hand, has its roots in software development, and requires “setting a structure that allows discovering changes and opportunities as soon as possible and react on them appropriately.” ([15], p. 5). What can be identified from the contribution of [12] is that lean start-up methods are agile tools for designing a business model innovation, and digital entrepreneurs may consider using these three conceptual tools together to develop their own business model under volatile environmental conditions. In other words, digital entrepreneurship is not a completely independent field of action but stems from the hitherto separate fields of lean start-up, agile development, and business model innovation. In fact, all three clearly try to capture the impact of new technologies on entrepreneurial action, and this is exactly where digital entrepreneurship is situated.

When asked what has changed and what has not in the case of digital entrepreneurship, [16] argues in a similar vein as above, indicating the discovery of opportunities, as well as the decision to exploit opportunities did not change when comparing non-digital entrepreneurship with digital entrepreneurship. In this setup, and combining the line of argumentation of [16] with that of [12], one can clearly notice that technological opportunities are the key to understand digital entrepreneurship. Technological opportunities may not necessarily indicate high-tech products, they can even come from traditional products [17] to be interpreted in an innovative context, as known from the success of platforms such as Etsy known for being e-commerce platforms offering a place for vintage or handcrafted and traditionally manufactured goods. In addition, [16] mentions that new entrepreneurial actors (especially intermediaries between demand and supply sides, such as Etsy for the traditional industries), new technologies and business models, new product development processes, as well as policies and regulations, are the aspects which went through a change when comparing non-digital entrepreneurial efforts with digital entrepreneurial efforts.

Despite this perspective provided by [16], the most important issue that did not change in comparing digital and non-digital entrepreneurial efforts lies deeper, and to be more precise, in the economic system. The issue of the knowledge problem in economics as firstly formulated by Austrian economist Friedrich August von Hayek [18] highlights the fact that governments, or central planning bodies, are not able to

aggregate diffuse subjective knowledge to coordinate the economic activity. Despite digitalization, the nature of the knowledge problem did not change [19] and this justifies the existence and activities of digital entrepreneurs in a digitalized era. Despite this justification, it also opens a problematic space that goes beyond existing rules, regulations, and policies for governments to catch up. Also in this sense, digital entrepreneurs are moving more and more into the foreground both for job creation and a potential field of political intervention.

### **3. Next generation models**

The entrepreneur's success in a competitive environment depends on creating a unique value proposition for the customer and making it sustainable and key activities undertaken by the entrepreneur are critical to the value proposition of the business. One of the most important activities that an entrepreneur should do before starting a business is to put forward the business model in which the business idea will be rationalized with the entrepreneur's thinking and planning ahead of time about the market, competition, costs, and resources that are needed [20]. The business model enables the entrepreneur to understand what can and cannot be done, and helps to anticipate the situations that may be encountered while implementing the business idea [21].

The main purpose of the business model is to reveal who the entrepreneur's customer is, what is important to these customers, how to find and create relations with these customers, and how to make money while meeting the customer's needs. The value that the entrepreneur will reveal must be demandable while meeting the needs of customers more effectively than other entrepreneurs [20].

For digital entrepreneurs to achieve successful results and create value in this rapidly changing business world, they need to establish innovative business models that include the understanding of new generations with changing mindsets and establish new social networks to create new relationships to strategically adopt these business models.

It is necessary for businesses to shape their digitalization processes according to the expectations and wishes of their customers and to get to know them closely to do this most accurately [22]. The children of this generation, who were born into a world with technology, are among the current and future customers of the enterprises. Businesses need to prepare their strategic plans with this generation in mind and be prepared for this audience that will form the customers of the future.

#### **3.1 Business model innovation for digital entrepreneurs**

Traditional and old ways of doing business and the business environment of the entrepreneur have changed with technology. Products that were not in demand or that were not in the market in the past have started to be produced, different production methods have become more common than before, the methods of transportation to the customer have changed, and customer demands have changed and become more specialized [23]. The transformation in innovation and information technologies has also changed the conditions of competition. This cycle of change is still going on very rapidly. Under these conditions, it has become impossible to differentiate and create value by using old business models [22].

Business model innovation is very important for the entrepreneur to catch up with the competition or to be a pioneer in the competition. Entrepreneurs have started to change their business processes with new business models [24]. In this process, entrepreneurs have transformed traditional business models into

innovative and e-business models to understand risks, identify opportunities, and create new revenue streams [23].

Entrepreneurs should provide original values to the market by making radical changes in the existing core structure. Using white space opportunity [25] the entrepreneurs should restructure activities in the business model for new products and markets and reach new customers or present products with changed features to existing customers in different ways. For the entrepreneur to create white spaces, dynamism and innovation must be provided in the business model.

The white area marks the risky areas that businesses cannot fully identify and also, white spaces contain risks that entrepreneurs must solve and manage. Few entrepreneurs reach and succeed in these areas [25]. These entrepreneurs are the ones who update their traditional business models with an innovative perspective to take advantage of white space opportunities. The white space can be turned into an opportunity not with the current capabilities and business model of the business, but with new capabilities and models.

### **3.2 Next-generation customer base for digital entrepreneurs**

For the success of the business model, marketing, advertisements, production, and product features should be determined according to the characteristics of each customer group [26]. The value propositions of these different customer groups may also differ from each other. Knowing the generations allows entrepreneurs to understand the relevant period and the behaviors, attitudes, and perspectives of the individuals of that generation, because each generation has different experiences by witnessing different values, norms, events, and processes of their period, and each experience differentiates them from other generations [27].

The youngest of today's consumers who were born digital after 2010 are members of the "Alpha Generation" [28]. The Alpha generation which comes after Generation Z is the first generation to be born in the twenty-first century. They are named after the first letter of the Greek alphabet to symbolize a brand-new beginning. It is stated that [27] from the alpha generation, all future generations will be named according to the Greek alphabet.

Taking 2010 as the first year of birth of Alphas, as of 2022, the oldest will be 12 years old and will start to take part in business life after 10 years at the latest. Countries with large populations such as India and China will experience a more significant generation gap with this generation. It is estimated that [29] the Alpha population will reach 35 million by 2050. This situation increases the importance of getting to know the Alpha generation closely.

The parents of the Alpha generation consist of individuals from the Y and Z generations. Although it is a different generation from the Z generation, it can be said that the Alpha generation has some hereditary features [28]. For example, the use of technology and the lives integrated into the digital world is a feature that the Z generation [30] transfers to the Alpha generation.

The Alpha generation, which is considered the "generation of the future years" and also defined as "Digital children" are familiar with all digital technologies. Unlike other generations, Alphas begin to recognize and use these products before they start talking. The Internet is an integral part of their lives. For Alphas who were born into an environment full of digital, technology is an important part of every moment of their daily lives. Technology shapes the lifestyle of the alpha generation, in all sectors from health to education, from household goods to our shopping methods, from smartphones to the use of robot technologies [27].

The Alpha generation, which is a generation capable of changing technology beyond seeing technology as a tool, begins to show interest in technology products



at a young age. Today, coding, which is taught from a young age, is used in toys, and children can reprogram robots, keys, and sensors of game consoles as they wish [28]. As their learning styles are more hands-on and experimental, they immediately start using technological toys, smart devices, and wearables.

Alpha generation members, who were born in an era with advanced technology, where digital transformation is experienced in every sense compared to their parents and grew up socially, do not hide their lives, feelings, and thoughts, share them with everyone, and are constantly in research because they cannot tolerate uncertainties [31]. Alphas, who have a more liberal spirit than other generations, make their decisions with the data they find and with their own experiences [28].

Alpha generation, who knows and uses the internet better than all generations, also affects the decision-making processes of their parents in their purchasing behaviors [27]. Today, Alpha Generation does not yet have spending power, but they do have a strong influence on their families' spending.

The new generations, surrounded by visual stimuli, have a more developed visual perception than the old generations [32]. The Alpha generation establishes a social life in a virtual world and prefers online communication instead of talking to people face to face. Alpha generation is a generation that has less face-to-face communication, spends more time with themselves, and has discovered its ways of learning at an earlier age [31].

Living in a very fast-paced world filled with excessive data, future customers who know everything about digital, Alphas will expect instant satisfaction from all businesses in the future [32]. Businesses should provide instant feedback to increase customer satisfaction through social media channels.

Each new generation after the Z generation, which is known for its entrepreneurial feature [30], will be more entrepreneurial than the next because they can access information more easily than previous generations [32]. Alphas, who do not know a world without social media, will turn to platforms that are easy to use in their purchasing preferences and expect everything to be customized according to them.

Contrary to the view that technological developments will negatively affect the job opportunities of the Alpha generation and robots will replace human power and leave the new generation unemployed it is also thought that new generation technological applications will create new professions and job opportunities in the future [23]. The Alpha generation, which is predicted to decrease the starting age of entrepreneurship [32], even more, will live in a world where the number of entrepreneurs is much higher than in the past.

### **3.3 Social networks and digital entrepreneurship**

Entrepreneur's social networks are a potentially rich source of information. Reaching more individuals as a source of information is a significant condition for foreseeing new business areas, as not all the business owners have all the knowledge and skills themselves [33]. Social networks are beneficial for entrepreneurs in many ways. They can help to improve a firm's value, increase customer and supplier relationships, shed light on available resources and funding, encourage innovation, and may develop strategic partnerships [34].

Based on sociological studies [35] that examine social networks through the strength of interpersonal ties, it has been suggested that entrepreneurial networks consist of two main types or levels of linkage: strong and weak ties. Entrepreneurs forge strong and weak ties when building relationships. When planning and establishing a firm; entrepreneurs seek different kinds of help and support by inviting family members and outsiders to their social networks.

Access to information is very important to the entrepreneur. According to [36] information is most effective through weak ties. The acquisition of sources other than information is based on strong ties. Strong ties provide social support and motivation, which is important for entrepreneurs. Weak and strong ties have a positive effect on starting a business because they provide access to information, motivation, and finance.

Social media also can be seen as another discovery that brings people's communication to a very different dimension. Entrepreneurs now use social media platforms to create, expand and strengthen their networks facilitated by the opportunities it provides [37]. Entrepreneurial firms no longer have to wait for the next step to digitize their business processes, as social media platforms already offer easily accessible alternatives to collaborate with network actors. The networked nature of social media has enabled entrepreneurs to use these tools to support their own needs in different ways than other established companies [35].

Thus, for entrepreneurs sensing this opportunity, social media can be turned into a set of tools to reach existing customers and target audiences. Entrepreneurs use social media platforms for various reasons, expecting different benefits and results, including value creation, marketing, entrepreneurial business process improvement, information seeking, business networking, performance improvement, crowdfunding, communication, and driving business innovation [37]. In this respect, social media provide entrepreneurs the opportunity to reach customers and target groups, communicate and establish relationships in a way that provides trust to companies.

In conclusion, social media has helped entrepreneurs identify and realize opportunities that have fostered innovation and networking, leading to the creation of new businesses. In this sense, the greater the amount of weak and strong ties present in the entrepreneur's social network, the easier it will be to access appropriate resources and the greater the chance of success in the business establishment process with the use of social media.

#### **4. Conclusions**

This contribution aimed to highlight the importance of digital entrepreneurship and to discuss its future within the given framework of state-of-the-art research contributions. The authors highlight the following concluding remarks: Firstly, with respect to the theoretical reference in the introductory part of this article, it must be clear that theoretical research in digital entrepreneurship goes beyond the point zero of entrepreneurial action, that is to say, the alert entrepreneur who merely engages in arbitrage [1]. In this sense, digital entrepreneurship requires a new set of skills and capabilities unique to the digital age. This does not mean that the basic alertness behavior is not relevant anymore; its relevance is accompanied by several skills and capabilities that—in the best case—constitute the necessary, but not the sufficient point of departure for digital entrepreneurship. Secondly, the nature of the knowledge problem [19] remains valid in the digital era, and despite the potentially disruptive impact of digitalization on employment, new combinations of existing and/or emerging technologies still provide a fertile ground for digital entrepreneurship, contrasting the popular belief that digital businesses are self-contained, and once a new technology is present, it can directly shape the market without any effort. Despite the role played by new technologies in digital entrepreneurship, this popular belief is an oversimplified version of the truth, as new technologies and their combinations can—in the best case—be fertile ground waiting to be discovered by the alert digital entrepreneurs. Thirdly, the Alpha generation,

which will constitute the majority of the customers of the future, will be more conscious, more researching, and questioning consumers as a generation with higher expectations. Businesses should be prepared now for the next generation of Alphas and should take their digitalization steps beyond the needs of the Alpha generation, taking into account the wishes, expectations, suggestions, complaints, and knowing the specific features of this generation. Although it may seem scary Alpha generation that does not hesitate to express their wishes, expectations and complaints will contribute to the improvement of processes, with their personalities that ask, research and wonder. Alpha generation subordinates will definitely bring different perspectives to Z generation managers in the business world.

## **Conflict of interest**


The authors declare no conflict of interest.

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## References

- [1] Kirzner IM. *Competition and Entrepreneurship*. Chicago: University of Chicago Press; 1973
- [2] Malevich K. *The Non-Objective World: The Manifesto of Suprematism*. New York: Dover Publications; 2003
- [3] Yu TF-L. Entrepreneurial alertness and discovery. *The Review of Austrian Economics*. 2001;**14**(1):47-63
- [4] Rosin AF, Proksch D, Stubner S, Pinkwart A. Digital new ventures: Assessing the benefits of digitalization in entrepreneurship. *Journal of Small Business Strategy*. 2020;**30**(2):59-71
- [5] Sharma GD, Erkut B, Jain M, Kaya T, Mahendru M, Srivastava M, et al. Sailing through the COVID-19 crisis by using AI for financial market predictions. *Mathematical Problems in Engineering*. London: Hindawi; 2022;**2020**:1-18
- [6] Kraus S, Roig-Tierno N, Bouncken RB. Digital innovation and venturing: An introduction into the digitalization of entrepreneurship. *Review of Managerial Science*. 2019;**13**(3):519-528
- [7] Hull CE, Hung YTC, Hair N, Perotti V, Demartino R. Taking advantage of digital opportunities: A typology of digital entrepreneurship. *International Journal of Networking and Virtual Organisations*. 2007;**4**(3): 290-303
- [8] Bican PM, Brem A. Digital Business Model, Digital Transformation, Digital Entrepreneurship: Is there a sustainable “digital”? *Sustainability (Switzerland)*. 2020;**12**(13):1-15
- [9] Steininger DM. Interview with Frank Petry on “Digital Entrepreneurship: Opportunities, Challenges, and Impacts”. *Business and Information Systems Engineering*. 2022;**64**:111-114
- [10] Nambisan S. Digital entrepreneurship: Toward a digital technology perspective of entrepreneurship. *Entrepreneurship: Theory and Practice*. 2017;**41**(6): 1029-1055
- [11] Fossen FM, Sorgner A. The effects of digitalization on employment and entrepreneurship. *IZA World of Labor*. 2018:1-31
- [12] Ghezzi A, Cavallo A. Agile business model innovation in digital entrepreneurship: Lean startup approaches. *Journal of Business Research*. 2020;**110**(June):519-537
- [13] Ries E. *The Lean Startup: How Today’s Entrepreneurs Use Continuous Innovation to Create Radically Successful Businesses*. New York: Crown Business; 2011
- [14] Blank S. Why the lean start-up changes everything. *Harvard Business Review*. 2013;**2013**(91):63-72
- [15] Bider I, Jalali A. Agile business process development: Why, how and when—Applying Nonaka’s theory of knowledge transformation to business process development. *Information Systems and e-Business Management*. 2016;**14**(4):693-731
- [16] Steininger DM, Kathryn Brohman M, Block JH. Digital entrepreneurship: What is new if anything? *Business & Information Systems Engineering*. 2022;**64**:1-14
- [17] Toker B, Erkut B. Old Roots into New Trees: Artisan Entrepreneurship in Cyprus. In: Boateng R, Boateng SL, Anning-Dorson T, editors. *Delivering Distinctive Value in Emerging Economies: Efficient and Sustainably Responsible Perspectives from Management Researchers and*

Practitioners. Oxfordshire: Routledge; 2022

[18] von Hayek FA. The pretence of knowledge. *The American Economic Review*. 1989;**79**(6):3-7

[19] Erkut B. From digital government to digital governance: Are we there yet? *Sustainability*. 2020;**12**(3):1-13

[20] Rachinger M, Rauter R, Müller C, Vorraber W, Schirgi E. Digitalization and its influence on business model innovation. *Journal of Manufacturing Technology Management*. 2019;**30**(8): 1143-1160

[21] Frankenberger K, Sauer R. Cognitive antecedents of business models: Exploring the link between attention and business model design over time. *Long Range Planning*. 2019;**52**(3):283-304

[22] Caputo A, Pizzi S, Pellegrini MM, Dabić M. Digitalization and business models: Where are we going? A science map of the field. *Journal of Business Research*. 2021;**123**:489-501

[23] Parida V, Sjödin D, Reim W. Reviewing literature on digitalization, business model innovation, and sustainable industry: Past achievements and future promises. *Sustainability*. 2019;**11**(2):391

[24] Shakeel J, Mardani A, Chofreh AG, Goni FA, Klemeš JJ. Anatomy of sustainable business model innovation. *Journal of Cleaner Production*. 2020;**261**:121201

[25] Johnson MW, Alan GL. *Seizing the White Space: Business Model Innovation for Growth and Renewal*. Boston: Harvard Business Press; 2010

[26] Geissdoerfer M, Savaget P, Evans S. The Cambridge business model innovation process. *Procedia Manufacturing*. 2017;**8**:262-269

[27] Nagy Á, Kölcsey A. Generation Alpha: Marketing or science. *Acta Technologica Dubnicae*. 2017;**7**(1): 107-115

[28] McCrindle M, Fell A. *Understanding Generation Alpha*. Norwest; 2020

[29] Carter CM. The Complete Guide To Generation Alpha, The Children Of Millennials. 2016. Available from: <https://www.forbes.com/sites/christinecarter/2016/12/21/the-complete-guide-to-generation-alpha-the-children-of-millennials/?sh=400943ba3623>

[30] Erkut B. *On the Relationship between Generation Z, Corporate Entrepreneurship and Leadership*. Mecmua. 2021

[31] Jha AK. *Understanding Generation Alpha*. Kharagpur: Indian Institute of Technology Kharagpur; 2020

[32] Rani Thomas M, Madiya A. Customer profiling of Alpha. *Ushus Journal of Business Management*. 2020;**19**(1):75-86

[33] Klyver K, Hindle K, Meyer D. Influence of social network structure on entrepreneurship participation—A study of 20 national cultures. *International Entrepreneurship and Management Journal*. 2008;**4**(3): 331-347

[34] Aarikka-Stenroos L, Ritala P. Network management in the era of ecosystems: Systematic review and management framework. *Industrial Marketing Management*. 2017;**67**:23-36

[35] Quinton S, Wilson D. Tensions and ties in social media networks: Towards a model of understanding business relationship development and business performance enhancement through the use of LinkedIn. *Industrial Marketing Management*. 2016;**54**: 15-24

[36] Granovetter M. The impact of social structure on economic outcomes. *Journal of Economic Perspectives*. 2005;**19**(1):33-50

[37] Sahut JM, Iandoli L, Teulon F. The age of digital entrepreneurship. *Small Business Economics*. 2021;**56**(3):1159-1169

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Section 3

Shaping the Next Generation  
of Entrepreneurship

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# Network Strategy for Entrepreneurs

*Camilo Peña Ramírez and Alberto Levy*

## Abstract

Networks are an emerging area within the literature related to how entrepreneurs transfer knowledge, seek partnerships, and ultimately interact with others. Some terms with which this area has been defined are Business Networks, Knowledge Networks & Collaboration Networks. It is a cross-cutting phenomenon in various areas of knowledge, such as open innovation and entrepreneurship. However, the relevance of the use of networks for entrepreneurs and the development of global start-ups leads us to the need to propose a conceptual framework for the planning and administration of these business networks. It is an analytical investigation with a case study methodology. They are cases of the cities of Sao Paulo (Brazil) and Santiago (Chile) mainly of consulting and software services. From the models usually used in entrepreneurship, those with integrated tools and methodologies for the development of business networks by founders or administrators of start-ups.

**Keywords:** networks, strategy, entrepreneurship

## 1. Introduction

The network is an emerging area in the literature related to how organizations transfer knowledge, seek partnerships and, finally, interact with other organizations.

In business, some terms with which this area was defined are Business Networks, Innovation Networks, Knowledge Networks, and Collaboration Networks. It is a phenomenon that cuts across several areas of knowledge such as open innovation; entrepreneurship; social and public innovation; research network; collaborative economies; internationalization; strategy.

Ability to manage knowledge of these networks, referring to how to classify them, identify partners, what resources can be obtained, the type of alliances they should generate, among others. This implies a contingency analysis and the availability of resources available to companies.

Huggins and Johnston [1] related the theory of firm resources [2, 3] and the theory of networks (intra-firm) suggesting that firms should also create and manage external networks, to create knowledge and have capabilities needed to exploit this knowledge.

Valkokari and Helander [4] also analyzed networks at a strategic level, since it is considered that they can be managed and are a component of macro-networks at an industrial, regional, and global level. Furthermore, for these authors, a network

delivers common meanings and interpretations, continuity, and a stable context to network members to coordinate their actions.

The previous approach is similar to that of “ba”, which is a virtual or physical place where knowledge transfer takes place [5, 6], which can be extended outside the company in an inter-organizational manner.

As for the level of development of strategic networks, they range from the traditional ones aimed at the efficiency of production or operation to those aimed at innovation, aimed at delivering (search) added value in the future [7]. These same authors indicate that, at the most developed level, focused on innovation, the ability to manage networks, create a vision, orchestrate and innovate is necessary. The question that can be asked is: what are these strategic network management activities?

So, if network management is important for the development of companies. We will discuss how to integrate business network planning and management models into organizations’ formal strategic planning.

## **2. Epistemological vision for a new strategy from knowledge**

Since 1990 the theory based on the resources and capabilities of the firm (resource-based theory) has received more attention than that based on competitive advantages [8]. The theory of resources and capabilities (resource-based view) is close to the idea of “core competencies” of Prahalad and Hamel [9], which needs to have similar attributes if they want to provide a competitive advantage, they need to provide access to a wide variety of markets, contributing significantly to the benefit of the customer and their products, and are difficult for competitors to imitate.

The resource-based view theory of the firm is a neo-evolutionary economic branch of Nelson and Winter [10], and the main idea is that the firm has resources that allow it a sustainable advantage over other firms. The problem with this perspective is that it is static, but Teece and Pisano [11] proposed that dynamic capabilities add two new characteristics, the renewal of competencies and that strategic management has a main role to improve and determine the organizational competencies.

In this context Venzin [12] proposed a distinction between 3 epistemologies that could guide practice and research, these are (1) Cognitivism [13]. Organizations such as open systems, generate knowledge by interpreting the world. (2) Connectionism [14]. Similar to cognitivism but the representation process is different. (3) The autopoiesis [15]. Provides a different understanding of information to a system.

The vision of autopoiesis [15], is an open system to data but closed to information and knowledge, both of which must be interpreted within the system. At an autopoietic system, the world is built with the system self-referenced, and the world is not seen as fixed and objective, so it is impossible to represent reality.

Furthermore, a group of individuals is seen as an organization, who creates a new and common frame of reference, common rules, and standards. Autopoiesis was defined too as a living system and auto-reproduction that keeps the organization constant [16]. Thus, an autopoietic epistemology of the organization considers that people are second-level entities and that knowledge comes through the life process. In addition, knowledge is in the individual who knows and cannot be “managed”.

In the vision of Maturana and Varela [17] autopoietic knowledge implies that knowledge is a process related to life, thus knowledge allows effective action in the environment. This definition considers knowledge as a personal asset and

that it exists only in the tacit form and explicit knowledge is only a representation of the above.

This epistemology is close to the works of Nonaka and Takeuchi [18] according to Sveiby [19]. This same author, based on Polanyi [20] and Wittgenstein [21] defines knowledge as the capacity to act (capacity-to-act), with the emphasis of this definition on the action element. An ability to act is only visible in action and each individual has to re-create this ability through experience, a vision that is close to constructivism [22].

Thus, we consider a socio-constructivist conception of knowledge, resident in practice groups or work teams [23]. Knowledge is dynamic, personal, and different from data and information, and this dynamic property of knowledge is the most important for executives [19].

On the other hand, inspired by evolutionary theory, knowledge, and capabilities are central elements in the so-called knowledge or competence-based theory. Regularly assuming constructivist conceptualizations, knowing has been seen as a process and evolving, inherently provisional and socially and technically referenced [23].

The knowledge-based approach considers knowledge as a key strategic resource in organizations, with creation, transfer, and transformation is a competitive advantage [24]. Thus, the differences in results between companies would be justified by their different stocks of knowledge and by their different capacities for the exploitation and development of new knowledge [18, 25, 26].

Knowledge management began to form as an area of knowledge when the authors Machlup [27], Bell [28], and Porat [29] around 1970 integrated a series of concepts of economics and administration, in addition to basic concepts of Knowledge and Knowledge Workers (knowledge workers). After this, Abernathy [30] differentiated the concepts of scientific knowledge from administrative knowledge, however, the orientation in those years was still dominated by research and development (R&D) and documentary knowledge.

Abandoning the idea of articulated knowledge, Nelson [10] developed the role of tacit knowledge in management, based on the work of Polanyi [31]. Tacit knowledge is the main basis of human abilities, especially when these are complex and not obvious to the observer. Tacit knowledge is certainly not causal and does not have a scientific knowledge base. Nelson took Polanyi's ideas to the level of complex organizations, determining that an "organizational routine" is a group of personal skills that are coordinated and integrated with coherent social action in the context of the organization. We emphasize for our purposes that of coherent social action.

According to Adcroft and Willis [32] there are few reflective works in strategy, because most of the works come from positivism, under this view the world is being socially constructed, where the researcher is part of the phenomenon.

For Quinton and Smallbone [33], positivist research is based on empirical social science methods with an emphasis on "validity, reliability, and generalizability", but phenomenological research seeks the truth and authenticity of each individual study with a qualitative orientation.

On the other hand, Jackson [34] indicates that socio-constructivism treats the organization as a single entity. That is capable of learning, despite the fact that the behavior is different from that of an individual. The socio-constructivist vision assumes that knowledge management transforms individual knowledge into organizational knowledge through organizational learning. Organizational learning is achieved through 3 steps that are externalization, internalization, and objectification [18].

Jakubik [35] identified that the knowledge management theory was ignoring the ontological, epistemological, and political characteristics of knowledge. Styhre [36]

indicates that it is important to establish a new vocabulary and a new epistemology in knowledge management. Schultze and Stabell [37] identified four main “discourses” on knowledge management. These discourses were around dimensions of social order (consensus or not) and epistemological. Thus, four discourses on knowledge management research are presented: 1. critical speeches; 2. neo-functional discourse; 3. constructivist discourses; 4. dialogical discourse.

These same authors adopt the constructivist discourse in the epistemology of practice (how it is transferred) rather than an epistemology of possession (who knows?). In addition, the constructivist discourse assumes duality before dichotomy, which means that they are not finite stocks of knowledge, but rather knowledge continually emerging. This leads us to the fact that knowledge is not a separate object from human actions because it is continuously associated with the social practices of individuals and communities.

This led Schultze and Stabell [37] to suggest 4 metaphors of knowledge according to discourses: 1. knowledge as power; 2. knowledge as an asset; 3. knowledge as thought; 4. knowledge as a discipline.

The epistemology that comes is a synthesis of the processes of learning and knowing of the person that leads to new experiences of knowledge and learning. Some of the characteristics proposed by various authors of this new epistemology are:

- It is an evolutionary, transformative, empirical, interactive, dynamic, dialectical, and social process.
- Synthesizes pragmatism and the theoretical, the empirical with the rational, direct, and indirect knowledge.
- Where new knowledge comes through an ontological and epistemological relationship of situational justifications of objectives, beliefs, values, and abilities.
- It unites subject and object of knowledge, those that are mutually changing as a result of their interactions. Individual and social identities and knowledge are emerging at the same time.

De Alvarenga Neto and Choo [5] review the conditions in which knowledge is developed and propose a model that relates these conditions to the type of knowledge process and the level of interaction in knowledge management. As I am working with a vision from the strategy, I will base myself mainly on the strategic and structural vision proposed by these authors.

The business vision and the necessary support in the strategy and structure of the organization are related to the creation and operation of the “ba” (the virtual or physical place where knowledge transfer occurs) [6]. The assembly conditions are:

- A vision of strategy and knowledge. How does this contribute to the success of the organization?
- Organizational structure. Workgroups with strong relationships and effective collaboration, such as project teams, cross-divisional units, and empowering employees.
- Learning incentives and knowledge transfer.
- Emergence of knowledge facilitators and activists.

- Leadership, styles, roles, commitment, and vision, among others.
- Architectural innovations. Creation of meeting spaces, physical and virtual work environments, conferences, and communities, among others.
- Organizational and inter-organizational processes. Extend the concept of “ba” outside the company.

For example, there is an implicit need for trust and personal relationships in the social vision (organizational behavior) and formal coordination and discipline to develop the vision strategy/structure.

French [38] explains that most of the research in the field of strategy has been developed in the epistemological paradigm of Modernism, but there are other paradigms such as Postmodernism and Critical Theory. According to this proposal, constructivism considers the following:

- Ontology: Local and specific “building” realities.
- Epistemology: The researcher is a “passionate participant” with the world he investigates.
- Methodologies: In-depth interviews, observation of the participants.

Battista [39] reviews the theoretical contributions on institutions made by various authors, concluding that this theoretical contribution mixed with constructivism, gives rise to establish the bases for a new conception of institutions that can help to solve two unresolved dichotomies in the economic analysis of organizations, we are talking then of process versus structure and individualism versus collectivism.

Valadao & Silva [40] study the overlap between strategy as practice and as a process. Strategy as the practice is seen as a social practice and seeks to understand strategists and their interaction.

On the other hand, strategy as a process is more than a simple plan, which considers the behavior, action, reflection, and patterns that emerge incrementally between the past and the future, think and act, model and develop. These relationships are developed both internally and externally.

Valadao & Silva [40] conclude that strategic practices and processes are continuously restructured, where the strategic alternatives taken by individuals are influenced by practices that are socially constructed and culturally accepted. Strategy is evident when executives and practices, structure, context, and operations complement social practices, where knowledge and language allow strategists to go beyond practice to more complex strategic processes in the current reality of the company.

McGee and Thomas [41] argue like Grant [25] about a pluralistic epistemology and the interaction between explicit (in documents) and tacit (in people) knowledge, and between different organizational units (from individuals to groups).

Spender [26] explains that the concepts of knowledge vary too much, inconsistently, and in different ways, without being related. Then a clear epistemology is necessary that provides meaning, as it is proposed:

- Knowledge as an interaction between tacit and explicit knowledge.
- There are different “adaptation mechanisms”, thus Nelson and Winter [10] contemplate adaptive processes between both types of knowledge that are

developed through individual options and “eventually” (very little empirically identified) are embedded in organizational routines.

- The origin of knowledge as intuition [18, 42], where what is tacitly known by individuals is transformed and communicated to the group (collectively and socially).

Spender [26] also analyzes 4 types of ideal connections of these adaptation mechanisms. According to the different types of knowledge there are different types of theories of knowledge, however, a theory based on “inherent, immobile and collective knowledge (a strategic resource)” leads to the conclusion that it is the safest and most strategically significant type of knowledge organizational.

Finally, we can propose a summary table, a structure of the knowledge of these different areas, and their articulation (**Table 1**).

Then, the basic epistemology is socio-constructivist [38, 39], but a particular look at this vision is necessary (**Table 2**).

Finally, we can structure a common epistemological vision to propose a theory of a strategy for start-ups and small businesses. The main epistemological vision of articulation within socio-constructivism is the autopoiesis of Maturana and Varela [15], also considering the adaptive vision of knowledge [10], knowledge as a discipline [37], and the concept of “ba” [5, 6].

Thus, we have the following norms or base rules of epistemology for a strategy:

- A “system” is open to data and not to information. A key capacity of the system is the capacity to represent the reality of the context. Three levels of analysis, individual, organization, and context.
- Knowledge resides in the individual, which must be transmitted and disseminated; it is tacit and can be explicit. For this, there is an implicit need for trust and personal relationships in the social vision, in addition to formal coordination and discipline to develop the common ethical vision.
- There is a relationship between the organizational structure and the strategy.
- An “organizational routine”, being personal skills, coordinated and integrated with a coherent social vision in the context of the organization.
- The behavior of the individual is different from that of the organization, it is not a synergistic relationship ( $2 + 2 = 3$ ).
- There are local and specific built realities.

Theory	Relation	Sub area
RBV [25, 43]	Knowledge as a key resource	Knowledge-based view—KBV [18, 25, 26]
KBV	Need to manage the key resource	Knowledge management—KM [18]
KM	Dynamic vision	Dynamic capabilities—DC [11]

Source: self-made.

**Table 1.**  
Theories.

Theory	Constructivist vision		
Strategy: RBV—DC	Pluralistic [25, 41, 44]	Autopoiesis [15]	Strategy as practice [40]
Joint	Autopoiesis [15, 16, 45]	“Inherent, immobile and collective knowledge (a strategic resource)” [26].	Necessary support of the strategy and structure of the organization for the “ba” [6]
Knowledge: KBV—KM	Interaction [25, 26] adaption [10] and intuition [18, 42]	Organizational and inter-organizational processes to extend the “ba” outside the company [5]	Knowledge as a discipline [37]

*Source: self-made.*

**Table 2.**  
*Epistemological vision.*

### 3. Methodology

It was an analytical investigation with a case study methodology. There were 16 cases from the cities of Sao Paulo (Brazil) and Santiago (Chile), mainly in the areas of consulting and software services.

In the first instance, from the interviews, causal maps were developed for each company, to later integrate the companies that were in the same stage of development in a single diagram. On the other hand, the procedure was completed, listing all the identified “strategic actions” in order, to later assess the relationship of the different actions identified and how they affect the others.

Then, network management was analyzed based on the strategic activities identified for Startups. A selection was made of the activities present in the company’s network management process.

Thus, network management activities were classified in each quadrant according to the model of Nonaka and Takeuchi [18]. This systematization considers a series of filters, considering the relevance, occurrence, and priority identified in the content analysis.

Finally, the network management activities already identified are integrated into a process to propose a relationship between the results and the presence of the activities (**Table 3**).

The interviews considered in the case study were in-depth, lasting approximately 1 hour, semi-structured, and conducted in Spanish, English, or Portuguese, which began with reference questions. A type of episodic interview was used [57] that corresponds to establishing situations of the phenomenon under study, and in a sequential manner. This sought to better capture the meaning of strategic practices by administrators.

The questions were asked based on the level of development and the events the company has gone through. For example, at the 1st level, the events of “incubation and creation of the company” occur, and questions such as who was your first customer and how did you do it? Also, at the last level, the event of “sending a commercial proposal to a client abroad” occurs, and questions such as do you maintain any alliance or agreement with other companies in the region or globally?

For this research, startups had between 5 and 50 employees, and professional executives from different specialties with more than 5 years of experience, are expected to have previous international experience. A representative number of executives was interviewed, 1 or 2 per company. The companies had to be 3 years old or more, with sales in all years of operation and at least 3 active clients. You must

Categories	Description
Characteristics	Owner. Rationality, motivation, nature, types of participants. Dynamism, stability and spatial reach [1]. Type of capital [1]. Antiquity. Cohesion [46]. Proximity [47]. Governance. Density [48]. Types of resources available.
Actors	Number of partners or partners. Type of relationship. Knowledge delivery feasibility. Interpretation feasibility. Characteristic of the knowledge it provides.
Alliances	Repetition or frequency and sustainability [49, 50]. Intensity and disposition [51, 52].
Relative position	Central, peripheral [53–55].
Power	Domination, dependence [56].

Source: self-made.

**Table 3.**  
*Analysis categories.*

have effective exports made or at least have submitted proposals (technical and commercial) to clients in other markets in the last 2 years.

The cases are 16 companies (11 Chilean and 5 Brazilian), obtaining a good description and analysis of the specific event in question. The companies belong to the sectors: miscellaneous businesses; research and experimental development in natural sciences and engineering; business and management consulting activities; software consultancy and services (4); data processing (1).

#### 4. Developing a network strategy for entrepreneurs

Those companies that can classify the networks in which they participate and maintain networks that handle knowledge, beyond the market or customers, are in a greater stage of development and in the process of internationalization.

It is possible to establish the types of networks most used and relevant for the companies interviewed, when the administrator recognizes the different types of networks in which they participate and can manage them separately with an ICT tool or support. The planning activities known at this stage are contact coordination.

The ability to migrate from the personal and company network certainly determines the scalability of a start-up, this can be appreciated by the need for coordination (of the network and contacts) and the use of support tools for the entire company (ICTs). Kaya and Erkut [58] recommend new research focus on the strategy process and implementation, especially in a social media environment and knowledge generation.

The explicit component of network knowledge management corresponds mainly to some technology management techniques and customer management accessible to administrators.



The proposal that knowledge of networks (Network Knowledge) is prior to other types of knowledge such as technological and market knowledge remains valid. However, the main challenge is how to create governance structures to involve people in the strategic decision-making process, and do not be trapped in the knowledge problem [59].

The transfer of knowledge occurs in an expanded context of the company, as the stage of the outsourcing and combination process was reviewed in the results, which occurs in workgroups and companies respectively, in the expanded context it considers the members of the company and the partners or partners that are in the network. The latter is not there if the network is not established or deployed, and the resources that they have will not be available, such as technological, distant markets, reputation, and marketing knowledge, among others.

A common nomenclature is established between interactions with customers or business contacts, a virtual and face-to-face network, as well as a formal and informal relationship. Companies with a focus on the local context (city, region or state, and country) are intensive in face-to-face and informal relationships (social and close). They do not handle formal relationship procedures with clients or other related entities, another type of network in addition to the market or clients is not distinguished. The level of internationalization is null or unfeasible among administrators, furthermore, the orientation towards face-to-face and informal (personal) relationships does not prepare the organization for future stages of development.

Intensive personal networks in this type of company are also centralized, based on power, since they are managed by the owner(s). The perception of associate consultants, employees, or freelancers is the same, their contributions are only work hours, not new contacts, projects, or clients.

Working together with the other company, client or partner, has been established as one of the most relevant activities for the transfer of knowledge, and achieving affinity and long-term relationships, which is related to the achievement of social capital in the medium to long term.

Within the sequential questions asked, the stage that provided the most conclusive evidence and antecedents corresponds to the second stage or “network management”. This provides background information to conclude that the company that differentiates networks other than the market (customers) and that has a formal mechanism for managing these contacts is in a phase change and allows it to access regional and global markets.

In the Nonaka and Takeuchi model [18], it is possible to establish levels of development in network knowledge management, considering the network between companies, where those companies that gain access to more complex activities such as internationalization, implies that the flow between the stages is balanced and there is also a sequence between network management activities. This is important because a virtuous circle can be established, a dynamic capacity that allows the company’s networks to expand.

The company’s network management development events are determined by the following milestones:

- Original or personal network clients of the owners, personal and face-to-face relationship.
- Establishment of a partnership with an employee or external entity, which generates a new project at the local level.

- Identification of various networks in which it participates and formal relationships with partners at the local and regional level. New project (business) at the regional level.
- Management of business networks (procedure) and the existence of virtual interaction, with a global partner. New project (business) at a global level.

In the most relevant stage for this research, we have:

- Topics of interest or communities in which to participate are identified.
- There are procedures or routines for the management of local partners (parceiros in Portuguese).
- Technological and reputational networks are identified, in addition to the commercial one (clients).
- Networking practices are disseminated within the company.
- There are technological cooperation or alliances.
- Networks (contacts) are maintained in person and virtually.

The companies that present at least some of these actions or functions within their operations are in transition to the last stage of development or in this, which is the management of networks at a regional or global level.

Now, not as stage transition actions or functions, but within the more complex actions, the following can be mentioned as findings other than those present in the literature:

- Development of a network strategy.
- Coordination of partners.
- Disseminate Networking practices.
- Rules of operation with partners.
- Analysis of new forms of integration with partners.
- Representations of a partner, or mirror functions where a related or complementary service is represented, before requiring the same in distant markets for their own services.

## **5. Results discussion**

According to the results obtained, there are the criteria for the planning of business networks, which are the first discriminators on the selection of the network:

1st. Types of resources available

This is likely to imply an additional effort on the part of administrators because they will have to identify who their participants are and their motivations, and other related aspects such as what is the rationality and nature of the network.

Analysis was similar to that of Stakeholders with the MML, Corporate Social Responsibility, or Stakeholder management based on the theory of Freeman [60].

The administrators in these aspects behave from intuitively, rationally to strategically, according to the level of basic development, networks or export respectively. But the first thing to look for is to increase the number of interactions in order to gather the information you require about the network, the actors involved, their relative position, and their power. This knowledge is eminently market or commercial, that is, that contacts can provide information to trigger new business.

#### 2nd. Viability of the network

This has to do with criteria of governance, proximity, dynamism, stability, and spatial scope of the network. In simple terms, if you participate and dedicate time to managing and maintaining the contacts of that network, it will not be a failure. Although the evidence recorded is that this action is intuitive, most of the managers interviewed identify that the network they participate in has no contribution and has been “a waste of time”, with which they have felt frustrated.

Other criteria have been left as secondary, since, in a dynamic and open, non-traditional system, the owners of the networks, their cohesion, age, and density are determined by higher quality information, which is obtained already by participating in this group or net. Only the owner or age of the network could be viable information to obtain immediately, but it is not necessarily what is happening in reality, because there are informal owners or the network is inactive for many periods.

Within the viability of the network, criteria such as relative, central, or peripheral position are included, which every time the company progresses in its development, accesses new markets or sectors, returns to a peripheral position. This also occurs when accessing new networks, such as that of technological and reputational knowledge, which, as previously reviewed, are identified and managed by administrators in stages of greater development of the company.

#### 3rd. Selection of partners

Here, the criteria for selecting actors within the networks in which they participate are considered, as well as the number with whom they can interact. Within these criteria, there is the type of relationship, the viability of delivering the knowledge, where its characteristics and the possibility of being able to interpret it are considered.

This occurs, for example, in the interaction of a technological network between a University or Research Center and entrepreneurs who need to further develop a technology or seek a technological option for the identified business opportunity. Here there are problems of interpretation, power, motivation, and feasibility of delivery.

At this stage, it is necessary to consider the implicit power in the relationship with partners or partners, of domination or dependence, but in these dynamic and collaborative work environments, it is necessary to have sufficient flexibility, since, according to the spatial level of the network (local, regional or global), the type of network (market, technological, reputational or other) and its viability, administrators will find themselves in a permanent challenge to manage both positions, domination or dependency, in collaborative work environments.

At this stage, it is necessary to consider the criteria associated with alliances, such as their frequency and sustainability, and the intensity and willingness of the members. As the selection of partners or partners is a skill available to companies that are already in a stage of managing their business networks, they are queries that administrators should make when they have already selected the networks where they are going to participate and the appropriate actors or partners with whom to form these alliances. Partners are entities that can range from individual professionals to companies or organizations.

In order to compile the antecedents exposed in this investigation, particular conclusions can be presented for administrators. For these professionals, the ability to network is crucial, the selection of partners or partners, and to be able to work under different conditions of dependence and power, depending on the network in which they are participating. You must understand the conditions of low social capital, so you have to be a generator of new trusts and spread this practice within the company and the network. You must be aware that personal egos, internal political conditions, prejudices, and other personal or organizational culture conditions make the team or company inflexible, where permeability and flexibility are required to transfer, deliver or receive knowledge.

A crucial skill for administrators is to be able to differentiate the various networks in which the company participates, and that it can be trained for this. It should be remembered that the ability to distinguish technological and reputational networks is present in administrators and companies with a higher level of development and internationalization.

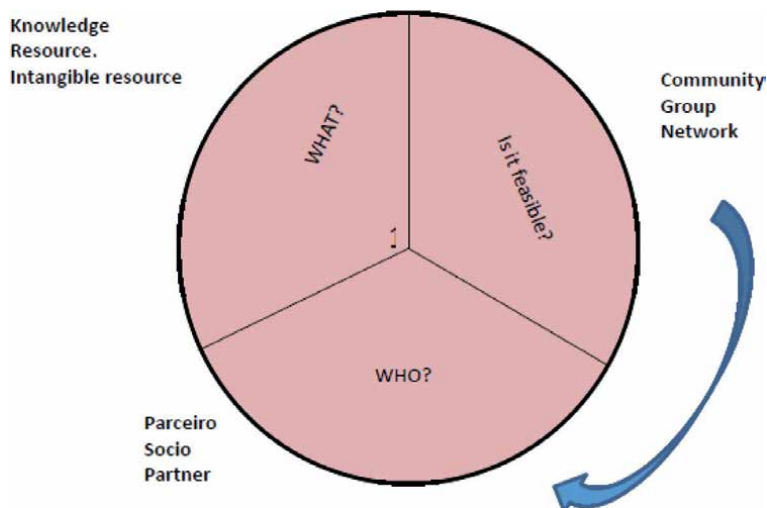
The contextual conditions for both administrators and small service companies are that they must understand that they work with open systems, probably as a professional or company in intermediary positions, as well as the dynamic and innovative network in which they operate. In addition, the understanding of being established or positioned in the value-adding channel.

The learning capacity should also be mentioned, which has to do with identifying areas of interest or communities, as well as the search for interaction activities, intensive in knowledge with partners or partners.

A practical application of the use of the criteria or discriminators explained above is a guide to design a business network plan. Formal planning for small work teams, where the following example considers a start-up venture. The objective is the sustainability of the project and the scalability of sales.

From the Entrepreneurship Business Model [61], the analysis consists of 2 stages:

First stage: Review the commercial areas, channels, relationship with customers, and customer segment. Using the central circle in **Figure 1**. First, the information and/or knowledge necessary to access channels and clients is identified, then



Source: self-made.

**Figure 1.** Business network plan. Source: self-made.

the community or networks to participate in, and finally the necessary partners (parceiros). Those are the questions: What? (1), is it feasible? (2) and Who? (3) in clockwise order.

Second stage: Review the non-commercial areas, key partners, activities, and key resources. Using the outer circle of **Figure 1**. Then, the questions asked in the First Stage are repeated to identify information and/or knowledge necessary to access key partners, activities, and resources. In the same previous order of the clock hands.

The previous analysis allows us to identify this triad made up of Knowledge, Network, and Partner. Those circles that are complete can be prioritized and assigned to the professionals of the working group for their exploitation and follow-up. Those incomplete circles, usually in Network (2) and/or Partner (3), imply a search or investigation work of the pending data to complete the triad.

This entire process allows the business model to be validated under the vision of business networks. In addition, define and schedule formally and simply the activities of the business network plan.

## **6. Conclusions**

Finally, in order to collect the background exposed in this research, particular conclusions can be presented for professionals, companies, public policy, and internationalization.

For administrators and professionals, the ability to network is crucial, the selection of partners or partners, and to be able to work under different conditions of dependence and power, depending on the network in which they are participating. You must understand the conditions of low social capital, so you have to be a generator of new trusts and spread this practice within the company and the network.

A crucial skill for administrators is to be able to differentiate the various networks in which the company participates, and that it can be trained for this. It should be remembered that the ability to distinguish technological and reputational networks is present in administrators and companies with a higher level of development and internationalization.

The context conditions for both administrators and small service companies are that they must understand that they work with open systems, probably as a professional or company in intermediary positions, as well as the dynamic and innovative network in which they operate. In addition, the understanding of being established or positioned in the value-adding channel.

The learning capacity should also be mentioned, which has to do with identifying areas of interest or communities, as well as the search for interaction activities, intensive in knowledge with partners or partners.

## **7. Limitations**

This is a qualitative investigation, with a case methodology, where 16 companies in Chile and Brazil were analyzed. Access to these companies was complex because they are niche companies, intensive in expert knowledge. For one in three of the companies that were contacted, an effective interview was achieved. The companies interviewed in Brazil allowed us to validate the behavior of companies in the same categories in Chile.

The composition by type of the cases does not allow generalizing behaviors, since we worked with consulting, software, and software services (SAAS)

companies. The items corresponded to diverse businesses, research and development, consulting, software services, and data processing.

The specificity of the interviews carried out and their duration was aimed at responding adequately to the research questions and proposals, but not providing background information on management practices outside of the analyzed business networks. In addition, the interview is in virtual mode (via SKYPE®) allowed to validate the use of the tool by the administrators, but not the physical operating conditions of the companies, only through their internet sites (Web Site) and material delivered to the researcher.

## **8. Future research**

One aspect to be developed corresponds to the validation of the instrument to measure the level of development of companies, specifically in the capacity to manage business networks.

A variant of this research, and where the same content analysis methodologies and application of knowledge management models can be used, is to carry out the necessary variations to apply this “Test” at the level of business networks to various areas or sectors.

The greatest variations of the instrument are expected for social and public innovation, personal marketing, as well as research networks or researchers (Research Network). As mentioned above, the areas of open innovation, entrepreneurship, and digital marketing are closely related to this research, which would imply very few adjustments to the instrument.

When making a relationship of terms between the area and the problem, only considering the primary and secondary information collected by this research, and where business network management can have inference, we have (area—problem):

- Social innovation—project sustainability and financing.
- Entrepreneurship—scalability of the business and exploitation of the opportunity.
- Public innovation—program sustainability and coordination.
- Research—relevance and impact.
- Digital marketing—planning and evaluation of results.
- Open innovation—integration and coordination of topics and specialists.

In the area of strategy, there are various applications for formal strategic planning from a business model, business plan, strategic unit planning, corporate planning, or any formal planning model. How the management of business networks is integrated to complement or enhance the formal strategic planning that the company has? This is determined by the strategic objectives, as well as the identified tactic and action plan.

Related to the proper planning of business networks, compilation and systematization must be carried out, in addition to the application and evaluation of the results in companies. This is to establish a broadly detailed model of business network planning, which allows representing the various techniques or practices dispersed in economic sectors, as well as the use and effectiveness of various

theoretical supports that tangentially describe the management of business networks. One of the areas where this network planning model could be used and validated in a better way is in areas, where there is diverse content on the internet, and data capture can be done historically, with public information and open, making it more viable.

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## References

- [1] Huggins R, Johnston A. Knowledge flow and inter-firm networks: The influence of network resources, spatial proximity and firm size. *Entrepreneurship and Regional Development*. 2010;**22**(5):457. Available from <http://search.proquest.com/docview/749880088?accountid=45394>
- [2] Barney J. Firm resources and sustained competitive advantage. *Journal of Management*. 1991;**17**(1):99-120
- [3] Wernerfelt B. A resource-based view of the firm. *Strategic Management Journal*. 1984;**5**(2):171-180
- [4] Valkokari K, Helander N. Knowledge management in different types of strategic SME networks. *Management Research News*. 2007;**30**(8):597-608
- [5] de Alvarenga Neto RCD, Choo CW. The post Nonaka concept of ba: Eclectic roots, evolutionary paths and future advancements. *Proceedings of the American Society for Information Science and Technology*. 2010;**47**(1):1-10
- [6] Nonaka I, Konno N. The concept of “ba” building a foundation for the knowledge creation. *California Management Review*. 1998;**40**(3)
- [7] Moller K, Rajala A, Svahn S. Strategic business nets—Their type and management. *Journal of Business Research*. 2005;**58**(9):1274-1284. Available from: <http://search.proquest.com/docview/196326562?accountid=45394>
- [8] Porter ME. Industry structure and competitive strategy: Keys to profitability. *Financial Analysts Journal*. 1980;**36**(4):30-41
- [9] Prahalad CK, Hamel G. The Core Competence of the Corporation. In: Hahn D, Taylor B, editors. *Strategische Unternehmensplanung / Strategische Unternehmensführung*. Physica, Heidelberg; 1997. DOI: 10.1007/978-3-662-41482-8\_46
- [10] Nelson R, Winter S. The Schumpeterian tradeoff revisited. *American Economic Review*. 1982;**72**(1):114. Available from: EBSCOhost
- [11] Teece D, Pisano G, Shuen A. Explicating dynamic capabilities: The nature and microfoundations of (sustainable) enterprise performance. *Strategic Management Journal*. 1997;**28**(13):1319-1350
- [12] Venzin M, von Krogh G, Roos J. Future research into knowledge management. In: Krogh, Ross, Kleine, editors. *Knowing in Firms, Understanding, Managing and Measuring Knowledge*. London: Sage; 1998. pp. 26-66
- [13] Simon H. *Models of Bounded Rationality*. Vol. 2. Boston, MA: MIT Press; 1982
- [14] Zander U, Kogut B. Knowledge and speed of transfer and imitation of organizational capabilities: An empirical test. *Organization Science*. 1995;**6**(1):76-92
- [15] Maturana H, Varela T. *Autopoiesis and Cognition*. London: Reidl; 1980
- [16] Parboteeah P, Jackson TW. Expert evaluation study of an autopoietic model of knowledge. *Journal of Knowledge Management*. 2011
- [17] Maturana H, Varela F. *De máquinas y seres vivos*. Universitaria; 1998
- [18] Nonaka I, Takeuchi H. *La organización creadora de conocimiento*. In: *Como las compañías japonesas crean la dinámica de la innovación* (Martin Hernández, traductor). Mexico: Oxford University Press; 1999



- [19] Sveiby K. A knowledge-based theory of the firm to guide in strategy formulation. *Journal of Intellectual Capital*. 2001;2(4):344-358. DOI: 10.1108/14691930110409651
- [20] Polanyi M. *Personal Knowledge*. New York, NY: Routledge & Kegan Paul; 1958
- [21] Wittgenstein L. *Philosophical Investigations* (orig. 1953). Oxford: Blackwell; 1995
- [22] Von Glasersfeld E. Constructivism as a Scientific Method. *Scientific Reasoning Research Institute Newsletter*. 1988;3(2):8-9
- [23] Hakanson L. The firm as an epistemic community: The knowledge based view revisited. *Industrial and Corporate Change*. 2010;19(6):1801-1828. DOI: 10.1093/icc/dtq052
- [24] Kogut B, Zander U. Knowledge of the firm, combinative capabilities, and the replication of technology. *Organization Science*. 1992;3:383-397
- [25] Grant RM. Toward a knowledge-based theory of the firm. *Strategic Management Journal*. 1996;17(Winter Special Issue):109-122
- [26] Spender JC. Making knowledge the basis of a dynamic theory of the firm. *Strategic Management Journal*. 1996;17(S2):45-62
- [27] Machlup F. *The Production and Distribution of Knowledge in the United States*. Princeton, New Jersey: Princeton University Press; 1962
- [28] Bell D. Communication technology: for better or for worse?. *The Information Society: Economic, Social, and Structural Issues*. 1989;89-103
- [29] Porat M. *The Information Economy: Definitions and Measurement*. Special Publication 77-12(1). Washington, DC: Department of Commerce, Office of Telecommunications; 1977
- [30] Abernathy WJ. *The Productivity Dilemma: Roadblock to Innovation in the Automobile Industry*. Baltimore: Johns Hopkins University Press; 1978
- [31] Polanyi M. *The Tacit Knowledge*. Vol. 1997. London: Routledge and Kegan Paul; 1962
- [32] Adcroft A, Willis R, Hurst J. A new model for managing change: The holistic view. *Journal of Business Strategy*. 2008;29(1):40-45. DOI: 10.1108/02756660810845697
- [33] Quinton S, Smallbone T. The troublesome triplets: issues in teaching reliability, validity and generalisation to business students. *Teaching in Higher Education*. 2005;10(3):299-311
- [34] Jackson TW. Applying autopoiesis to knowledge management in organisations. *Journal of Knowledge Management*. 2007;11(3):78-91. DOI: 10.1108/13673270710752126
- [35] Jakubik M. Becoming to know. Shifting the knowledge creation paradigm. *Journal of Knowledge Management*. 2011;15(3):374-402. DOI: 10.1108/13673271111137394
- [36] Styhre A. *Understanding Knowledge Management Critical and Postmodern Perspectives*. Copenhagen Business School Press; 2003
- [37] Schultze U, Stabell C. Knowing what you don't know? Discourses and contradictions in knowledge management research. *Journal of Management Studies*. 2004;41(4):549-573
- [38] French S. Cogito ergo sum: Exploring epistemological options for strategic management. *Journal of Management Development*. 2009;28(1):18-37. DOI: 10.1108/02621710910923845

- [39] Battista RN. Expanding the scientific basis of health technology assessment: A research agenda for the next decade. *International Journal of Technology Assessment in Health Care*. 2006;**22**(3):275-280
- [40] Valadao JDAD, Silva SSDS. Juxtapositions of strategy as practice and strategy process: Before the post-processual view of strategy. *RAM. Revista de Administração Mackenzie*. 2012;**13**(2):171-195
- [41] McGee J, Thomas H. Knowledge as a lens on the jigsaw puzzle of strategy: Reflections and conjectures on the contribution of a knowledge-based view to analytic models of strategic management. *Management Decision*. 2007;**45**(3):539-563. DOI: 10.1108/00251740710745124
- [42] Polanyi M. *The Tacit Dimension*. London: Routledge & Kegan Paul; 1967
- [43] Barney JB. Looking inside for competitive advantage. *Academy of Management Perspectives*. 1995;**9**(4):49-61. DOI: 10.5465/ame.1995.9512032192
- [44] Grant RM. The resource-based theory of competitive advantage: Implications for strategy formulation. *California Management Review*. 1991;**1991**:114-135
- [45] Hall WP. Biological nature of knowledge in the learning organisation. *The Learning Organization*. 2005;**12**(2):169-188. DOI: 10.1108/09696470510583548
- [46] Yu J, Gilbert BA, Oviatt BM. Effects of alliances, time, and network cohesion on the initiation of foreign sales by new ventures. *Strategic Management Journal*. 2011;**32**(4):424-446
- [47] Boschma RA. Proximity and innovation: A critical assessment. *Regional Studies*. 2005;**39**(1):61-74. Available from <http://search.proquest.com/docview/208884848?accountid=45394>
- [48] Burt R. *Brokerage and Closure: An Introduction to Social Capital*. New York: Oxford University Press; 2005
- [49] Huggins R. Inter-firm network policies and firm performance: Evaluating the impact of initiatives in the United Kingdom. *Research Policy*. 2001;**30**:443-458
- [50] Podolny JM, Page KL. Network forms of organization. *Annual Review of Sociology*. 1998;**24**(1):57-76
- [51] Gulati R. Network location and learning: The influence of network resources and firm capabilities on alliance formation. *Strategic Management Journal*. 1999;**20**:397-420
- [52] Yli-Renko H, Autio E, Sapienza HJ. Social capital, knowledge acquisition, and knowledge exploitation in young technology-based firms. *Strategic Management Journal*. 2001;**22**(6-7):587-613
- [53] Borgatti SP, Jones C, Everett MG. Network measures of social capital. *Connections*. 1998;**21**(2):27-36
- [54] Borgatti SP, Carley KM, Krackhardt D. On the robustness of centrality measures under conditions of imperfect data. *Social Networks*. 2006;**28**(2):124-136. DOI: 10.1016/j.socnet.2005.05.001
- [55] Freeman LC. Centrality in social networks conceptual clarification. *Social Networks*. 1979;**1**(3):215-239. DOI: 10.1016/0378-8733(78)90021-7
- [56] Lorentzen A. Knowledge networks in local and global space. *Entrepreneurship and Regional Development*. 2008;**20**(6):533. Available from: <http://search.proquest.com/docview/215158442?accountid=45394>

[57] Flick U. Episodic interviewing. In: Bauer AM, Gaskell G, editors. *Qualitative Researching with Text, Image and Sound—A Handbook*. London: Sage; 2000. pp. 75-92

[58] Kaya T, Erkut B. Tacit knowledge for strategic advantage: Social media use of employees in the financial sector (SSCI). In: *Proceedings of the 18th European Conference on Knowledge Management (ECKM 2017)*; 7-8 September, 2017. Barcelona, Spain; 2017. pp. 516-523

[59] Erkut B. From digital government to digital governance: Are we there yet? *Sustainability*. 2020;**12**(3):860

[60] Freeman RE. *Strategic Management: A Stakeholder Approach*. Cambridge University Press; 2010

[61] Osterwalder A, Pigneur Y. *Business Model Generation: A Handbook for Visionaries, Game Changers, and Challengers*. Vol. 1. John Wiley & Sons; 2010



# Volunteering as an Explanatory Factor of Social Entrepreneurship: An Analysis of an Educational Context

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## Abstract

The promotion of entrepreneurial intention in educational contexts is a priority that is increasingly present in academic planning, especially at university level. Furthermore, social entrepreneurship has been gaining prominence not only as a formula for improving the welfare and equity of society as a whole, but also as a mechanism for professional development. Taking into account both aspects, this paper analyzes the effect of university students participating in volunteer activities on their intention to carry out social entrepreneurship projects. With this objective, this study is based on the Theory of Planned Action of Ajzen. A sample of 208 university students was analyzed, 96 of whom had some experience of volunteering. The results confirm that taking part in volunteering, during students' education, positively affects their intention to start social entrepreneurship projects. This result allows us to conclude that encouraging volunteering could be a good methodological tool to promote social entrepreneurship within the educational field. In addition, the implementation of this type of social project could benefit university students not only by making social improvements to their environment, but also as a labor insertion tool.

**Keywords:** Entrepreneurship Education, Social Entrepreneurship, University, Entrepreneurial Intention, Volunteering

## 1. Introduction

In recent decades, intervention programs aimed at promoting an entrepreneurial spirit in the classroom have proliferated in educational centers, especially in university contexts [1, 2]. The effectiveness of these intervention programs has been amply demonstrated as a way of improving the entrepreneurial intention among their participants [3–11].

Particularly, and, as far as the university sphere is concerned, it has been confirmed that higher education centers are a potential source of future entrepreneurs [8, 12, 13]. Indeed, entrepreneurship has become an increasingly important work option that is highly valued by students [14–17].

Within the programs related to promoting entrepreneurial intention, in the current socioeconomic context, the specific area of social entrepreneurship has been gaining importance [18–20]. In this sense, according to Kaya et al. [21], students who can be described as social lead users, whose social vision is beyond the existing market for providing solutions to social problems, are more likely to be entrepreneurs than those who cannot be described as social lead users. Thus, analyzing the cognitive schemes associated with social entrepreneurship is an important academic challenge [22–24].

Aware of this need and taking into account that altruism and volunteer activities can be a key explanatory element when characterizing social entrepreneurship [25–29], the present work aims to measure the effect participating in volunteer activities has on the intention to carry out social entrepreneurship projects. In this sense, the model of planned behavior [30, 31] is the relationship framework that is most popular for introducing personal and contextual variables, and has rigorous theoretical support [32, 33].

Therefore, and starting from the Theory of Planned Behavior, we compare the entrepreneurial intention towards social projects based on attitudes towards this behavior, subjective norms and perceived behavioral control of a group of students with experience in volunteering with another group that lacks this experience.

The paper begins with a brief review of the theoretical background of social entrepreneurship, and then reflects on the possible relationships between personal factors and social concerns. The proposed model is presented below, the methodology of the study is described and the main results are detailed. Finally, the main conclusions are highlighted.

## 2. Social entrepreneurship: concept and scope

Kao [34] already pointed out that entrepreneurship, in general terms, can be defined as the process linked to ‘doing something new and something different’ with the aim of adding value, both to the individual and to society. Social entrepreneurship is framed within this conceptual field, in fact, “social entrepreneurs share many of the same qualities that regular entrepreneurs share: their ventures are typically of high risk, they are characteristically skilled at stretching resources more efficiently, and typically they have a new idea that fills a niche in the market” ([35]; p. 9).

The concept of “social enterprise” started to gain popularity between the 1980s and 1990s, promoted by Bill Drayton, founder of Ashoka, a non-profit organization based in the United States, which develops activities focused on social entrepreneurship. However, there is still no clear academic consensus regarding its meaning [36]. Despite the diversity of nuances that shape this concept, there are three common ideas that are repeated in all their meanings [18, 20, 36–40]:

- a. Social entrepreneurship has the aim of creating **social value**, and not individual wealth, focusing on solving **social problems** and not individual needs [41]. The creation of social value refers to the change generated for good in the lives of individuals, through the achievement of socially desirable goals.
- b. This value creation is developed through **social innovation**, not economic innovation [42, 43]. This requires special attention to the efficient use of resources, combining them and managing them optimally.

- c. Social projects become the driving force that stimulates **social change**. In this sense, it is a priority to have the capacity to identify the opportunities that can become authentic catalysts of social change [44].

Martin and Osberg [40] differentiate between traditional organizations that provide social services and firms of a social nature. In fact, the term *sustainable social value* differentiates social entrepreneurship from charitable works or charitable actions [41, 45, 46]. This concept of sustainability refers to the intention to maintain social activity over time and not just solve a social problem of a temporary nature.

In short, following Guzmán and Trujillo [47] and Sastre-Castillo et al. [45], we understand that social entrepreneurship is a specific type of entrepreneurship that seeks to solve social problems through the construction, evaluation and pursuit of opportunities that allow the generation of sustainable social value, reaching new and stable equilibriums in relation to social conditions.

This central objective of obtaining a social benefit does not mean that social entrepreneurship projects should be developed under the legal umbrella of non-profit associations only. In this sense, there is a significant trend of nonprofit entities to be created with non-traditional legal forms. Eikenberry and Kluver [48] explain this change by the budget cuts suffered by some social programs and the decrease in donations received by the private sector.

Along these lines, some authors [39, 42] recommend the creation of hybrid business models or new forms of social entrepreneurship that bring together elements of both traditional social and commercial enterprises.

According to Guo and Bielefeld [35], the main differentiating element of social entrepreneurs compared to regular entrepreneurs is that the former “are not merely trying to make the best out of the current situation, but instead create a wholly new situation in which to operate. They have a business and social mission, and through that mission change the way the system functions”. Along these lines, following Austin et al. [42] and Dorado [49], we could categorize the main differences that exist between a commercial or business enterprise and a social enterprise in four groups:

- a. Definition of opportunity: A problem for the commercial entrepreneur is an opportunity for the social entrepreneur. In this sense, while opportunities are abundant for social entrepreneurs, the same does not occur for commercial entrepreneurs.
- b. Mission: The fundamental purpose of social entrepreneurship is the creation of social value, while commercial entrepreneurs seek the creation of profitable operations from an economic point of view.
- c. Mobilization of resources: The way to capture resources, both human and financial, in both types of enterprises is different. The majority of social projects are not able to adequately reward highly qualified and competitive personnel, and the greatest effort of social enterprises is in the search for financial resources, due to their lack of cash flows and assets [49].
- d. Measurement of performance: Social enterprises face great difficulties in evaluating performance due to the impossibility of measuring social impacts, while economic ones are easier to quantify.

Indeed, the existence of organizations whose objectives are generating benefits for the community is not something new; rather it has been a concern from the very

first civilizations. What is new is the growing interest that this type of activity has awakened in recent years, in both academic and government institutions [22]. Much of this interest is due to the fact that, in many cases, social entrepreneurs provide innovative social solutions that are more sustainable and effective than those provided by the public sector [37, 50, 51]. In fact, Bargsted [52] recognizes in social entrepreneurship an alternative path towards social and economic progress.

However, and despite this interest, empirical approaches are scarce [45] and there is still a considerable scientific vacuum in terms of the dynamics and processes that favor the generation of social entrepreneurship projects [27, 29, 53–56]. In this sense, Certo and Miller [22] highlight the importance of determining the personal characteristics and cognitive schemes of social entrepreneurs, in order to promote these types of initiatives.

### **3. Personal factors: driving force of social entrepreneurship**

Entrepreneurial activity, like any process, requires some planning until it materializes in the creation of a business, with the intention of entrepreneurship being the step prior to its effective implementation and, therefore, its best predictor [31, 57–59].

However, there is still a significant gap in understanding how the antecedents of this intention and how its conditioning factors are formed [60]. With regard to social entrepreneurship, following North [61, 62] the start-up of this type of projects responds, fundamentally, to two kinds of motives: formal, such as reasons for public spending and access to financing and informal ones of governmental efficiency, such as social needs, social attitudes and education [63].

Urbano et al. [64] recognize that reasons of an informal nature, and linked to personal aspects, exert a greater influence on the generation of new social entrepreneurship projects. Similarly, Hemingway [65] considers that personal factors determine the propensity of an individual to create social ventures.

#### **3.1 Explanatory model of entrepreneurial intention**

Entrepreneurial intention, in the general field of entrepreneurship and by extension to the case of social entrepreneurship, depends fundamentally on a combination of personal and social factors [66–68]. According to this argument, among all the models that try to explain entrepreneurial intention, that of the Theory of Planned Action [31, 57] has become the one that best reflects the entrepreneurial process, insofar as it explains entrepreneurial intention based on the interaction between personal and social factors.

This theory proposes that entrepreneurial intention depends on the influence that three variables have on it: attitude towards behavior, the subjective norm and the perceived behavioral control. The attitude towards entrepreneurial behavior will depend on the beliefs that a certain person has about certain behaviors. Moreover, these beliefs will depend on the consequences that the subject perceives could be triggered by such behavior and its evaluation. The subjective norm can be defined as the perception of social pressure to carry out or not a particular behavior [31]. Scores of subjective norm are obtained from the analysis of two variables: the beliefs about how other significant persons think that the individual should behave (normative beliefs), and the motivation that refers to the general tendency that exists in complying with the norms of a group taken as a reference [68]. Finally, perceived behavioral control refers to the greater or lesser difficulty that the person perceives to perform the behavior [57]. Regarding this variable, Ajzen [57] breaks it



down into two dimensions: self-efficacy (belief in one's own abilities to organize and execute behavior) and controllability (belief about the control one has over one's own behavior).

Although in the field of entrepreneurship the Theory of Planned Action (TPA, hereafter) has been widely applied, in the specific case of social entrepreneurship the development of the model has been rather scarce [54, 69, 70]. This means that the field in general is still in the process of configuration and development, especially in terms of the explanatory background of social entrepreneurial intention [29, 45, 55, 66].

### **3.2 Volunteering and social entrepreneurship**

For Osorio [71], the training of altruistic people, as a vehicle to enhance pro-social behavior, is one of the great challenges faced by current educators. In this sense, this same author, suggests that empathy is one of the main engines of altruism, in the sense that if 'one learns to suffer with the suffering of others, and to be happy and alleviated with the joy and relief of others, you will find a certain pleasure in altruistic actions, and you will be, therefore, more prone to carry out such actions'.

Likewise, the capacities of an entrepreneur are not fixed or immovable traits or characteristics, but can be modified over time and, therefore, developed and learned through experience [72]. Bird and Romanelli [73] identified a strong relationship between experience and the trajectory of founders of enterprises and the type of business entrepreneurship they generated. Moreover, Zahra et al. [74] affirm that the linking of potential social entrepreneurs with activities related to the social sector fosters the capacity to become more altruistic citizens and, therefore, a greater capacity to identify new social opportunities. In this sense, several researches coincide in demonstrating that prior social experience is a relevant aspect in the generation of social entrepreneurship projects [22, 42]. These findings can be explained on the basis that volunteer work [75] and service learning [25] enhance a sense of social responsibility among participants.

In this sense, in an exploratory study by Scheiber [29], conducted in Brazil, it is pointed out that participation in volunteer work can be one of the explanatory factors, even the essential motivation, for the subsequent implementation of social entrepreneurship projects. This can be explained because volunteers often obtain a more intimate awareness and understanding of those most affected by social problems through volunteer work. However, following Scheiber [29], it is necessary to develop quantitative studies in other territorial areas, aimed at other populations, especially younger people to explain this relationship. This is framed in the need to improve the explanatory factors of social entrepreneurship [67] and to consolidate a general theory for this field [76].

Under these premises, and aware of the role of universities as promoters of capabilities linked to entrepreneurship and more specifically to social entrepreneurship [69, 77] it is necessary to determine the antecedents of social entrepreneurship, comparing it to business entrepreneurship and the importance of having carried out previous volunteer activities.

## **4. Methodology**

A total of 208 university students participated in this research, 96 of them volunteers and 112 non-volunteers. Of the total sample, 67.1% were women and the

rest men. The mean age was 32.59 (SD = 15.05). **Table 1** shows a summary of the characteristics of the sample.

For this study, a questionnaire was developed that included 37 questions (see Appendix). The confidentiality of the data collected was guaranteed, as well as the anonymity of the participants. The questionnaire included the following sections:

1. *Adaptation of the Entrepreneurial Intention Questionnaire (EIQ)*. Developed by Moriano et al. [68], this instrument measures the entrepreneurial intention using the TPA of Ajzen [31]. The general wording of the questionnaire items is adapted by the way in which reference is made to start-up projects with social content, instead of a business one. The answers range from 1 (not interested/not at all / not, never) and 7 (totally interested/totally in agreement/yes, many times).

The questionnaire contains a first block of questions aimed at measuring personal attitude towards entrepreneurship, through two scales of seven items each, which gather the beliefs and assess the consequences of entrepreneurship. In the adaptation carried out for this research, an item has been included in the attitude block related to the desire to achieve social improvement, and another item to measure its assessment.

A second block of the questionnaire measures subjective norms, by means of two scales of three items each, which measure the normative beliefs and participants' motivation to adjust to these norms perceived by the influence of direct family, close friends, co-workers or colleagues.

The third block of the questionnaire includes the controllability scale, with 5 items, since two new items were included in relation to the questionnaire proposed by Moriano et al. [68]: “*I am ready to start a social project*” and “*I know how to develop a social project*”.

Finally, the fourth block of the questionnaire measures the entrepreneurial intention through 3 items “*Have you ever considered starting a social project?*”, “*Do you think that in the future you will create a social project?*”, and “*How likely do you think it is that you will create your own social project within five years?*”

2. *Other measures*. In the questionnaire, 12 items were included whose objectives were to identify the age and sex of participants, as well as their studies, experience as volunteers/intention to participate in volunteer activities.

Variable	Frequency	Percentage
Gender		
<i>Men</i>		32.9
<i>Women</i>		67.1
Experience of volunteering		
<i>Yes</i>	96	16.2
<i>No</i>	112	16.2
Educational level		
<i>Compulsory Education</i>	41	19.7
<i>Further education</i>	45	22
<i>University studies</i>	84	40.2
<i>Master degree or doctorate degree</i>	31	15

**Table 1.**  
Sample characteristics (N = 208).

This questionnaire was delivered to and completed by participants at a Conference on Solidarity organized by a medium-size European university and the Volunteer Office of the *Cabildo de Tenerife* (Island Government in Canary Island, Spain). This conference was attended by people who volunteered as well as non-volunteers.

## 5. Results

### 5.1 Descriptions, reliability and correlations between the variables of interest

First, with the sample as a whole, the mean scores and standard deviations of the dimensions were calculated. In addition, the reliability of each dimension was calculated through Cronbach's Alpha, and an analysis of the existing correlations between Entrepreneurial Intention, Social Entrepreneurship and the dimensions of the TPA model was carried out. **Table 2** presents a summary of the results obtained.

A moderately high correlation was observed between Entrepreneurial Intention and Social Entrepreneurship ( $r = .418$ ;  $p < .01$ ), which indicates that these are two independent constructs, although they are related. Social entrepreneurship showed a very high correlation with controllability ( $r = .706$ ,  $p < 0.01$ ) and personal attitude ( $r = .401$ ;  $p < 0.01$ ).

### 5.2 Comparison between volunteer and non-volunteer participants

To check if there are differences in the dimensions studied between voluntary and non-voluntary participants, comparisons of means were carried out, the results of which are presented in **Table 3**.

These results indicate that there are statistically significant differences between the groups of volunteers and non-volunteers in the intention to carry out social

	Mean (SD)	$\alpha$	1	2	3	4	5
1. Entrepreneurial Intention	4.57 (2.11)	—	—				
2. Social Entrepreneurship	3.96 (1.68)	.878	.418**	—			
3. Attitude	30.73 (8.97)	.828	.330**	.401**	—		
4. Subjective Norm	12.95 (5.04)	.819	.163*	.255**	.559**	—	
5. Controllability	3.68 (1.31)	.858	.375**	.706**	.437**	.160*	—

\*  $p < 0.05$ .

\*\*  $p < 0.01$ .

**Table 2.**  
 Matrix of correlations between the variables studied.

	Mean Volunteers	Mean Non-Volunteers	t (gl)	Sign.
Entrepreneurial Intention	4.50	4.62	-0.366 (171)	.715
Social Entrepreneurship	4.39	3.63	3.037 (172)	.003
Attitude	31.40	30.25	0.849 (177)	.397
Subjective Norm	12.80	13.07	-0.358 (171)	.721
Controllability	3.98	3.45	2.722 (172)	.007

**Table 3.**  
 T-tests for the variables of the TPA model and social entrepreneurship depending on experience or no experience of voluntary actions.

entrepreneurship, as well as in the perception of controllability. In both measures, the group of volunteers presents scores higher than that of non-volunteers.

### 5.3 Predictors of social entrepreneurship

To determine if similar or different predictive models are produced for the criteria of entrepreneurial intention and social entrepreneurship, a multiple linear regression analysis was carried out for each of these dimensions, including the prediction variables Attitude, Subjective norm and Controllability. The results obtained are presented in **Table 4**.

The results obtained show that the predictive capacity of the model is greater for social entrepreneurship, with 51% of the variance of the criterion variable explained, compared to entrepreneurial intention ( $R^2_{adj} = .160$ ). In the predictive model of entrepreneurial intention, Attitude and Controllability are statistically significant. Specifically, for each unit increase in Controllability, entrepreneurial intention increases 0.29, and for each unit increment in attitude, entrepreneurial intention increases by 0.20. When the regression model is applied to social entrepreneurship, the subjective norm and controllability are the two predictor variables that are statistically significant in the model. Specifically, for each unit increase in controllability, the intention of social entrepreneurship increases by 0.67, and for each unit increase in subjective norm, the intention of social entrepreneurship rises by 0.13.

Finally, in order to compare the groups of volunteers and non-volunteers, multiple linear regression analyzes were carried out separately for each group, for the social entrepreneurship criterion variable, including as predictor variables Attitude, Subjective norm and Controllability. The results obtained are presented in **Table 5**.

In the case of the volunteer sample, the predictive model explains 44% of the variance of the criterion variable. In this case, controllability and subjective norm are the variables with predictive power. Specifically, for each unit increase in controllability, Social Entrepreneurship increases by 0.49, and for each unit increase in subjective norm, there is a 0.28 increase in Social Entrepreneurship.

<i>Criterion: Entrepreneurial Intention (<math>R^2_{adj} = .160</math>)</i>			
	Regression Coefficient	t	p
Intercept	1.401	2.404	.017
Attitude	.203	2.180	.031
Subjective Norm	.004	0.050	.960
Controllability	.286	3.662	<.001
<i>Criterion: Social Entrepreneurship (<math>R^2_{adj} = .512</math>)</i>			
	Regression Coefficient	t	p
Intercept	.052	0.148	.883
Attitude	.039	0.544	.587
Subjective Norm	.126	1.943	.054
Controllability	.669	11.231	<.001

**Table 4.** Results of the regression analysis for the criterion variables entrepreneurial intention and social entrepreneurship.

<i>Group: Volunteers</i>			
	<b>Regression coefficient</b>	<b>t</b>	<b>p</b>
Intercept	.077	0.127	.899
Attitude	.102	0.942	.349
Subjective Norm	.283	2.820	.006
Controllability	.490	5.133	<.001
<i>Group: Non-Volunteers</i>			
	<b>Regression Coefficient</b>	<b>t</b>	<b>p</b>
Intercept	-.265	0.646	.520
Attitude	.015	0.159	.874
Subjective Norm	.005	0.056	.955
Controllability	.765	10.212	<.001

**Table 5.**  
*Results of the regression analysis for the criterion variable social entrepreneurship in volunteers and non-volunteers.*

## 6. Conclusions

This paper analyzes the possible relationship between entrepreneurial intention in projects of a social nature and participation in volunteer activities. From the results obtained some preliminary conclusions can be drawn that confirm the value of expanding our knowledge of social entrepreneurship and its explanatory factors, especially the role that volunteering plays.

On the one hand, the results reveal that entrepreneurship and social entrepreneurship are different dimensions which, although they are related, maintain a clear independence of each other. In this sense, it is noteworthy that experience as a volunteer increases the intention to carry out social entrepreneurship projects, but does not produce differential effects on entrepreneurial intention in general. This positive relation between volunteer work and social entrepreneurship confirms previous exploratory work, such as that of Sheiber [29] or Kaya et al. [21], emphasizing the importance of social lead user to recognize the social problems and to launch startups for providing solutions in a more efficient way than public sector institutions. It encourages further progress to analyze this relationship in other geographical areas and with other population samples.

Moreover, the sample highlights the predictive capacity of the dimensions studied in relation to social entrepreneurship. This allows us to conclude that the model of planned behavior [30, 31] constitutes a valid approach to social entrepreneurship, as is the case of regular entrepreneurship. Among these variables, for the group of volunteers, controllability and subjective norm are the most relevant. In the case of non-volunteers, perceived control over social entrepreneurship is the only explanatory variable. These data indicate that for volunteers, the opinion of family and friends regarding the intention to carry out social projects in order to consider social entrepreneurship is more important than for non-volunteers.

With regard to the comparative analysis between the volunteers and non-volunteers, it is observed that the experience as a volunteer seems to increase the desire to undertake projects of a social nature. In addition, the group of volunteers perceives a greater level of control over launching a social project, in comparison with people who have not taken part in voluntary actions. Possibly, this difference

in controllability is due to the knowledge accumulated through experience, related to the having worked with institutions and groups, etc., which ultimately translates into an increase in confidence.

The results are very useful for organizations that must work with generation Z intrapreneurs in order to face challenges they have to cope with, in the sense indicated by Singh Ghura [78]. It seems that promoting volunteer activities could aid to create the organizational supportive environment needed to facilitate an intrapreneurial culture in the organization and therefore to increase corporate entrepreneurship and product innovation [79].

From the point of view of entrepreneurial university education, it seems, therefore, that the promotion of volunteer activities, the dissemination of inspiring examples of people with experience as volunteers, among other actions, could constitute good methodological tools to promote social entrepreneurship, although not business entrepreneurship. Therefore, the results confirm the potential of the university as a promoter of capabilities linked to social entrepreneurship, as pointed out in some previous works like those by García-Morales et al. [19], Co and Cooper [69] or by Richomme-Huet and Freyman [77]. It also seems to confirm the suitability of the methodologies linked to service learning [2, 25] to increase the social entrepreneurship intention in the university educational context. Finally, it should be noted these social projects can serve university students not only as vehicles to produce social improvements in their environment, but also as tools for their own future labor insertion.

## Appendix: Adaptation of the entrepreneurial intention questionnaire

### 1st block: personal attitude

To what extent do you agree that starting a social project (non-governmental organization, non-profit association, volunteer ...) for you would mean:								
		Not at all		Moderately			Completely	
		1	2	3	4	5	6	7
Facing new challenges								
Creating employment for other people								
Achieving social improvement								
Being creative and innovative								
Having sufficient income								
Taking calculated risks								
Being independent (your own boss, making your own decisions)								
To what extent are the following aspects desirable for you, in your life in general?								
		Not at all		Moderately			Completely	
		1	2	3	4	5	6	7
Facing new challenges								
Creating employment for other people								

	To what extent are the following aspects desirable for you, in your life in general?						
	Not at all		Moderately			Completely	
	1	2	3	4	5	6	7
Achieving social improvement							
Being creative and innovative							
Having sufficient income							
Taking calculated risks							
Being independent (your own boss, making your own decisions)							

## 2nd block: subjective norms

	Think now of your closest family and friends. To what extent would they agree with you if you decided to start a social project (non-governmental organization, non-profit association, volunteer ...)?						
	Not at all		Moderately			Completely	
	1	2	3	4	5	6	7
My direct family (mother, father, siblings)							
My close friends							
My co-workers or colleagues							

	How much do you value the opinion of these people in this regard?						
	Not at all		Moderately			Completely	
	1	2	3	4	5	6	7
My direct family (mother, father, siblings)							
My close friends							
My co-workers or colleagues							

## 3rd block: controllability

	Please indicate to what extent you agree with the following statements:						
	Not at all		Moderately			Completely	
	1	2	3	4	5	6	7
If I wanted, I could easily start a social project							
I am ready to start a social project							
If I started a social project, I would have total control over the situation							
I know how to develop a social project							
There are few circumstances outside my control that would prevent me from developing a social project							

### 4th block: entrepreneurial intention

Indicate to what extent you agree with the following statements:							
	Not at all		Moderately			Completely	
	1	2	3	4	5	6	7
Have you ever considered starting a social project?							
Do you think that in the future you will create a social project?							
How likely do you think it is that you will create your own social project in five years?							

### 5th block: Demographic data

Gender	Age	Indicate if you are a:	If you are a university student specify the university degree you are studying
Man	1	years	University student 1
Woman	2		University staff (Admin or Teaching) 2
			Collaborator with some association 3
			Other 4

Do you have experience as a volunteer?	Yes	1	No	2	If yes, for how long?
					Less than 1 year 1
					Between 1 and 5 years 2
					More than 5 years 3
I have no experience but I would like to participate in volunteer activities					
I do not intend to participate in volunteer activities					



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## References

- [1] Arias Aranda, D., Bustinza Sánchez, O., Djundubaev R. (2016). “Efectos de los juegos de simulación de empresas y Gamificación en la actitud emprendedora en enseñanzas medias”. *Revista de Educación*, 37, enero-marzo, 2016, pp. 133-156
- [2] Ruiz-Rosa, I; Gutiérrez-Taño, D. and García-Rodríguez, F. J. (2021). Project-Based Learning as a tool to foster entrepreneurial competences. *Culture and Education*. doi: 10.1080/11356405.2021.1904657
- [3] Athayde, R. (2009). “Measuring enterprise potential in young people.” *Entrepreneurship: Theory & Practice*, 33 (2), pags. 481-500
- [4] Bae, T; Qian, S; Miao, C. y Fiet, J (2014): “The Relationship Between Entrepreneurship Education and Entrepreneurial Intentions: A Meta-Analytic Review”. *Entrepreneurship Theory & Practice*, Vol. 38, No. 2, 217–254.
- [5] Do Paço, A. M. F., Ferreira, J. M., Raposo, M., Rodrigues, R. G., & Dinis, A. (2011). “Behaviours and entrepreneurial intention: Empirical findings about secondary students”. *Journal of International Entrepreneurship*, 9(1), 20-38.
- [6] Fayolle, A. (2013). “Personal views on the future of entrepreneurship education”. *Entrepreneurship & Regional Development*, 25(7–8), 692-701.
- [7] García-Rodríguez, F. J; Gutiérrez-Taño, D & Ruiz-Rosa, I; (2019): Analysis of the Potential of Entrepreneurship Education in Young Children. *Entrepreneurship Research Journal*, Vol 9 (1), pp. <https://doi.org/10.1515/erj-2017-0064>
- [8] García-Rodríguez, F. J; Ruiz-Rosa, I; Gil Soto, E; Gutiérrez-Taño, D (2016): Promoting entrepreneurship education among university students: Design and evaluation of an intervention programme, *Cultura y Educación*, Vol 28 (3), pp. 565-600 <https://doi.org/10.1080/11356405.2016.1196897>
- [9] Martin, B. C., McNally, J. J., & Kay, M. J. (2013). “Examining the formation of human capital in entrepreneurship: A meta-analysis of entrepreneurship education outcomes”. *Journal of Business Venturing*, 28(2), 211-224
- [10] Peterman, N.E. y Kennedy, J. (2003). Enterprise education: Influencing students perceptions of entrepreneurship. *Entrepreneurship Theory and Practice*, 28, 129–144.
- [11] Souitaris, V; Zerbinati, F y Al-Laham, A. (2007). “Do entrepreneurship programmes raise entrepreneurial intention of science and engineering students? The effect of learning, inspiration and resources”. *Journal of Business Venturing*, 22(3), 566–591
- [12] Johansen, V., Clausen, T. H. 2011. “Promoting the entrepreneurs of tomorrow: Entrepreneurship education and start-up intentions among schoolchildren”. *International Journal of Entrepreneurship and Small Business* 13 (2), 208-219
- [13] Tsordia, Ch. y Papadimitriou, D. 2015. “The role of theory of planned behavior on entrepreneurial intention of greek business students”. *International Journal of Synergy and Research* 4(1), 23-37.
- [14] Liñán, F., Santos, F. J., Fernández, J. 2011. “The influence of perceptions on potential entrepreneurs”. *International Entrepreneurship and Management Journal* 7(3), 373-390
- [15] Ruiz, C. I., García, F., Delgado, N. 2014. “Condicionantes de la intención

emprededora en el alumnado universitario: un análisis desde la perspectiva de género”. *Revista de Estudios Empresariales* 2, 81 – 96.

[16] Wilson, F., Kickul, J., Marlino, D. 2007. “Gender, entrepreneurial self-efficacy, and entrepreneurial career intentions: Implications for entrepreneurship education”. *Entrepreneurship Theory and Practice*, 31(3), 387-406.

[17] Wu, S., Wu, L. 2008. “The impact of higher education on entrepreneurial intentions of university students in China”. *Journal of Small Business and Enterprise Development* 14(4), 752-774.

[18] Carlos Capella-Peris, Jesús Gil-Gómez, Manuel Martí-Puig & Paola Ruíz-Bernardo (2019) Development and Validation of a Scale to Assess Social Entrepreneurship Competency in Higher Education, *Journal of Social Entrepreneurship*, DOI: 10.1080/19420676.2018.1545686

[19] García-Morales, V. J., Martín-Rojas, R., & Garde-Sánchez, R. (2019). How to Encourage Social Entrepreneurship Action? Using Web 2.0 Technologies in Higher Education Institutions. *Journal of Business Ethics*. <https://doi.org/10.1007/s10551-019-04216-6>

[20] Kai Hockerts (2018) The Effect of Experiential Social Entrepreneurship Education on Intention Formation in Students, *Journal of Social Entrepreneurship*, 9:3, 234-256, DOI: 10.1080/19420676.2018.1498377

[21] Kaya, T; Erkut, B; Thierbach, N. (2019). Entrepreneurial Intentions of Business and Economics Students in Germany and Cyprus: A Cross-Cultural Comparison. *Sustainability* 11 (5) doi: 10.3390/su11051437

[22] Certo T. y Miller T. (2008). Social entrepreneurship: Key issues and concepts. *Business Horizons*, 51, 267-271

[23] Ko, W. W., Liu, G., Wan Yusoff, W. T., & Che Mat, C. R. (2019). Social Entrepreneurial Passion and Social Innovation Performance. *Nonprofit and Voluntary Sector Quarterly*, 48(4), pp. 759–783. <https://doi.org/10.1177/0899764019830243>

[24] Mayer, J., & Scheck, B. (2018). Social Investing: What Matters From the Perspective of Social Enterprises? *Nonprofit and Voluntary Sector Quarterly*, 47(3), 493–513. <https://doi.org/10.1177/0899764017749889>

[25] Astin, A.W., Vogelgesang, L.J., Ikeda, E.K., Yee, J. A. (2000). How Service Learning Affects Students. Higher Education Research Institute, University of California, Los Angeles.

[26] Batson D., Ahmad. N. y Tsang J. (2002). Four motives for community involvement. *Journal of Social Issues*, vol. 58, n° 3, pp. 429-445

[27] Martínez, N., Rubio, C & Fernández, A (2019): Social Entrepreneur: Same or Different from the Rest?, 30(3), pp 443–459. Doi: <https://doi.org/10.1007/s11266-018-00053-9>

[28] Prabhu, G. (1999). Social entrepreneurial leadership. *Career development international*, 4, 140-145

[29] Scheiber, L. (2015). How social entrepreneurs in the third sector learn from life experiences. *Voluntas*, doi: 10.1007/s11266-015-9597-8.

[30] Ajzen, I. (1987). “Attitudes, Traits & Actions: Dispositional prediction of behavior in personality and social psychology”. *Advances in Experimental Social Psychology* 1(20), 1-63.

[31] Ajzen, I. (1991): “The theory of planned behavior”. *Organizational Behavior and Human Decision Processes*, 50(2), 179-211.

- [32] Krueger, N. F., Reilly, M. D., Carsrud, A. L. 2000. "Competing models of entrepreneurial intentions". *Journal of Business Venturing* 15(5/6), 411-432.
- [33] Shook, C. L., Priem, R. L., McGee, J. E. 2003. "Venture creation and the enterprising individual: A review and synthesis". *Journal of Management* 29 (3), 379-399.
- [34] Kao R.W.Y., (1993). Defining entrepreneurship: past, present and?. *Creativity and Innovation Management*, vol. 2, n° 1
- [35] Guo, C, and Bielefeld, W (2015): *Social Entrepreneurship: An Evidence-Based Approach to Creating Social Value*, John Wiley & Sons, New Jersey
- [36] Addae, AE (2018). Pathways to sector selection: A conceptual framework for social enterprises. *Nonprofit Management and Leadership*; 28, pp. 349- 365. <https://doi.org/10.1002/nml.21297>
- [37] Chan, A., Ryan, S., & Quarter, J. (2017). Supported Social Enterprise: A Modified Social Welfare Organization. *Nonprofit and Voluntary Sector Quarterly*, 46(2), pp. 261-279. <https://doi.org/10.1177/0899764016655620>
- [38] Dees, JG. y Economy, P. (2001). *Social Entrepreneurship*. 1-17. *Enterprising Nonprofits. A toolkit for social entrepreneur* (Dees, JG., Emerson J. y Economy, E. eds). *Wiley Nonprofit Series*.
- [39] Peredo A.M. y Mclean, M. (2006). Social entrepreneurship: A critical review of the concept. *Journal of World Business*, 41, 56-65
- [40] Martin, R. y Osberg, S. (2007). *Social Entrepreneurship: The case for definition*. *Stanford social innovation review*, 5(1), 28-39.
- [41] Harding, R. (2004). *Social Enterprise: The New Economic Engine?*. *Business Strategy Review*, 15 (4), 39-43.
- [42] Austin, J., Stevenson, H. y Weiskillern, J. (2006). *Social and Commercial Entrepreneurship: Same, different or both?*. *Entrepreneurship Theory and Practice*, 30 (1), 1-22.
- [43] Leadbeater, C. (2007). *Social enterprise and social innovation: strategies for the next ten years*. A social enterprise think piece for the Office of Third Sector, November 2007
- [44] Mair J. y Martí I. (2006). *Social entrepreneurship research: A source of explanation, prediction, and delight*. *Journal of World Business*, 41, pp. 36-44
- [45] Sastre-Castillo, M.A.; Peris-Ortiz, M & Danvila-Del Valle, I (2015): What Is different about the profile of the social entrepreneur?. *Nonprofit Management & Leadership*, 25 (4), 349-369. doi: 10.1002/nml.21138
- [46] Van Slyke, D. M., and H. K. Newman. 2006. "Venture Philanthropy and Social Entrepreneurship in Community Redevelopment." *Nonprofit Management and Leadership* 16 (3): 345-368.
- [47] Guzman Vasques, A. y Trujillo Dávila, M.A. (2008). *Emprendimiento social –Revisión de literatura*. *Estudios Gerenciales*, vol 24, n° 109 (octubre-diciembre 2008) 105-125
- [48] Eikenberry A.M. y Kluver J. (2004). *The marketization of the Nonprofit Sector: Civil society at risk?*. *Public Administration Review*, March/April 2004, Vol. 64, No. 2, 132-140
- [49] Dorado, S. (2006). *Social entrepreneurial ventures: Different values so different process of creation, no?*. *Journal of Development Entrepreneurship*, vol. 11, n° 4, 319-343.

- [50] Kickul J y Lyons TS (2012): Understanding Social Entrepreneurship: The Relentless Pursuit of Mission in an Ever Changing World. New York, London: Routledge
- [51] Volkmann C, Tokarski, KO y Ernst K (2012) Background, Characteristics and Context of Social Entrepreneurship; in: Volkmann, C et al. (ed): *Social Entrepreneurship and Social Business: An Introduction and Discussion with Case Studies*, Wiesbaden etc.: Springer Gabler, pp. 3-30.
- [52] Bargsted M. (2013). El emprendimiento social desde una Mirada psicosocial. *Civilizar*, 13 (25), pp. 121-132.
- [53] Andersson, F. O. (2019). The Bumpy Road of Nonprofit Creation: An Examination of Start-Up Problems Encountered by Nonprofit Entrepreneurs. *Nonprofit and Voluntary Sector Quarterly*, 48(1), pp. 194–207. <https://doi.org/10.1177/0899764018785464>
- [54] Asarkaya, C, Keles Taysir, N (2019). Founder's background as a catalyst for social entrepreneurship. *Nonprofit Management and Leadership*. <https://doi.org/10.1002/nml.21353>
- [55] Grieco, C (2018). What do social entrepreneurs need to walk their talk? Understanding the attitude–behavior gap in social impact assessment practice. *Nonprofit Management and Leadership*; 29, pp. 105– 122. <https://doi.org/10.1002/nml.21310>
- [56] Urbano, D. y Ferri, E. (2010): Environmental factors and social entrepreneurship. *Documents de Treball*, n° 10/3. Universitat Autònoma de Barcelona.
- [57] Ajzen, I. (2001): “Nature and operation of attitudes”. *Annual Review of Psychology*, 52, 27-58.
- [58] Fishbein, M., y Ajzen, I. (1975). *Belief, attitude, intention and behaviour: An introduction to theory and research*. Addison-Wesley.
- [59] Krueger Jr., N. F., y Brazeal, D. V. (1994). “Entrepreneurial potential and potential entrepreneurs”. *Entrepreneurship Theory and Practice*, 18, 91-104.
- [60] Casrud, A.L. y Brännback, M. (2011). Entrepreneurial motivations: what do we still need to know?. *Journal of Small Business Management*, 49 (1), 9-26
- [61] North, D. C. (1990). Institutions, institutional change and economic performance. *Cambridge University Press*, New York.
- [62] North, D. C. (2005). Understanding the process of economic change. Princeton: Princeton University Press
- [63] Tan, W., Williams J. y Tan T (2006). Defining the “Social” in “Social Entrepreneurship”: Altruism and Entrepreneurship. *International Entrepreneurship and Mananagement Journal*, I, 353-365.
- [64] Urbano, D., Toledano, N. y Ribeiro Soriano, D. (2010). Analyzing Social Entrepreneurship from an Institutional Perspective: Evidence from Spain. *Journal of Social Entrepreneurship*, vol. 1, n° 1, pp. 54-69
- [65] Hemingway, C. (2005). Personal Values as a Catalyst for Corporate Social. Entrepreneurship. *Journal of Business Ethics*, 60 (3), 233-249
- [66] Åmo, B. W. (2014). Antecedents, prevalence and manifestations of social entrepreneurship. *International Journal of Entrepreneurial Venturing*, 6(2), 162-178.
- [67] Kachlami H.M. (2014): The Likely Determinants of Social

Entrepreneurship and Policy Implications. In: Lundström, A; Zhou, C; Friedrichs, Y. and Sundin, E. (eds): Social Entrepreneurship. Leveraging Economic, Political, and Cultural Dimensions. Springer, New York

[68] Moriano León, J.A., Gómez Jiménez, A. y Bohdan Roznowski, M.L. (2008). Validación de un cuestionario para medir la intención emprendedora: Una aplicación en España y Polonia. Método, teoría e investigación en psicología social, Morales Domínguez, F.J. Huici Casal, C., Gómez Jiménez, A. y Gaviria Stewart, E. Editorial Pearson Educación, pp. 101-122

[69] Co, J and Cooper, S. (2014): Developing Entrepreneurial Self- Efficacy and Intent: A Case of Social Entrepreneurship. In: Lundström, A; Zhou, C; Friedrichs, Y. and Sundin, E. (eds): Social Entrepreneurship. Leveraging Economic, Political, and Cultural Dimensions. Springer, New York

[70] Mair J., Noboa E. (2006) Social Entrepreneurship: How Intentions to Create a Social Venture are Formed. In: Mair J., Robinson J., Hockerts K. (eds) Social Entrepreneurship. Palgrave Macmillan, London

[71] Osorio, A. (2009). Insuficiencia de los constructores psicológicos en la educación del altruismo. Educación y Educadores, v. 13, n° 1, pp. 125-138

[72] Gibb, A. (1993). Enterprise Culture and Education: Understanding Enterprise Education and Its Links with Small Business, Entrepreneurship and Wider Educational Goals. *International Small Business Journal*, vol. 11 n°. 3, pp. 11-34

[73] Bird, C. y Romanelli, E. (Eds.) (2001). The local origins of new firms. In *The entrepreneurship dynamic: origins of entrepreneurship and the evolution of industries*. Stanford, CA: Stanford University Press

[74] Zahra, S., Rawhouser, H., Bhawe N., Neubaum D. and Hayton, J. (2008). Globalization of social entrepreneurship opportunities. *Strategic Entrepreneurship Journal*, vol. 2 (2), pp. 117-131.

[75] Komives, S., & Wagner, W. (2009). Leadership for a better world: Understanding the social model change of leadership development (2nd ed.). San Francisco: Jossey-Bass.

[76] Lundström, A and Zhou, Z (2014): Rethinking Social Entrepreneurship. In: Lundström, A; Zhou, C; Friedrichs, Y. and Sundin, E. (eds): Social Entrepreneurship. Leveraging Economic, Political, and Cultural Dimensions. Springer, New York

[77] Richomme-Huet, K. and de Freyman, J. (2014): What Sustainable Entrepreneurship Looks Like: An Exploratory Study from a Student Perspective. In: Lundström, A; Zhou, C; Friedrichs, Y. and Sundin, E. (eds): Social Entrepreneurship. Leveraging Economic, Political, and Cultural Dimensions. Springer, New York

[78] Singh Ghura, A. (2017). A Qualitative Exploration of the Challenges Organizations Face while Working with Generation Z Intrapreneurs. *Journal of Entrepreneurship and Innovation in Emerging Economies*, 3 (2), pp. 105–114. doi:10.1177/2393957517711306

[79] Erkut, B. (2021). Reconciling Corporate Entrepreneurship and Product Innovation: An Evolutionary Economic Overview. *Anemon Muş Alparslan Üniversitesi Sosyal Bilimler Dergisi*, 9 (2) , 519-528. doi: 10.18506/anemon.762870

# Bricolage and Growth Hacking: Two Smart Concepts of Creating a Business Lacking Resources

*Thomas Baaken, Liguang Liu and Lea Lapornik*

## Abstract

The chapter presents two smart concepts of creating a new business without or with only low budget. Thus, it applies particularly e.g., for either students, refugees and/or people from developing countries. “Bricolage” stands for a behaviour in which the actor solves problems using only available resources. Contrary to the resource-creating mentality, only the resources of the repertoire at hand are used. “Growth Hacking” as a new method, using digital approaches in particular, can achieve high sales in a short time. The relevance of data-driven marketing within the framework of a growth strategy. Working primarily with data is a promising strategy for companies that can effectively, efficiently and cost effectively using online tools or online-offline combinations to achieve their growth objectives. Thus, the two concepts are complementing each other by dedication to two different stages of a start-up process. Bricolage for creating the start-up and Growth Hacking for getting it successfully to the market and make it grow sustainably. The Chapter is describing the two concepts and their interdependence by offering a conceptual framework.

**Keywords:** Bricolage, Growth Hacking, Entrepreneurship of Students/Refugees/Developing Countries, Lacking Resources

## 1. Introduction

The creation of new companies poses various challenges for most people. However, some fractions face particularly difficult challenges in terms of resources: students, people in developing countries, and refugees.

Over the past years, the number of student entrepreneurs has been increasing [1]. In general, students are provided with a good framework as universities put much effort into supporting them. For example, they offer entrepreneurship programmes and courses or business incubators for entrepreneurs [1] and students can use university resources for little money [1]. However, the support students receive from their universities is not sufficient for founding a start-up and many barriers are faced all the same. Shambare [2] identifies four main barriers that student entrepreneurs are confronted with: lack of entrepreneurial support, lack of exposure to businesses, whereby lack of exposure and lack of entrepreneurial support and equivalent resources pose the most significant barriers. Bailetti [3] mentions two types of barriers: institutional and regional barriers. Student entrepreneurs often are not accepted by society and lack business experience and commercial skills. On the other hand, they face “regulatory, legal, administrative, employment, financial,

and partnership burdens” [3]. Sometimes the support of a business expert for receiving funding is required. The access to financial and network resources also presents a challenge as students do not have access to [3]. This is supported by a study conducted by Ruda, Martin, & Danko [4] who identified four clusters regarding the start-up barriers faced by students. In addition to the monetary constraints, they also mention student entrepreneurs have small networks.

Another group facing similar barriers is the group of entrepreneurs in developing countries. It is a common assumption that not much entrepreneurship exists in these countries, but this is not true. Entrepreneurship plays an important role as it helps developing countries to grow and leads to increased innovation and employment [5]. Nevertheless, entrepreneurship in developing countries is more difficult than in developed countries. Entrepreneurs in developing countries often are based in less wealthy locations. Besides, people in developing countries do not receive the same education as people in developed countries, which limits their capabilities to access financial resources and capital [5, 6]. Another barrier is the lack of knowledge about market conditions and requirements [5]. Often, the government even hinders entrepreneurial activities on purpose by setting up high entry barriers in the form of administrative fees as higher tax income can be generated off bigger enterprises [7]. As a consequence, entrepreneurs have to pay large sums for setting up their business or need to go through a very complex and time-consuming administrative process [7], which is very costly and, thus, hinders the establishment of new firms [6]. In comparison to developed countries, developing countries do not have a social security system as tax money is used to pay for essential public goods. Consequently, no public safety net is available, and families need to save and protect their money and even support other family members financially. This complicates investments in new businesses even more [7].

The third group that is examined is the group of refugee entrepreneurs. As the refugee population is continuously growing, the likelihood of refugee enterprises is very high [8]. Meister & Mauer [9] and Embiricos [8] provide a concise summary of the barriers refugee entrepreneurs are facing. Both authors attest refugees lack knowledge about the host country’s culture, language, and ways of doing business, therefore complicating their entrepreneurial aspirations. Resulting from their flight from another country, they do not possess big networks in the host country and often face discrimination by society and economy [8, 9]. Moreover, the insecurity about their asylum status and a denial of their asylum claims ruin all of the investments made [10]. Until this claim is granted by the authorities, it is difficult to get access to financial resources due to low creditworthiness [8, 9]. Labour market regulations and legal frameworks directed at asylum seekers make the foundation of a business a time-consuming matter, too [10]. Similar to entrepreneurs in developing countries, refugees save money to support their families, resulting in the limitation of financial resources to be used for founding a business [10].

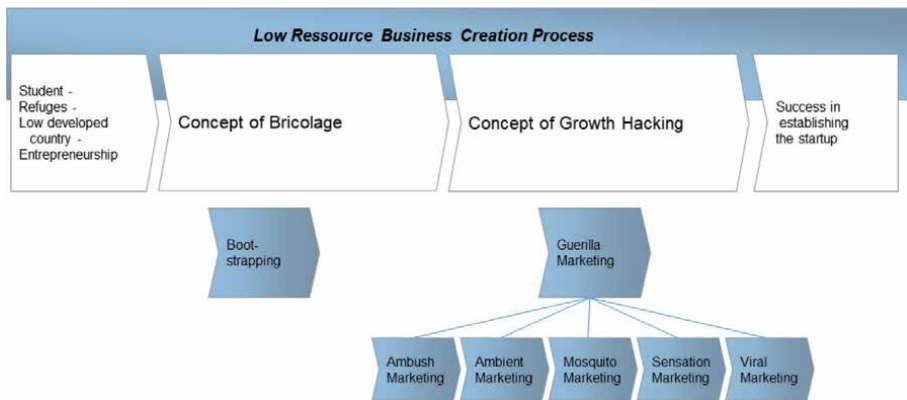
Even though the investigated groups seem to be very different from each other, it appears that they are similar with regards to the challenges faced when intending to found a business related to resources.

This leads to the research question, what can be done to detect tools and approaches for those groups to enable them to create a start-up without or low resources.

## **2. Conceptual framework**

The conceptual model on which the chapter is based (**Figure 1**) shows that the process of successfully founding a start-up and creating a business without





**Figure 1.**  
*Conceptual Framework.*

resources consists of two concepts according to two phases. In this paper, both concepts are presented, the concept of Bricolage and the concept of Growth Hacking, according to their deployment in those phases; addressing and including selected neighbourhood strategies, such as Bootstrapping and Guerrilla Marketing.

This framework is anticipated and based on an approach that values the momentum and initiative of the individual with regard to economic success higher than economic algorithms and regularities. Thus a renewed confirmation of Schumpeter's law [11, 12] according to the Austrian School of Economy. The Austrian School is a scientific view of economics that represents a heterodox doctrine in economics. The central logic is the idea of the evolutionary creation of knowledge by the individual, the entrepreneur and the consideration of the dynamic uncertainty of economic processes. The school emphasises the importance of individuals and their personal initiatives for economic processes (subjectivism). In addition, there is a negation of purely mathematical forms of representation of economic relationships (Lausanne School with its mathematically formulated models of neoclassicism) [13].

### 3. Bricolage

Bricolage, associated with its actor (i.e., bricoleur), serve as analogies to delineate a particular way of practical reasoning: "making do with current resources, and creating new forms and order from tools and materials at hand" [14]. Since its original conception, Bricolage has been extended to a range of different fields, such as entrepreneurship, innovation, organisation, and management. Contrary to the resource-creating mentality, Bricolage stands for a behaviour in which the bricoleur solves problems using only available means or resources. Bricolage is an activity where, contrary to the resource-creating mentality, only the resources of the repertoire are worked with making do with the means or resources at hand [15, 16].

In the field of entrepreneurship, Baker et al. [14] label "dependence on pre-existing contact networks -" as "network Bricolage" to analyse the founding process of new knowledge-based firms. The research finds that network Bricolage is prevalent in discovering founding opportunities and recruiting early members into organisations. Trying to understand how some entrepreneurs can "create something out of nothing in resource-constrained environments", Baker and Nelson [17] integrate a range of related concepts and build a process model of Bricolage and firm growth to understand entrepreneurial behaviour. Together with resource

seeking (continued attempt to acquire standard resources) and avoiding new challenges (by downsizing, disbanding, or remaining inert), entrepreneurial Bricolage is an alternative approach that organizations may adopt when facing with penurious environment. Bricolage is thus defined as “making do by applying combinations of the resources at hand to new problems and opportunities”. This means bricoleurs view resource limitations as both a problem and an opportunity. Such a notion of “the pursuit of opportunity through close regard to the resources at hand” is consistent with the claim that most entrepreneurial opportunities are more enacted than discovered [17].

In many cases, entrepreneurs draw on resources readily at hand, instead of searching broadly for, or planning for specific resources [14]. The entrepreneurship literature differentiates Bricolage and resource-seeking as two approaches and entrepreneurs make assessment by trading-off. They “engage in Bricolage at some-times and in some domains and reject Bricolage at other times or for other activities”. There are admixtures of Bricolage and resource-seeking in entrepreneurial practice. Entrepreneurs may engage in network resource-seeking for founding but rely heavily on network Bricolage afterwards, while there are other cases, in particular in start-up firms, that the founding begins with the Bricolage and successfully transmits to accelerated growth afterwards through resource seeking [18].

Bricolage is frequently used interchangeably with the term “improvisation” and some suggest taking Bricolage as an element or correlate of improvisation [19, 20] or treating improvisation as a precursor to Bricolage [21]. However, they are not the same construct. Improvisation “consists of assembling elements based on simple rules in order to yield an original composition [15], and it is “occurring when the design and execution of novel action converge” [17]. Improvisation highlights an organization’s rapid degree of adaptation to a turbulent environment, whereas Bricolage is the “mixture of the precomposed and the spontaneous” and as sense-making, Bricolage contributes to the capacity improvement for adaptation in destabilizing situations [15]. Improvisation framework complements the design precedes execution (DPE) approach, in which clear goals precede and are independent of action, while Bricolage may often occur during improvisation, but may occur in the implementation of pre-existing plans as well [14]. Baker et al. argue that improvisation implies Bricolage, but Bricolage does not imply improvisation [14], and they often “appear tightly linked empirically”, however, further studies are needed to understand their relationship [17].

Three approaches, i.e., causation, effectuation, and Bricolage, are most used as theoretical perspectives to describe the logic and behaviour underlying the entrepreneurial action or corporate venturing process [14, 22, 23]. Causation is a traditional, rational model of entrepreneurship, which identifies opportunities and makes plans before developing products or services. The causation processes “take a particular effect as given and focus on selecting between means to create that effect” [21]. Effectuation and Bricolage offer an alternative view to the causation approach, which posits the market provides opportunities, and the entrepreneur discovers them. Effectuation is positively associated with uncertainty, which generates more actions of control than prediction [16]. Effectuation processes “take a set of means as given and focus on selecting between possible effects that can be created with that set of means” [24]. Effectuation and Bricolage involve starting with a set of means. However, entrepreneurial Bricolage combines existing resources in creating solutions. Behaviours following a DPE model may also make use of Bricolage. Bricoleurs may use materials at hand both to see the possible results with current resources (effectuation) and to find out the means to meet the pre-existing goal through what is at hand (causation).

Bricolage deals with the question of how start-ups succeed in outperforming and even outgrowing their competitors despite limited resources and limited scope of networks. The mechanism of how Bricolage works is hardly comprehensible so far and worth addressing [22]. However, Bricolage is a process of continuous creation and utilization of practical knowledge and a process of exploitation of varied types of resources [15, 25]. A unique advantage for bricoleurs in resource-constrained start-ups is that they “enjoy great latitude in their processes of collecting and utilizing resources”, therefore, they can “find responses to the environmental constraints and dependencies they face” [15]. Despite its ability to overcome resource constraints, Bricolage can also lock the firm into a self-reinforcing cycle of activities that limit growth [23].

Bricolage depends on the existence of organizational memory, which allows an organization to maintain an inductively generated knowledge base on experiences [15]. With the link to resilience, Bricolage enables individuals and organizations to overcome the crisis by keeping flexibility in mobilizing available resources and taking trial and error tests [26]. Bricolage is viable in small firms since large organizations are more fragmented along professional or occupational boundaries [15]. It represents a particular process of engaging multiple actors and “gradually transform emerging (technological) paths to higher degrees of functionality [20]. Inside the Bricolage competencies, the improvisational competencies can impede the development of DPE competencies [14]. All these can be seen as positive points for start-ups with resource constraints. It is fair to say that the Bricolage approach is proving to be viable and potentially successful, especially for companies in problem situations, developing countries and under financial bottlenecks.

Both the resource-based view and the resource dependence theory highlight the new business’ need to acquire or have access to necessary resources to grow and survive [27]. However, many young and small firms confront the barriers of limited resources in finance, space, and skills. A similar approach of behavioural strategy to Bricolage is bootstrapping. Both approaches are resource management techniques that entrepreneurs use in resource-constrained environments [28] to find creative solutions to acquire necessary resources or exploit others underutilized resources [29]. Whereas Bricolage focuses on improvisation, bootstrapping focuses on a self-sustaining process that operates effectively without external/financial help [26]. Bootstrapping is often associated with financial resources since financial resources are often looked at as one of the most important resources [30]. Bootstrapping strategy is consistent with the pecking order theory which argues that due to the information asymmetry, firms prefer internal to external sources in managing resources [31].

Research deals with the categories of financial bootstrapping in small businesses. Four types of methods under bootstrapping are identified: (1) customer-related, (2) delaying payments, (3) owner-related financing and resource, and (4) joint-utilization of resources with other firms [32]. Winborg [33] further examines motives for using financial bootstrapping in new businesses and identified three groups of founders: cost-reducing bootstrappers, capital-constrained bootstrappers, and risk-reducing bootstrappers. The relative experience of the founder is the most significant influence for using bootstrapping. With the experience gained, the bootstrapping changes from initially focusing on reducing costs towards a proactive focus on reducing the risk in the business. By delineating the nature of bootstrapping strategy profiles, logics, and effects in small ventures, Malmstrom [28] identifies ‘quick-fix’, ‘proactive’, ‘efficient’ as three financial bootstrapping strategies for resource mobilization. ‘Quick-fix’ bootstrapping emphasizes temporary access to resources and prefer internally oriented activities for such purposes; ‘proactive

bootstrapping’ focuses on operational resource issues; and ‘efficient bootstrapping’ prefers activities that are externally and vertically oriented, up, or down in the value creation chain.

Bootstrapping embraces the idea of “meeting the need for resources without relying on long-term external finance from debt holders or new owners” [32]. Bootstrapping has its pros and cons. On the one hand, it is often the speedier and more convenient way to gain access to large amounts of capital (e.g., through credit cards). It promotes lean organisations and maximizes internal efficiencies with limited resource sets [30] and helps keep ownership of the business, control over direction, and gain a sense of accomplishment [34]. On the other hand, bootstrapping firms take risks of cash flow shortages without outside capital, limitation on visibility and growth potential, drifting away from top-level help, and constraint on growth and financial performance [34]. Empirical study shows that if firms were only engaging in bootstrapping out of necessity instead of a strategic decision, bootstrapping often causes negative financial effects [27]. Nevertheless, financial bootstrapping provides useful insights by highlighting the innovative financing routes for small ventures by “acquiring the use of resources without borrowing money or raising equity financing from traditional sources” [35].

## **4. Growth hacking**

### **4.1 Guide to a new smart concept**

In 2010, Ellis [36] created the term Growth Hacking in a start-up surrounding. Especially interesting for start-ups, as those often have fewer financial and human resources compared to established companies [37]. Furthermore, Growth Hacking is delimited from other marketing strategies particularly for start-ups with low or non-budget [38].

Growth Hacking describes intelligent, mostly free (online) marketing strategies, which primarily achieve companies to generate growth and – if products or software solutions are already available– to increase sales. Also, Growth Hacking is collecting direct feedback to build customer relations and use the feedback for direct improvement of the product and service. All channels and media available (at no or low cost), such as search engine optimisation, content marketing, social media, or viral marketing [39]. Only a few empirical research papers have been published on Growth Hacking, so empirical evidence is missing [40].

Thus, growth hacking, which is primarily data-based, is a practical promising strategy for new companies to effectively, efficiently and cost saving online tools or online-offline combinations to achieve ambitious objectives. Growth Hacking is also based on the ability of companies to collect relevant data and to analyse and store it in real time [41]. This also allows start-up companies to experiment and experience new marketing methods, whether or not they are successfully working.

The primary goal of start-ups is growth. Growth secures surviving and increase of value. Indicators for growth are measured by selected key figures, such as newsletter registrations, purchases, visitor click rates or customer referrals. Thus, Growth Hacking is a process of rapid experimentation across different channels and development at the same time, to find the most effective and efficient way that contributes directly to the growth of the company [42]. One reason for this is the fact that start-ups, the development of products and their features directly into the growth process, which has a significant impact on their competitive advantage [43].

The growing digital change impacts the company’s digital and social media marketing [44, 45]. The need for marketing to act more flexibly got even more

evident during the COVID-19 pandemic [46, 47]. To implement digital and social media marketing, start-ups, at first, need to provide the necessary knowledge and proactive agility. Shaltoni et al. [48] find that start-ups – and their stakeholders – are willing to engage if they perceive a greater benefit and compatibility with the corporate culture. Sun et al. [49] identifies further aspects that impact the willingness to integrate big data in a company “relative advantage, technological competence, technology resources, management support, competitive pressure, and regulatory environment.”

The advantages are addressing a wide range of customers, customer engagement and the possibility of specific placement targeting [44]. Neslin et al. [50] identifies for start-ups five challenges in customer channel management: data integration, understanding customer behaviour, channel evaluation, allocating resources across channels, and coordinating channel strategies. Also, in a report by McKinsey, the authors predict that the success of the company marketing during the unpredictable COVID-19 crisis will highly depend on “how effectively they can test, learn, and adapt” [51]. The process which could support handling the opportunity is Growth Hacking.

Growth Hacking is a marketing strategy [52] that aims to increase growth by adapting digital marketing through testing and analysing, in repetitive cycles. Ellis and Brown [36] refer mainly to such as Dropbox, Uber, Instagram, and Facebook. Furthermore, those companies are offering software or artificial intelligence-related services.

But is Growth Hacking also applicable to companies offering physical products, as they cannot adopt their product as fast as software providers can?

In physical product selling markets the relationship between sellers and buyers is characterised as closer [53]. Furthermore, the focus is more on long-lasting relationships to reduce the risk [54]. Thus, relationship value leads to trust, satisfaction, and commitment, which result in loyalty [55]. Product companies need to provide more detailed information, as usually, buyers compare products in more detail [53]. Therefore, Habibi et al. [56] conclude that for products, a greater variety of communication channels and messages are needed. On the one hand, Gustafson et al. [57] relate the communication process of digital marketing, the diffusion, the transmission of information, conveyance as one relevant aspect. On the other hand, the researchers name the convergence process, which creates shared understanding and knowledge in the buying company [57].

Digital content marketing can enhance information flow and the customers’ trust [58]. Furthermore, perceived information quality influences customer loyalty [59]. Social selling is here to name as one opportunity, promotion via social media platforms [60]. Järvinen et al. [61] list several social media tools for start-up companies: blogs, Facebook, Flickr, discussion forums, Twitter, YouTube, webinars. As research has shown, the use of professional networks such as LinkedIn is particularly suitable, as well as Facebook [62]. Furthermore, buyers increase the relevance of digital content marketing; providing information in a journalistic format for the customer [58]. Moore et al. [62] find that salespeople use “social bookmarking, and presentation sharing storage sites” and “relationship-oriented social media significantly more often for prospecting, handling objections, and follow-up and after-sales service.” Firms also use e-mail marketing and newsletters [61]. Among other things, Growth Hacking can help to address and better coordinate these challenges by agility.

Agility marketing focuses on detecting and understanding changes repetitively and regularly, and responds fast to those changes thereafter [47]. Agility marketing consists of sensemaking, iteration, marketing decisions and speed. Leadership, employees, organisational and team factors influence the performance.

Kalaiganam et al. [44] point out that reacting, however, deciding not to do so, is part of agile marketing. Homburg et al. [63] also talk about agile marketing in terms of “simplified structures and processes, fast decision making, and trial and error learning.”

Lean start-up describes an iterative process to develop and improve a product or process through the loop build-measure-learn [37]. The objective is to run the loop fast and often [37]. The central aspects of this methodology are learning from failures and mitigate invested resources [37, 64].

In their paper, Herttua et al. [52] differentiate Growth Hacking from viral marketing, guerrilla marketing and traditional marketing. For them, the difference to traditional marketing is that IT knowledge is necessary, as well as that it is not about shocking people as guerrilla marketing could intent and different from viral marketing, it focuses on people who share knowledge and not just information [52].

## **4.2 Neighborhood strategies**

Whereas Growth Hacking can be combined and complemented with other low budget strategies, guerrilla marketing is a strategy with which start-ups design unusual marketing measures to stand out from the mass of advertising messages. It often involves offensive, creative, and unique advertising campaigns that appeal even to those who do not actually identify with the product or service or do not react to advertising due to sensory overload. Guerrilla marketing aims to achieve a surprise effect on large groups of people with a small budget and effort. Originally, the word comes from military operations and describes a tactic in warfare in which small, independently operating combat units operate covertly in the enemy’s hinterland and rely on the surprise effect on the opponent. The primary goal of such guerrilla tactics is to confuse the opponent with the help of the surprise effect and to strike in a targeted manner in order to then weaken him.

With guerrilla marketing, it is possible to address a very large part of one’s own target group, but beyond that, to create a sensation. Guerrilla marketing is not mass advertising. The more precisely the target group has been defined in advance and the smaller it is, the more effectively guerrilla marketing can be used. Like every marketing measure, guerrilla marketing also tries to trigger a reaction in the target group and encourage them to take action.

Guerrilla marketing has a variety of instruments at its disposal with which to convey its advertising message. Guerrilla marketing is known for being controversial and occasionally crossing boundaries [65, 66].

These boundaries need to be weighed and exploited in a targeted way. Guerrilla marketing works best when the advertising campaign is so far unique and appears unexpected and surprising for the target groups and the competition.

- **Ambient marketing:** Ambient marketing tries to surprisingly change the living environment of the target group. Frequently places or public spaces are fundamentally changed to attract attention. Public transport stops, airports or highly visible house walls are particularly suitable [67].
- **Ambush marketing:** Ambush marketing uses current topics in the media world and ties with them. This increases the relevance of the advertising and automatically generates more attention among the target group. If, for example, something negative about a company is revealed in the newspapers, the competitors could use this to their advantage [68].

- **Buzz marketing:** Similar to promotional marketing, buzz marketing is about providing samples of one's products or services among the target group. The goal is to get the product in people's minds, get them to interact and share it with others on social media [69].
- **Mosquito marketing:** Smaller companies often lack the necessary level of awareness to apply advertising measures as effectively as possible. For example, weaknesses in the competition are identified, which are exploited to one's own advantage through differentiation. In this way, unique selling points or special features that stand out from the competition are highlighted [70].
- **Sensation marketing:** As the name already suggests, sensation marketing tries to achieve a "wow effect" with the target group by attracting attention with spectacular advertising campaigns. Part of this marketing measure is to actively involve the audience, which is possible in the form of a spontaneous show, an event, or an installation at a specific location [66].
- **Viral marketing:** In viral marketing, one specifically uses the possibilities of spreading one's advertising message among customers through word of mouth. Social media in particular play an important role here, as the advertising messages can be spread very quickly and effectively by every possible person [71].
- **Linkbait:** This is a special form of viral marketing that aims to generate backlinks.

Guerrilla marketing offers some advantages that speak for itself: low costs, enormous attention, quick impact, and a large reach both in the masses and specifically in the target group. One problem that can arise with guerrilla marketing is that the impact and spread of the advertising can only be influenced to a limited extent once it has been circulated. Since guerrilla marketing often specifically uses controversial or even offensive content, there is a risk of negative reception of the marketing measures.

According to Conway and Hemphill [72], Growth Hacking and agile marketing are much aligned. Growth Hacking adopts "the continuous cycle of improvement and the rapid iterative approach" and focuses on customer and revenue growth [36]. Thus, Herzberger and Jenny [73] regard Growth Hacking as an evolution rather than an innovation. After this classification and delimitation, the process of Growth Hacking is described in more detail in the following.

### **4.3 Growth hacking framework**

Growth Hacking is a marketing technique to aim customer growth cost-efficiently through creativity, marketing techniques, data analysis and coding [36, 74]. Even though Ellis and Brown [36] define Growth Hacking, it is noted in the literature that a uniform definition is difficult to grasp [52, 72, 75, 76]. Analysing the existing data of customers and conducting surveys or interviews help get more insights to potential segment customers to figure out growth potential [36]. Analysing supports and detecting key customer trends can protect from misleading posts [77]. Therefore, tools, software and AI assist in evaluating the test [74].

The first step is about collecting ideas for hacks in an open-minded surrounding [36] and those need to be prioritised. Ellis and Brown [36] propose using the Impact, Confidence, and Ease of implementation (ICE) score system they developed. The following step is testing the preferred ideas. A/B tests can serve as

a means of testing [52]. Furthermore, they propose conducting several tests a week and increasing the number of tests by time to improve results [36, 78]. After the test phase, the cycle restarts by analysing the results of the test.

Herzberger and Jenny [73], Bohnsack and Liesner [75] and Lennarz [74] propose a modified cycle. The Growth Hacking framework consists of three components, with their interaction or, in other words, their simultaneous application leading to Growth Hacking. The three components are (digital) marketing techniques, data analysis and testing, and coding and automation [74–76]. Conway and Hemphill [72] adapt the Growth Hacking framework by adding the product-fit step before the cycle. For them, the first step is to check the product-market fit and then, in the second step, to start with Growth Hacking. Ellis and Brown [36] also mention the product/market fit as a prerequisite to start Growth Hacking but do not integrate it as an element in their cycle. The idea of having a minimum viable product originates from the lean start-up. An initial product version enables gaining more information about customer needs. Then, those support developing the product and its promotion further [79]. A second prerequisite placed by Conway and Hemphill [72] before the cycle is, as already mentioned by Ellis and Brown [36], a multidisciplinary team with various skills [72]. Wahlandt and Heidel [80] propose for application in start-ups to divide Growth Hacking into three steps: development, implementation, and penetration.

Growth Hacking aims to increase growth by hacking which relates to creative ideas testing and adapting [42, 74]. To grow a company and its value, three customer groups are key: retaining customers, developing existing customers and acquiring new customers [81]. Hence balancing new and existing customers is necessary to secure financial performance [82]. Supporting the customer journey with a mixed team of sales and marketing representatives increases sales and customer loyalty [83]. So, it is relevant to follow the customer on the whole customer journey with Growth Hacking [36]. Big data provides new opportunities for companies along the customer journey. Five steps form the customer experience funnel: acquisition, activation, retention, referral, revenue. Acquisition, activation (developing) and retention were already mentioned above. Referral means a (potential) customer recommends the product to others [84]. Monetising, buying the product or, for example, a free download represents the fifth step: revenue [84]. Bohnsack and Liesner [75] identify 34 patterns for the customer journey that could facilitate the execution of Growth Hacking in a company. For example, for the activation phase, they propose using single sign-on or dynamic pricing for the revenue phase [75]. The growth of the customer base is also relevant for B2B companies [80].

According to Bussgang and Benbarak [85], in line with Herzberger and Jenny [73] Growth Hacking concerns owned (i.e., company website), paid (i.e., SEA) and earned media (i.e., likes on social media) as well as the product itself [36]. Different digital channels can serve for Growth Hacking. Ellis and Brown [36] classify them as viral/word-of-mouth (i.e., social media), organic (i.e., company website) and paid (i.e., SEA). Each channel has different opportunities and risks; besides, various efforts and inputs are necessary for the respective channel [80]. Gustafson et al. [57] point out that the right message and the right platform influence the speed and the quality of information sharing. Furthermore, the authors state besides the sources of information, for the buyer, the technique to gather and transform information into knowledge is relevant [57].

## **5. Conclusion, limitations, and further research**

New and innovative concepts like Bricolage and Growth Hacking are increasingly finding their way into society. To survive and sometimes prosper under



resource-constrained environments, and benefit from digitalisation and its associated opportunities, Bricolage and Growth Hacking offer the possibility to generate company growth. Bricolage provides a behavioural strategy that businesses can practice creativity to find solutions even under penurious environments.

The creation of new companies poses various challenges especially for the fractions who are short of resources, such as students, people in developing countries, and refugees.

Correspondingly, businesses with strong Bricolage capabilities in making use of inputs at hand can help firms explore and exploit new opportunities and win advantages in competitive markets. As digitalisation is predicted to grow, Growth Hacking provides the opportunity to improve performance by testing, analysing, and adapting [45]. The performance of a variety of digital marketing instruments applied by start-ups can be improved to generate growth, which is of high relevance for start-up companies [80].

Certain limitations restricted the study. As the topic of Growth Hacking is very current, only a limited amount of appropriate literature is available. The term was appeared in 2010 [36]. The research published since then is limited to small in comparison to other topics. So far, just a few research papers are published on growth hacking [40]. Due to the lack, this work has often drawn on other sources than on empirical research papers. Concluding more research on the topic is necessary to be able to make reliable statements on the quality of the model.

This paper proposes a two-phase conceptual model that embraces the business creation processes and marketing strategies. It seems that the two phases are separated and the processes are continuous, however, due to today's dynamic, it is no longer entirely possible to separate the phases from each other, as they do not necessarily follow one another but shift, overlap and repeat during the creation of a new company. However, to depict this reality would have been too complex for this paper and needs further research. Notably, the application of bricolage and its linkage with growth hacking, as proposed in the framework, is not generalizable to all entrepreneurial endeavours under resource-constrained conditions. Also, for this purpose, pure literature research is not the most appropriate method. It would be advisable to conduct qualitative research or experiments (e.g., empirical case studies) to explore the topic in antecedents of acceptance or scepticism.

For future research, the concepts should be reviewed and aligned to current practices. There is an opportunity for future research to select sample cases and conduct longitudinal studies to examine processual features of entrepreneurial dynamics and capture the wide variability across start-ups. Furthermore, the subject is highly complex, and more applications should be considered than possible within the paper's scope. There is a need for a deeper understanding of low resource company creation and development to evaluate the success. For future research, it would also be interesting to investigate how growth hacking through the internet influences the decision making and the buying time, if the fast accessibility decreases the decision time or whether the amount of information and the time to evaluate those extend the decision time.

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## References

- [1] Politis, D., Winborg, J., & Dahlstrand, Å. L. Exploring the resource logic of student entrepreneurs. *ISBJ*. 2011 Jan 07; 30(6): 659-683. Available from: <https://journals.sagepub.com/doi/abs/10.1177/0266242610383445> DOI: 10.1177/0266242610383445
- [2] Shambare, R. Barriers to Student Entrepreneurship in South Africa. *JEBS*. 2013 Jul; 5(7): 449-459. Available from: <https://ojs.amhinternational.com/index.php/jebs/article/view/419> DOI: 10.22610/jebs.v5i7.410
- [3] Bailetti, T. Fostering Student Entrepreneurship and University Spinoff Companies. *TIM*. 2011 Oct; 1(1): 7-12. Available from: <https://timreview.ca/article/485> DOI: 10.22215/timreview/485
- [4] Ruda, W., Martin, T. A., & Danko, B. Target Group-Specific Design of Student Entrepreneurship Support - A German Example Focusing on Start-Up Motives and Barriers. *APH*. 2009; 6(3): 5-22
- [5] Ratten, V. Encouraging collaborative entrepreneurship in developing countries: the current challenges and a research agenda. *JEEE*. 2014 Aug; 6(3): 298-308. Available from: <https://www.emerald.com/insight/content/doi/10.1108/JEEE-05-2014-0015/full/html> DOI: 10.1108/JEEE-05-2014-0015
- [6] Desai, S. Measuring entrepreneurship in developing countries. *Wider Research Paper No. 2009/10*. 2009. Available from: <https://www.econstor.eu/handle/10419/45048>
- [7] Auriol, E. Barriers to formal entrepreneurship in developing countries. Available from: [https://openknowledge.worldbank.org/bitstream/handle/10986/16364/WDR14\\_bp\\_Barriers\\_to\\_formal\\_entrepreneurship\\_Auriol.pdf?sequence=1](https://openknowledge.worldbank.org/bitstream/handle/10986/16364/WDR14_bp_Barriers_to_formal_entrepreneurship_Auriol.pdf?sequence=1)
- [8] Embiricos, A. From Refugee to Entrepreneur? Challenges to Refugee Self-reliance in Berlin, Germany. *JRS*. 2020 Mar; 33(1); 245-267. Available from: [https://www.researchgate.net/publication/344714426\\_From\\_Refugee\\_to\\_Entrepreneur\\_Challenges\\_to\\_Refugee\\_Self-reliance\\_in\\_Berlin\\_Germany](https://www.researchgate.net/publication/344714426_From_Refugee_to_Entrepreneur_Challenges_to_Refugee_Self-reliance_in_Berlin_Germany) DOI: 10.1093/jrs/fez073
- [9] Meister, A. D., & Mauer, R. Understanding refugee entrepreneurship incubation – an embeddedness perspective. *IJEER*. 2018 Nov; 25(5): 1065-1092. Available from: <https://www.emerald.com/insight/content/doi/10.1108/IJEER-02-2018-0108/full/html> DOI: 10.1108/IJEER-02-2018-0108
- [10] Desai, S., Naudé, W., & Stel, N. Refugee entrepreneurship: context and directions for future research. *SBEJ*. 2020 Mar; 56(3): 933-945. Available from: <https://link.springer.com/article/10.1007/s11187-019-00310-1> DOI: 10.1007/s11187-019-00310-1
- [11] Campagnolo, G. Criticisms of classical political economy: Menger, Austrian economics and the German historical school. London: Routledge; 2013.
- [12] Hagedoorn J. Innovation and entrepreneurship: Schumpeter revisited. *ICC*. 1996 Sep 01;5(3):883-896.
- [13] Whitman, G. Austrian behavioral economics. *JIE*. 2021 Feb;1-18.
- [14] Baker, T., Miner, A. and Eesley, D. Improvising firms: bricolage, account giving and improvisational competencies in the founding process. *RP*. 2003 Feb;32(2): 255-276.
- [15] Duymedjian, R., and Rüling, C. C. Towards a foundation of bricolage in organization and management theory. *OS*. 2010 Mar;31(2):133-151.

- [16] Scazziota, V. V., Andreassi, T., Serra, F. A. R., and Guerrazzi, L. Expanding knowledge frontiers in entrepreneurship: examining bricolage and effectuation. *IJEER*. 2020 Jun;26(5):1043-1065.
- [17] Baker, T. and Nelson, R. Creating something from nothing: resource construction through entrepreneurial bricolage. *ASQ*. 2005 Sep;50(3):329-366.
- [18] Hite, J.M., Hesterly, W.S. The evolution of firm networks: from emergence to early growth of the firm. *SMJ*. 2001 Mar;22(3):275-286.
- [19] Weick, K.E. The collapse of sensemaking in organizations: the Mann Gulch disaster. *ASQ*. 1993;38(4):628-652.
- [20] Garud, R., and Karnøe, P. Bricolage versus breakthrough: Distributed and embedded agency in technology entrepreneurship. *RP*. 2003 Feb;32(2):277-300.
- [21] Miner, A.S., Bassoff, P., and Moorman, C. Organizational improvisation and learning: a field study. *ASQ*. 2001 Jun;46(2):304-337.
- [22] Baaken, T., Alfert, C., and Kliewe, T. Corporate venturing—a new way of creating a company's future. *OES*. 2020 Mar;99(1):3-21.
- [23] Fisher, G. Effectuation, causation, and bricolage: A behavioral comparison of emerging theories in entrepreneurship research. *ET&P*. 2012 Sep;36(5):1019-1051.
- [24] Sarasvathy, S.D. ). Causation and effectuation: toward a theoretical shift from economic inevitability to entrepreneurial contingency. *AMR*. 2001 Apr;26(2):243-263.
- [25] Kliewe, T., Marquardt, P., and Baaken, T. Leveraging organizational resources by Creative Coupling: An evaluation of methods for intellectual asset identification. *JKG*. 2009 Jan;2(2):1-23.
- [26] Coutu, Diane L. How resilience works. *HBR*. 2002 May;80(5):46-51.
- [27] Ebben, J.J. Bootstrapping and the financial condition of small firms. *IJEER*. 2009 Jun;15(4):346-363.
- [28] Malmstrom, M. Typologies of bootstrap financing behavior in small ventures. *VC*. 2014 Jan;16(1):27-50.
- [29] Varughese, A., and Metilda, R. M. Resource bootstrapping and bricolage: A reflex to scarcity and uncertainty: A case of Indian informal grocery retailers. *MEJSR*. 2017 Mar; 25(3):666-671.
- [30] Salimath,, M. and Jones., R. Scientific entrepreneurial management: bricolage, bootstrapping, and the quest for efficiencies. *JBM*. 2012 Jan;17(1):85-103.
- [31] Myers, S. C. and N. S. Majluf, Corporate financing and investment decisions when firms have information that investors do not have. *JFE*. 1984 Jul;13(2):187-221.
- [32] Winborg, J., and Landstrom., H. Financial bootstrapping in small businesses: examining small business managers' resource acquisition behaviors. *JBV*. 2001 May;16(3):235-254.
- [33] Winborg, J. Use of financial bootstrapping in new businesses: a question of last resort?. *VC*. 2009 Jan;11(1):71-83.
- [34] Forbes [Internet]. New York City NYC: Cremades, A.; 2019 Jan 13. The Pros And Cons Of Bootstrapping Startups. 2019 Jan. 13 [cited 2021 May 15]. Available from: <https://www.forbes.com/sites/alejandrocremades/2019/01/13/the-pros-and-cons-of-bootstrapping-startups/?sh=45a4ea4d273d>

- [35] Zwane, B.K., and Nyide, C. J. Financial bootstrapping and the small business sector in a developing economy. *COC*. 2016 Oct;14(1): 433-442.
- [36] Ellis, S., & Brown, M. Hacking growth: How today's fastest-growing companies drive breakout success [Internet]. New York: Currency; 2017 [cited 2021 May 21]. 320. Available from: [https://books.google.de/books/about/Hacking\\_Growth.html?id=WMI8DgAAQBAJ&redir\\_esc=y](https://books.google.de/books/about/Hacking_Growth.html?id=WMI8DgAAQBAJ&redir_esc=y)
- [37] Ries, E. *Lean Startup: Schnell, risikolos und erfolgreich Unternehmen gründen*. 7th ed. Germany: Redline; 2020. 200 p.
- [38] Kraus, S., Harms, R., & Fink, M. Entrepreneurial marketing: moving beyond marketing in new ventures. *IJEIM*. 2010 Dec;11(1):19-34.
- [39] Quicksprout [Internet]. New York: Patel, N., & Taylor, B.; 2019. *The Definitive Guide to Growth Hacking*; 2019 Feb 27 [cited 2021 May 16]; [about 20 screens]. Available from: <https://www.quicksprout.com/growth-hacking/>
- [40] Kemell, K.-K., Feshchenko, P., Himmanen, J., Hossain, A., Jameel, F., Puca, R. L., Vitikainen, T., Kultanen, J., Risku, J., Impiö, J., Sorvisto, A., & Abrahamsson, P. *Software Startup Education: Gamifying Growth Hacking*. In: A. Nguyen-Duc, J. Münch, R. Prikladnicki, X. Wang, & P. Abrahamsson, editors. *Fundamentals of Software Startups* [Internet]. Estonia: Springer International Publishing; 2019 [cited 2021 May 17]. p. 269-277. Available from: [https://doi.org/10.1007/978-3-030-35983-6\\_16](https://doi.org/10.1007/978-3-030-35983-6_16)
- [41] Du, R. Y., Netzer, O., Schweidel, D. A., & Mitra, D. Capturing Marketing Information to Fuel Growth. *JM* [Internet]. 2020 Nov [cited 2021 may 20];85(1):163-183. Available from: <https://doi.org/10.1177/0022242920969198>
- [42] Mintert, S. Schaffen Start-ups die Marktforschung ab? In: Keller B., Klein HW., Wirth T., editors. *Qualität und Data Science in der Marktforschung* [Internet]. Wiesbaden: Springer; 2018 [cited 2021 May 17]. p. 197-216. Available from: [https://doi.org/10.1007/978-3-658-19660-8\\_13](https://doi.org/10.1007/978-3-658-19660-8_13)
- [43] Bowden, S. *Growth Hacking: Viral Online Marketing - build a successful business*. [Internet]. München: BookRix. Available from: <https://www.goodreads.com/book/show/44797147-growth-hacking>
- [44] Dwivedi, Y. K., Ismagilova, E., Hughes, D. L., Carlson, J., Filieri, R., Jacobson, J., et al. Setting the future of digital and social media marketing research: Perspectives and research propositions. *IJIM* [Internet]. 2020 Jul [cited 2021 May 19];102168. Available from: <https://doi.org/10.1016/j.ijinfomgt.2020.102168>
- [45] Pandey, N., Nayal, P., & Rathore, A. S. Digital marketing for B2B organizations: structured literature review and future research directions. *JBIM* [Internet]. 2020 Mar [cited 2021 May 17]; 35(7):1191-1204. Available from: <https://doi.org/10.1108/JBIM-06-2019-0283>
- [46] Cankurtaran, P., & Beverland, M. B. Using design thinking to respond to crises: B2B lessons from the 2020 COVID-19 pandemic. *IMM* [Internet]. 2020 Jul [cited 2021 may 18] 88:255-260. Available from: <https://doi.org/10.1016/j.indmarman.2020.05.030>
- [47] Kalaiganam, K., Tuli, K. R., Kushwaha, T., Lee, L., & Gal, D. *Marketing Agility: The Concept, Antecedents, and a Research Agenda*. *JM* [Internet]. 2020 Aug [cited 2021 May 16];85(1):35-58. Available from: <https://doi.org/10.1177/0022242920952760>
- [48] Shaltoni, A. M., West, D., Alnawas, I., & Shatnawi, T. *Electronic marketing*

orientation in the Small and Medium-sized Enterprises context. *EBR* [Internet]. 2018 Mar [cited 2021 May 17];30(3):272-284. Available from: <https://doi.org/10.1108/EBR-02-2017-0034>

[49] Sun, S., Hall, D. J., & Cegielski, C. G. Organizational intention to adopt big data in the B2B context: An integrated view. *IMM* [Internet]. 2019 Sep [cited 2021 May 16];86(3):109-121. Available from: <https://doi.org/10.1016/j.indmarman.2019.09.003>

[50] Neslin, S. A., Grewal, D., Leghorn, R., Shankar, V., Teerling, M. L., Thomas, J. S., et al. Challenges and Opportunities in Multichannel Customer Management. *JSR* [Internet]. 2006 Nov [cited 2021 May 17]; 9(2):95-112. Available from: <https://doi.org/10.1177/1094670506293559>

[51] Mckinsey & Company [Internet]. New York, USA: Boudet, J., Gordon, J., Gregg, B., Perrey, J., & Robinson, K.; 2020. How marketing leaders can both manage the coronavirus crisis and plan for the future. [cited 2021 May 15]. Available from: <https://www.mckinsey.com/business-functions/marketing-and-sales/our-insights/how-marketing-leaders-can-both-manage-the-coronavirus-crisis-and-plan-for-the-future>

[52] Herttua, T., Jakob, E., Nave, S., Gupta, R., & Zylka, M. P. Growth Hacking: Exploring the Meaning of an Internet-Born Digital Marketing Buzzword. In: M. P. Zylka, H. Fuehres, editors. *Designing Networks for Innovation and Improvisation* [Internet]. Switzerland: Springer International Publishing; 2016. [cited 2021 May 20]. p. 151-161. Available from: [https://doi.org/10.1007/978-3-319-42697-6\\_15](https://doi.org/10.1007/978-3-319-42697-6_15)

[53] Jussila, J. J., Kärkkäinen, H., & Aramo-Immonen, H. Social media

utilization in business-to-business relationships of technology industry firms. *CHB* [Internet]. 2014 Jan [cited 2021 May 15];30:606-613. Available from: <https://doi.org/10.1016/j.chb.2013.07.047>

[54] Leonidou, L. C. Industrial manufacturer–customer relationships: The discriminating role of the buying situation. *IMM* [Internet]. 2004 Nov [cited 2021 May 16];33(8):731-742. Available from: <https://doi.org/10.1016/j.indmarman.2004.01.004>

[55] Gil-Saura, I., Frasquet-Deltoro, M., & Cervera-Taulet, A. The value of B2B relationships. *IMDS* [Internet]. 2009 May [cited 2021 May 19];109(5):593-609.

[56] Habibi, F., Hamilton, C. A., Valos, M. J., & Callaghan, M. E-marketing orientation and social media implementation in B2B marketing. *EBR* [Internet]. 2015 Oct [cited 2021 May 19]; 27(6):638-655. Available from: <https://doi.org/10.1108/EBR-03-2015-0026>

[57] Gustafson, B. M., Pomirleanu, N., John Mariadoss, B., & Johnson, J. L. The social buyer: A framework for the dynamic role of social media in organizational buying. *JBR* [Internet]. 2019 May [cited 2021 May 18];125:806-814. Available from: <https://doi.org/10.1016/j.jbusres.2019.05.004>

[58] Holliman, G., & Rowley, J. Business to business digital content marketing: marketers' perceptions of best practice. *JRIM* [Internet]. 2014 Oct [cited 2021 May 17];8(4):269-293. Available from: <https://doi.org/10.1108/JRIM-02-2014-0013>

[59] Roy, S. K., Gruner, R. L., & Pantano, E. Editors' reflections and introduction to the special section on 'information technology meets marketing: Value-creation along the customer journey'

- IJIM [Internet]. 2021 Feb [cited 2021 May 17];56(6):102270. Available from: <https://doi.org/10.1016/j.ijinfomgt.2020.102270>
- [60] Kühnl, C., & Frank, P. Social Selling – Eine neue Form Social Selling – Eine neue Form der E-Kommunikation für Business-to-Business-Unternehmen. *TZ*. 2019 Jan;(4):18-28.
- [61] Järvinen, J., Aarne, T., Karjaluoto, H. & Jayawardhena, C. Digital and social media marketing usage in B2B industrial section. *MMJ*. 2012 Jan;22:102-117.
- [62] Moore, J. N., Hopkins, C. D., & Raymond, M. A. Utilization of Relationship-Oriented Social Media in the Selling Process: A Comparison of Consumer (B2C) and Industrial (B2B) Salespeople. *JIC* [Internet]. 2013 Jan [cited 2021 May 18]; 12(1):48-75. Available from: <https://doi.org/10.1080/15332861.2013.763694>
- [63] Homburg, C., Theel, M., & Hohenberg, S. Marketing Excellence: Nature, Measurement, and Investor Valuations. *JM* [Internet]. 2020 Jun [cited 2021 May 18];84(4):1-22. Available from: <https://doi.org/10.1177/0022242920925517>
- [64] Silva, D. S., Ghezzi, A., Aguiar, R. B. de, Cortimiglia, M. N., & Caten, C. S. Lean Startup, Agile Methodologies and Customer Development for business model innovation. *IJEER* [Internet]. 2020 Jan [cited 2021 May 17];26(4):595-628. Available from: <https://doi.org/10.1108/IJEER-07-2019-0425>
- [65] Behal, V., & Sareen, S. Guerilla marketing: A low cost marketing strategy. *IJMRBS*. 2014 Jan;3(1):1-6.
- [66] Hutter, K., & Hoffmann, S. *Professionelles Guerilla-Marketing: Grundlagen-Instrumente-Controlling*. 1st ed. Wiesbaden: Springer; 2013. 198 p.
- [67] Shelton, A. J., Wojciechowski, Ł. P., & Warner, J. *Ambient Marketing Practices in the United States: A Professional View*. CT. 2016 Apr 7;7(1):66-81.
- [68] Lin, Y. H., Chen, C. Y., Chou, Y. L., & Yeh, C. J. Effect of ambush marketing on attitude and purchase intention in the social media context: misidentification and identification. *ESMQ*. 2020 Nov;1-20.
- [69] Mohr, I. Managing buzz marketing in the digital age. *JMDC*. 2017 Sep 01;11(2):10-16.
- [70] Wendland, L. A common ground in Guerilla Marketing–State of research and further research opportunities. *JMS*. 2016 Jan;1(1):34-59.
- [71] Ferguson, R. Word of mouth and viral marketing: taking the temperature of the hottest trends in marketing. *JCM*. 2008 May 02;25(3):179-182.
- [72] Conway, T., & Hemphill, T. Growth hacking as an approach to producing growth amongst UK technology start-ups: an evaluation. *JRME* [Internet]. 2019 Nov [cited 2021 May 19];21(2):163-179. Available from: <https://doi.org/10.1108/JRME-12-2018-0065>
- [73] Herzberger, T., & Jenny, S. *Growth Hacking: Mehr Wachstum, mehr Kunden, mehr Erfolg* [Internet]. Germany: Rheinwerk; 2019 [cited 2021 May 15]. 496p. Available from: <https://www.rheinwerk-verlag.de/growth-hacking-mehr-wachstum-mehr-kunden-mehr-erfolg/>
- [74] Lennarz, H. *Growth Hacking mit Strategie*. 1st ed. Wiesbaden: Springer, 2017. 147 p.
- [75] Bohnsack, R., & Liesner, M. M. *What the hack? A growth hacking taxonomy and practical applications for*

firms. BH [Internet]. 2019 Dec [cited 2021 May 20];62(6):799-818. Available from: [https://www.researchgate.net/publication/332698355\\_What\\_the\\_Hack\\_A\\_Growth\\_Hacking\\_Taxonomy\\_and\\_Practical\\_Implications\\_of\\_Growth\\_Hacking\\_for\\_Firms](https://www.researchgate.net/publication/332698355_What_the_Hack_A_Growth_Hacking_Taxonomy_and_Practical_Implications_of_Growth_Hacking_for_Firms)

[76] Holiday, R. Growth Hacker Marketing. 2nd ed. New York: Penguin Publishing Group; 2014. 176p.

[77] Sivarajah, U., Irani, Z., Gupta, S, & Mahroof, K. Role of big data and social media analytics for business to business sustainability: A participatory web context. IMM [Internet]. 2019 Apr [cited 2021 May 17];86:163-179. Available from: <https://doi.org/10.1016/j.indmarman.2019.04.005>

[78] Harvard Business Review [Internet]. Massachusetts, USA: A Refresher on A/B Testing. 2017 Jun 28 [cited 2021 May 21]. Available from: <https://hbr.org/2017/06/a-refresher-on-ab-testing>

[79] Startup lessons learned [Internet]. Connecticut: Ries, E.; 2009. Minimum Viable Product: a guide.; 2009 Aug 3 [cited 2021 May 14]; about 6 screens]. Available from: <http://www.startuplessonslearned.com/2009/08/minimum-viable-product-guide.html>

[80] Wahlandt, V., & Heidel, B. Growth Hacking: Datengetriebenes Marketing als Wachstumsmotor für Unternehmen. TZ. 2019. (4):66-69.

[81] Gupta, S., Lehmann, D. R., & Ames Stuart, J. Valuing Customers. JMR. 2004 Feb 01; 41(1):7-18.

[82] Reinartz, W., Thomas, J. S., & Kumar, V. Balancing Acquisition and Retention Resources to Maximize Customer Profitability. JM. 2005 Feb;69(1):63-79.

[83] Toman, N., Adamson, B., & Gomez, C. The New Sales Imperative: B2B

Purchasing has become the New Sales Imperative too Complicated. You Need to Make it easy for your Customers to Buy. HBR. 2017 Apr;95(2):118-125.

[84] Master of 500 Hats [Internet]. California: McClure, D.; 2007. Product Marketing for Pirates: AARRR! (aka Startup Metrics for Internet Marketing & Product Management). 2007 Jun 20 [cited 2021 May 14]; [about 3 screens]. Available from: <https://500hats.typepad.com/500blogs/2007/06/internet-market.html>

[85] Harvard Business Review [Internet]. Massachusetts, USA: Bussgang, J., & Benbarak, N.; 2016 Feb 19 [cited 2021 May 20]. Available from: <https://hbr.org/2016/02/every-company-needs-a-growth-manager>





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The book deals with next-generation entrepreneurship and aims to answer the questions of in which ways, how, through which focal directions, and by which means will next-generation entrepreneurship emerge and shape the market processes. Under this broad overview, the book is sub-divided into three sections: “Entrepreneurship Education and Young Perspectives”, “New Challenges for Entrepreneurship”, and “Shaping the Next Generation of Entrepreneurship”. The book balances empirical evidence with conceptual contributions.

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