

ENGAGING ENTREPRENEURIAL ECOSYSTEMS FOR THE YOUTH

Potential & Venture Biographies' Analysis

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About this report

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The Ecosys4you project & Crossecosystem analysis

Anna Butzin, Franz Flögel, Kerstin Meyer & Maria Rabadjieva (IAT-WH GE)

1 Background and Aims of the Ecosys4you project

Ecosys4you scales entrepreneurship education within and across the three entrepreneurial ecosystems of the regions Ruhr (Germany), Varna (Bulgaria) and Slovenia. Establishing flows of innovation resources, common further development of competence, opening up new markets, and integrating business expertise from the private sector into educational activities will create longlasting interlinkages. This strengthens the entrepreneurial spirit to benefit all ecosystems, creates new entrepreneurs and supports network relations between diverse ecosystem actors. Ecosys4you develops a new and complementary understanding of entrepreneurship education by viewing ecosystems as collective educational actors essential to "raising" a start-up and empowering students to be an integral part of ecosystems. Ecosys4you integrates new actors from the private sector, especially from the Ruhr as a strong innovator region, and jointly develops their role in entrepreneurship education. The focus is developing a two-year cross-ecosystem program for young people passionate about entrepreneurship. The programme development will enable synergies in entrepreneurship education, networking, and market expansion between the three ecosystems and beyond. Young people interested in founding a company develop entrepreneurial expertise by learning from founders, start-ups, and real-world business development challenges. We establish and set up network-based exchange activities with the expertise of the three ecosystems, especially joint classes, mentoring, real-world challenges and internships at startups. The programme's activities connect formal education in high education institutions (HEIs) with the ecosystems. The programme is open to students and young alums from HEIs, professional schools, graduates who wish to find a company, and other young people who wish to discover entrepreneurial spirit.

Ecosys4you develops and designs activities complementary to the region's existing entrepreneurial education and adds value through joint knowledge generation and networking events targeted at market expansion. Inspired by the slogan "It takes a region to raise a start-up", underlining the collective endeavour to support entrepreneurial spirit and start-ups, our concept of innovative entrepreneurship education understands ecosystems as collective educational actors. Consequently, the project's coordinative actions focus on mobilising the educational resources of ecosystems in addition to higher education institutions. The approach will improve the quality of entrepreneurship education through practical knowledge and experience. A key principle is the integration of private actors into the programme design and implementation to enable co-creation between private sector actors, higher education institutions, teachers, and other ecosystem actors (e.g. public).

A second cornerstone of our concept of innovative entrepreneurship education is the empowerment of students to be an integral and active part of entrepreneurial ecosystems. The main mission is to dissolve the divide between entrepreneurship education in HEIs and ecosystems. While students are highly appreciated as a labour force within ecosystems during their studies and after graduation, their role as entrepreneurial knowledge providers is underplayed. Ecosys4you will strengthen the students' role by developing actions that allow them to provide knowledge and learn in a cooperative manner.

Ecosys4you has three main objectives:

- To establish improved innovation resource flows between the Ruhr, Varna and Slovenia entrepreneurial ecosystems. Business experts in the private sector significantly contribute their expertise to increase innovation potential and establish and sustain resource flow.
- To strengthen the innovation potential of the entrepreneurial ecosystems by stimulating and supporting people, especially the youth, to create new businesses and increase the flow of skilled employees to startups and young companies. A focus will be on improving digitisation competencies, for example, by raising awareness for cyber security as a fundamental part of business development in the digital era.
- To foster entrepreneurial thinking and practical knowledge by interlinking HEIs, entrepreneurs, and intermediaries inside and across the ecosystems. Students are empowered to be part of it as entrepreneurs.

This comparative report aims to analyse and contrast the Strengths, Weaknesses, Opportunities, and Threats (SWOT) of the entrepreneurial ecosystems in the Ruhr region, Varna, and Slovenia. By examining the unique characteristics and challenges of each ecosystem, this report seeks to provide insights into their respective strengths, such as access to talent, robust support infrastructure, and strategic location, as well as weaknesses, such as dependency on project funding, centralization tendencies, and competition for skilled labour. Furthermore, the report aims to identify opportunities for growth and development, such as specialization in key sectors, collaborative funding models, and regional expansion, while also addressing threats, such as infrastructure limitations, regulatory changes, and global economic uncertainty. Through this comparative analysis, stakeholders can better understand the key factors shaping each ecosystem and identify strategies to foster their resilience and competitiveness. Furthermore, it lays the ground for developing the Ecosys4you activities across the three ecosystems: internships, mentoring, joint classes, and co-ideation challenges.

2 Methodology and Data

2.1 SWOT Analysis & Entrepreneurial Ecosystem Comparison

We applied a SWOT analysis for assessing the entrepreneurial ecosystems, providing a structured framework to evaluate the strengths and weaknesses and opportunities and threats that impact the ecosystem's development and success. We identified the ecosystem's strengths, such as the availability of talent, supportive infrastructure (such as co-working spaces, accelerators, and incubators), access to funding, and a culture of innovation and collaboration. These strengths serve as foundational elements that contribute to the ecosystem's vibrancy and potential for growth. Simultaneously, the analysis also identifies weaknesses, such as limited capital access or a lack of support structures for the start-up community. Recognizing these weaknesses allows ecosystem stakeholders to address areas needing improvement and implement strategies to enhance the ecosystem's overall competitiveness. Furthermore, the SWOT analysis examines potentials/opportunities that may benefit the entrepreneurial ecosystem, such as emerging market trends, government support programs, strategic partnerships, or access to international markets. Identifying these opportunities enables ecosystem stakeholders to leverage external resources and create favourable conditions for entrepreneurship and innovation. Conversely, the analysis also considers threats that may pose challenges to the ecosystem's growth and sustainability, such as economic downturns, competition from other ecosystems, or disruptions in global markets. Understanding these threats helps ecosystem stakeholders anticipate risks and develop strategies to mitigate their impact.

The SWOT analysis serves as a tool for entrepreneurial ecosystems' development by comprehensively assessing the ecosystems' internal and external development factors. By leveraging strengths, addressing weaknesses, capitalizing on opportunities, and mitigating threats, stakeholders can foster a conducive environment for entrepreneurship and innovation, driving economic growth and prosperity within the ecosystem. The in-depth SWOT analyses of each ecosystem are in the respective chapters of this report: Chapter 2 for Varna (p. 26), Chapter 3 for Slovenia (p. 38) and Chapter 4 for the Ruhr (p. 46).

The *cross- ecosystem comparison* involves the key components and characteristics of the different Ecosys4you entrepreneurial ecosystems to identify similarities, differences, strengths, and weaknesses. For example, the comparison assesses the availability of supporting structures within each ecosystem, including the presence of hubs, incubators, role models and public institutions. Secondly, access to funding is a crucial aspect of entrepreneurial ecosystems. The comparison looks at the availability of capital, including venture capital, angel investment, and government grants. It also considers the ease of accessing funding. By conducting a comprehensive comparison of these factors across Slovenia's, the Ruhr's and Varna's entrepreneurial ecosystems, stakeholders can gain valuable insights into the strengths and weaknesses of each ecosystem and identify opportunities for improvement and collaboration. This information can inform strategic decision-making and policy development to support the growth and success of start-ups and entrepreneurs within the region. Furthermore, it informs the development of the Ecosys4you activities (Internship Program, Mentoring, Hackathons, and Joint Classes).

2.1.1 Data Collection: semi-structured interviews

The methodological approach for data collection involved conducting semi-structured expert interviews with representatives from support institutions within the entrepreneurial ecosystems of Varna, Slovenia, and the Ruhr region. The interviews were designed to gather insights into the specific characteristics of each ecosystem, focusing on key areas such as collaboration, access to funding, support

infrastructure, actor landscape, and sectoral specialization. The semi-structured nature of the interviews allowed for flexibility in questioning, enabling interviewees to elaborate on specific topics of interest while still adhering to a predefined set of core questions. This approach ensured that a comprehensive understanding of each ecosystem could be obtained while also allowing for exploration of emergent themes and ideas.

Interviews were conducted with a diverse range of experts, including representatives from municipalities (e.g. local economic development agencies), accelerators, incubators, and private ecosystem actors. This diverse sampling strategy aimed to capture a broad spectrum of perspectives and insights from key stakeholders within each ecosystem. Altogether, 45 interviews, 15 in each ecosystem, were conducted in August and September 2023. Data collection involved protocolling or recording and transcribing the interviews to facilitate analysis. Thematic analysis was then used to identify common patterns, trends, and topics across the interviews, allowing for a systematic comparison of the three entrepreneurial ecosystems. The detailed analyses of each ecosystem are in the subsequent chapters.

2.1.2 Data collection: Innovation/Venture Biographies

We conducted "venture biographies" of start-ups in the three Ecosys4you entrepreneurial ecosystems to grasp their start-ups stories. The approach is based on the method of innovation biographies which is a qualitative research approach aimed at understanding processes of innovation (Butzin & Widmaier 2016). It involves collecting and analysing detailed biographies of innovation projects, focusing on the experiences, actions, and interactions of individuals involved in the innovation process and how a business idea evolved in concordance with the innovation process.

The method begins with the selection of a start-up to be studied, in our case based on specific Ecosys4you criteria (between 3-7 years old, a range of sectors across the biographies, a founded company, university spin-outs and other start-ups). Researchers then conducted an in-depth, narrative interview with the founder(s), to gather rich and detailed accounts of their experiences throughout the innovation journey. During the interviews, the founders were encouraged to reflect on various aspects of the innovation process, such as idea generation, problem-solving, decision-making, collaboration, and overcoming obstacles. The interview data was then transformed into a narrative text that was further enriched with information from websites, etc. All the start-up stories are published on the project website: https://www.ecosys4you.eu/project/startup-stories/.

2.2 Introduction to the entrepreneurial ecosystems

2.2.1 Varna's entrepreneurial ecosystem

Varna is located on the Bulgarian coast and is the second most innovative place in the country after the capital – Sofia. The city is part of Bulgaria's emerging entrepreneurial ecosystem, initiated in 2013 and fortified by robust digital infrastructure and several key strengths. The country boasts a low cost of living and one of the EU's lowest personal and corporate tax rates. The government actively encourages entrepreneurship through agencies like Invest Sofia and initiatives such as the Startup Visa. A unique company model that allows flexible capital infusion, akin to the US, further stimulates business development. However, being located 440 km east of the capital Varna's ecosystem faces its own challenges like a heavy reliance on EU funding for training and mentoring, limited financing mechanisms, and the concentration of venture capital and business angels in Sofia.

Nevertheless, Varna hosts six universities, nurturing a growing young population of around 40,000 students. Additionally, the start-up scene is populated by diverse actors as business support organizations like Regional Agency for Entrepreneurship and Innovations – Varna (RAPIV), Smart Varna Foundation, Business Agency Association, Beehive, ICT Cluster – Varna and national VC funds like LaunchHub and Eleven Ventures. The city is home to thriving sectors, including fintech, artificial intelligence, healthtech, and logistics around the port, creating jobs and bolstering the economy.

Furthermore, various activities like Startup Weekend Varna, ABLE Weekend Activator, EIT Food Challenge Lab Bulgaria and Innowave Summit, though with limited municipal support, drive startup ventures and innovation. The ecosystem fosters interactions among its actors, offering specialized programs such as Varna Deep Tech Innovation Port, University of Economics Varna Accelerator, Women Entrepreneurship Centre, and D-Care Smart Care Labs. Innowave Summit, taking place this year in November from the 17th to 18th serves as a platform for networking and knowledge exchange worth visiting if you happen to be nearby.

2.2.2 Maribor's/Slovenia's entrepreneurial ecosystem

Despite the small market, Slovenia's entrepreneurial ecosystem maintains a global perspective with high demand and well-distributed key players across 12 regions. Starting in the early 1990s the ecosystem evolved through a series of public initiatives, followed by private sector involvement, consulting companies, mentors, and the introduction of seed capital in 2014 (e.g. Slovenian Enterprise Fund). Ever since the actors' and events' landscape has only diversified.

The digitalized SPOT Points platform – a comprehensive system of support and free state services for business entities – arrived in 2017 as a successor of VEM points to bolster support. The Podim Conference in Maribor has emerged as one of the top startup events for tech companies in the EU, the next one taking place in May 2024 from the 13th to the 15th.

Furthermore, business angels have invested over €8 million in 40 undisclosed ventures, while various funding mechanisms fuel early-stage company growth. Notable actors within the Slovenian ecosystem include innovative start-ups such as Zemanta, DeWeSoft, BellaBeat, Chipolo and many more, along with organizations like the Ministry of Economy, Tourism, and Sport (MGŠT), SPIRIT, SPS (Slovenian Enterprise Fund), SID Bank, GZS (Chamber of Commerce), AmCham, and regional development agencies, university incubators (e.g. LUI, Inkubator Sežana), accelerators like the ABC Accelerator and technology parks (e.g. TP Ljubljana, Primorska TP, Tovarna podjemov). Slovenia's ecosystem serves as a model for collaboration and networking among ecosystem actors, efficient European funding navigation, and balanced regional development. With its solid support infrastructure, global recognition, family business legacies, and a focus on education and talent development, Slovenia presents a promising environment for innovative ideas. Nevertheless, spatial constraints, centralization tendencies, and limited capital access present some challenges for the new companies. There is still an underutilized potential for knowledge sharing in specialized sectors, rural entrepreneurship support, global expansion, diverse funding models, and regulatory enhancements to enhance competitiveness and sustainability.

2.2.3 The Ruhr's entrepreneurial ecosystem

The Ruhr region in Germany has a long coal and steel industrial history. The last decades marked a restructuring era for the Ruhr from heavy industry to knowledge-based sectors and innovation development. The Ruhr region's entrepreneurial ecosystem evolved in the early 2000s and has, according to dealroom data, generated more than 500 startups until now. A notable milestone of the entrepreneurial ecosystem was the foundation of the ruhrHUB in 2016, promoting startups and collaboration among supporting ecosystem infrastructures and municipalities. Some of the entrepreneurial ecosystem's key sectors are green technology, health-tech, cybersecurity, urban transformation, new industries, IT services and intelligent logistics. According to interviews with ecosystem intermediaries, a significant strength of the Ruhr ecosystem is a diverse and complementary support infrastructure for entrepreneurs and start-ups. It includes the municipal level, for example through business idea competitions, the university level, for example specialized incubators like CUBE5 for cybersecurity at the Ruhr University Bochum, and region-wide events such as the ruhrSUMMIT or the ruhrSTARTUPWEEK. However, a weakness is a lack of available funding for later start-up phases in comparison to the strong concentration on funding early start-up phases. While opportunities lie in shifting the regional mindset and enhancing cooperation among cities in the Ruhr with role models emerging among early-stage startups, concerns were raised regarding the project-based funding of the supporting infrastructures. This is considered a threat to the ecosystem's development since many of the supporting infrastructures, especially some of the major incubator programs, are only funded until the end of 2024. Furthermore, uncertain employment effects, challenges posed by double structures across municipalities, and competition with more established regions like Cologne and Düsseldorf are viewed with concern.

2.3 Overview of the venture biographies

Fifteen venture biographies have been reconstructed in Ecosys4you to date, an overview table can be found below. When selecting the cases, a criterion was to select start-ups from male and female founders and to have a broad sectoral diversity. One case (HandySec) has not been released by the founders at this time, they will appear on the Ecosys4you homepage as soon as possible under the link above.

EE	Name of Start-up / characteristics	Sector	m/f founder(s)
Slovenia	Book Publishing	Publishing	f
Slovenia	Eurobill	fintech	m
Slovenia	Green	e-commerce	f
Varna	Bees buzz ads	digital marketing	m
Varna	comp	software solutions	m
Varna	IT centre Varna	software solutions	m&f
Varna	Cloud services	cloud services	m
Varna	ECAP	environmental management	m
Varna	Kinetik Automotive Company	automotive	m
Ruhr	AWARE 7	Cybersecurity	m
Ruhr	Exchange Education for Habituation	Education	f
Ruhr	Sustain Consult	Energy	m
Ruhr	Change Fashion	Apparel	f
Ruhr	HandySec	Cybersecurity	m
Ruhr	PHYSEC	Cybersecurity	m

 Table 1. Overview of Ecosys4you venture biographies

2.3.1 Venture biographies of Maribor's/Slovenia's entrepreneurial ecosystem

Overall three venture biographies were conducted in Slovenia:

• BOOK Publishing House represents a hybrid model that blends both self-publishing and traditional publishing elements. Authors have the option to choose between traditional publishing or BOOK's distinctive business model. Under this model, authors and the publisher jointly invest 50/50 in the publication of the book, thereafter sharing profits or losses in a roughly equivalent proportion.

- EUROBILL is an online platform for debt offerings. The idea for starting such a platform began in 2008 when the financial crisis led to the liquidation of a foreign bank's branch in Ljubljana. Employees began selling a portfolio of financial investments dealing with credits issued by credit companies. This was their first encounter with the unorganized market for debt sales. Recognizing the underdeveloped state of the Slovenian factoring market (4%) compared to the European average (10%), they conceived the idea of developing a company aiming at debt sales.
- GREEN thrives as an e-commerce business, specializing in the provision of health-conscious fare, superfoods, natural cosmetics, and products crafted to enhance well-being. Sprouting into existence around April 2013, GREEN seized upon its dedication to championing a wholesome lifestyle and delivering top-tier, natural offerings.

2.3.2 Venture biographies of Varna's entrepreneurial ecosystem

Five venture biographies were collected in Varna, Bulgaria:

- BEES BUZZ ADS is a digital marketing agency. The main services provided by Bees buzz ads are: Creation of digital content graphical design, copywriting, photography, video, info graphics; Performance marketing advertisement campaigns in social media, websites, email campaign, media planning; Account management; Business branding Online advertisement, Consulting.
- The mission of COMP is to help SMEs realise their full potential by providing them with entire business software solutions. The ideal client for the software developed by Comp is an SME with personnel of 5-10 people and up to 100 people. Usually, these are trade companies wholesale and retail, small manufacturing companies, and services companies.
- IT CENTRE VARNA provides possibilities for software development, maintenance and support teams, as well as outsourcing of the activities. The approach is tailored-oriented it could boost clients' SW development projects with a dedicated team, delivering extra skills and knowledge.
- CLOUD SERVICES provides universal and adaptive cloud services that aim to address the specific needs of customers. Cloud Services has built its cloud using the latest advancements in multi-tenant cloud architecture, relying on cutting- edge server hardware, networking, security, virtualization, and management technology. They host their infrastructure in an independent class Tier 3 data centre in Sofia, Bulgaria.
- ECAP is a startup company established in 2017 to develop an innovative expert system for planning and managing waste ship disposal processes in line with the Environmental Compliance Assistance Program (ECAP). ECAP is a software system installed on a vessel navigation bridge to help plan and monitor the vessel's environmental operations. It uses electronic navigation charts and calculates the vessel's position in relation to regulated areas. The operational aspects of the ECAP systems alone are useful for the ship's crew, although at its core is the requirement to provide various levels of environmental regulations and their respective boundaries.
- KINETIK AUTOMOTIVE COMPANY's business model is to offer electric karting as a service: The
 company has developed one of the best designs, combined with their own software. This made
 it possible to adjust the car's characteristics to the pilot's progress by only changing the software settings, thus eliminating the necessity to change the vehicle itself as was the case with
 the other vehicles.

2.3.3 Venture biographies of the Ruhr's entrepreneurial ecosystem

Ecosys4you collected altogether six venture biographies from the Ruhr region:

- AWARE7 is a start-up specialised in cybersecurity services, especially lifehacking, pentesting and phishing simulation as well as consulting for B2B. As a university spin-off, the company also participates in third party-funded applied cybersecurity research projects.
- Exchange Education for Habitation has established itself as an impactful non-governmental social enterprise within the field of education, providing services and support for economically disadvantaged children. Their services follow threefold goals – providing educational mentoring for children, offering free-of-charge living for the mentors (i.e. young adults), and networking within the neighbourhoods to enhance the general quality of life through cooperation. Essential for the business model is that they receive the habitation space at a very low fee or even rent-free and take care of it (e.g. renovate) at their own costs.
- SustainConsult supports companies during their sustainable transformation from strategy to implementation of new sustainable business models and products. At the beginning, the startup didn't have to do any acquisition, as it had signed a contract with the Corporate and now continued to work for the Corporate as an external company instead as an employee. The company discussed funding opportunities with the economic development agency, but none were forthcoming. The company then went to a sustainable bank and took out an overdraft facility. Nowadays, the company's majority of customers are situated in the Ruhr, others in Germany and in Switzerland. SustainConsult offer consultancy, events and workshops for startups and sustainable companies. The company certifies others according to the B Corp certification and undertakes sustainability assessments.
- ChangeFashion operates as a clothing rental service that follows a "capsule" approach. The term "capsule" is drawn from the Capsule Wardrobe movement, in which wardrobes are built around a small selection of clothing items that can be effortlessly mixed and matched. These capsules typically consist of 5-8 clothing pieces, with the exact number depending on the season and the capsule's contents. For instance, a pair of pants can be paired with more items than a dress, reducing the overall number of clothing pieces required. Customers can choose pre-assembled capsules or create their own, and clothing items can be swapped out at any time. Nevertheless, since the main motto of the company is sustainability, there is an effort to avoid unnecessary traffic. Approximately once a month people do change an item.
- HandySec develops security solutions for mobile phones that interact with other entities. The company has developed an app and a corresponding platform for this end. As of 2023, the most revenues came from development and consultancy projects for B2B clients. HandySec adopts their technologies to the apps and platforms of the clients and implements solutions for them.
- PHYSEC's key technologies bring cryptographic approaches and hardware devices together to allow the secure operation of sensors in insecure environments. The technology represents the current research frontier and was developed in a cybersecurity institute in the Ruhr. Hence, PHYSEC represents a clear deep-tech start-up.

3 Cross-ecosystem comparison

Varna in Bulgaria, the Ruhr region in Germany, and Slovenia represent diverse yet vibrant entrepreneurial ecosystems, each with unique strengths, challenges, and approaches to supporting entrepreneurial endeavours. This comparative analysis aims to delve into the distinctive features of these ecosystems, shedding light on their respective dynamics and potential for nurturing entrepreneurial success.

Nestled along the Black Sea coast, **Varna** epitomizes the burgeoning start-up scene in Bulgaria. Despite being a relatively smaller city than its counterparts, Varna boasts a rich pool of talent and a growing network of incubators and accelerators. The city's strategic location, affordable cost of living, and increasing access to funding have attracted entrepreneurs from various sectors, particularly technology-related. Moreover, government initiatives and EU funding programs have played a crucial role in catalysing Varna's entrepreneurial ecosystem, offering grants, mentorship, and infrastructure support to budding start-ups. However, limited access to venture capital and the location outside of the capital region remain persistent challenges, inhibiting the scalability and sustainability of ventures in Varna.

Situated at the crossroads of Central Europe, **Slovenia** has emerged as a beacon of entrepreneurial success in the region. Building upon a legacy of innovation and craftsmanship, the country fosters a culture of entrepreneurship deeply rooted in creativity and resourcefulness. Ljubljana, the capital city, serves as the epicenter of Slovenia's start-up ecosystem, characterized by a vibrant community of entrepreneurs, investors, and support organizations. Government initiatives such as the Start-up Slovenia program and tax incentives for research and development have bolstered the growth of high-tech start-ups in sectors like information technology, biotechnology, and green energy. Furthermore, Slovenia's strategic location within the European Union provides start-ups with access to a larger market and funding opportunities. Nonetheless, limited access to skilled talent and the challenge of scaling beyond national borders pose significant hurdles for Slovenian start-ups aiming for global expansion.

The **Ruhr** region has undergone a remarkable transformation into a hub of innovation and entrepreneurship. With a legacy of coal mining and heavy industry, the Ruhr has embraced a culture of resilience and adaptation, fostering collaboration between traditional sectors and emerging start-ups. Boasting reknown research institutions and a skilled workforce, the region drives innovation in advanced manufacturing, energy, and environmental technologies. Furthermore, public-private partnerships and grassroots initiatives have nurtured a supportive ecosystem, offering co-working spaces, mentorship programs, and access to international markets. However, the Ruhr faces challenges such as demographic shifts and the need for continuous reinvention to stay competitive in a rapidly evolving global economy.

Varna, Slovenia and the Ruhr represent diverse models of entrepreneurial ecosystems, each shaped by its unique socio-economic context and historical legacy. While Varna capitalizes on its strategic location, government support and high-tech competences to attract start-ups, the Ruhr leverages its expertise in structural change to drive innovation. Slovenia, on the other hand, thrives on a culture of creativity and government initiatives to nurture an entrepreneurial ecosystem. Despite their differences, these regions share a common goal of fostering entrepreneurship as a catalyst for economic growth and societal advancement. By learning from each other's strengths and addressing their respective challenges, Varna, the Ruhr, and Slovenia can continue to cultivate vibrant entrepreneurial ecosystems that spur innovation, and create jobs.

3.1 Strengths

Varna's entrepreneurial ecosystem boasts several key strengths that contribute to its vibrant start-up scene. Firstly, the presence of six universities in the vicinity ensures a rich talent pool of skilled graduates and researchers, driving innovation and entrepreneurship forward. Secondly, the ecosystem benefits from a robust support infrastructure comprising NGOs, co-working spaces, and accelerators, which provide essential mentorship and resources to start-ups. Lastly, Varna's strategic location with access to transportation networks and international markets facilitates efficient scaling and expansion opportunities for businesses. Together, these factors create a conducive environment for entrepreneurial growth and success in Varna, establishing it as a dynamic hub for innovation and start-ups in the region. Continued investment in these strengths will further propel Varna's entrepreneurial ecosystem and solidify its position as a leading destination for aspiring entrepreneurs.

Slovenia's entrepreneurial ecosystem thrives on several key strengths that contribute to its vibrancy and success. Firstly, the supporting infrastructure, including entrepreneurial incubators, technology parks, and regional development agencies, is strategically distributed across the entire territory of Slovenia, ensuring accessibility and support for start-ups nationwide. Secondly, a culture of collaboration and networking among ecosystem actors fosters innovation and knowledge sharing, nurturing a dynamic entrepreneurial environment. Moreover, Slovenia benefits from access to European funding programs, which support infrastructure development and entrepreneurship initiatives, further fueling growth and innovation. Additionally, the country's global recognition is bolstered by the presence of at least one unicorn start-up, enhancing its reputation as a hub for innovation and entrepreneurship. Furthermore, access to quality education and a skilled workforce contributes to a favourable environment for start-ups, enabling them to thrive and innovate. Lastly, the presence of role models, represented by large and successful start-ups, inspires and guides aspiring entrepreneurs, driving further growth and success within Slovenia's entrepreneurial ecosystem.

The entrepreneurial ecosystem in the **Ruhr** exhibits several notable strengths that underpin its vibrancy and potential for growth. Firstly, the region's polycentric nature fosters diverse specializations, allowing for a rich tapestry of innovative ventures across various sectors. Strong networking between ecosystem actors further enhances collaboration and knowledge exchange, fueling innovation and entrepreneurship. Moreover, the presence of robust support infrastructure at universities and the municipal level provides crucial resources and mentorship to budding start-ups. The complementarity between different support mechanisms amplifies their effectiveness in nurturing entrepreneurial success. Additionally, the ecosystem benefits from a wide range of activities spanning local, regional, national, and international levels, facilitating broader exposure and opportunities for start-ups. Academic excellence in relevant fields such as ICT, cybersecurity, and healthcare-tech ensures a solid foundation for deep tech start-ups to flourish. Furthermore, the current public support for start-ups in their pre- and early foundation phases underscores a favourable environment for entrepreneurial endeavours to thrive and succeed. These strengths collectively position the region as a fertile ground for innovation and entrepreneurship, poised for further growth and development in the years to come.

3.2 Weaknesses

Varna's entrepreneurial ecosystem faces several weaknesses that hinder it from unfolding its full potential. Firstly, the centralized nature of the ecosystem in Sofia creates disparities in resources and opportunities, leaving entrepreneurs in other regions at a disadvantage. Additionally, a lack of robust financial regulations and instruments, especially for early-stage start-ups, restricts access to vital capital and funding, stunting growth and innovation. The ongoing brain drain exacerbates the issue, as talented individuals seek opportunities abroad, depleting the local talent pool and stifling entrepreneurial endeavors. Furthermore, the ecosystem lacks a mature network of business angels, limiting funding options for aspiring entrepreneurs. Reliance on project financing also poses challenges, leading to instability and hampering long-term sustainability. Lastly, the absence of strong role models dampens enthusiasm and impedes the development of a vibrant start-up culture, hindering the ecosystem's growth and competitiveness on the global stage. Addressing these weaknesses is crucial to fostering a more inclusive, resilient, and dynamic start-up ecosystem in Varna.

Slovenia's entrepreneurial ecosystem faces several notable weaknesses that impede its full potential. Firstly, spatial planning limitations and a shortage of suitable business zones pose significant challenges, particularly in rural areas, hindering entrepreneurial development and limiting opportunities for growth outside of urban centres. Additionally, there is a noticeable centralization tendency, with many support activities concentrated in Ljubljana, the capital of Slovenia, which can lead to disparities in resources and opportunities for entrepreneurs in other regions. Furthermore, the ecosystem's dependency on specific industries poses risks, highlighting the need for further diversification to reduce vulnerability to economic fluctuations. Lastly, limited access to capital remains a critical issue, particularly for larger scale projects, prompting some start-ups to seek funding abroad due to perceived constraints within the local ecosystem. Addressing these weaknesses requires concerted efforts to enhance spatial planning, decentralize support activities, promote industry diversification, and improve access to capital, thereby fostering a more inclusive and resilient entrepreneurial ecosystem throughout Slovenia.

The **Ruhr's** entrepreneurial ecosystem is not without its weaknesses. While there is strong support for start-ups in their early phases, the infrastructure for later stages is comparatively lacking, potentially hindering the growth and scalability of ventures. Additionally, the employment effects of start-up activities remain unclear, posing challenges for policymakers and stakeholders. The presence of double structures across municipalities, such as multiple start-up competitions and pitches, may lead to fragmentation and inefficiencies within the ecosystem. Furthermore, attracting top-level start-ups is challenging due to the stronger regional images of neighbouring cities like Cologne and Düsseldorf. The absence of a unicorn start-up to date also highlights a gap in the ecosystem's track record of success. Moreover, while seed and scale-up finance exists, it may not be as readily available as in other regions of Germany like Munich or Berlin, posing a potential barrier to growth for start-ups in the region. Addressing these weaknesses will be crucial for fostering a more robust and competitive entrepreneurial ecosystem.

3.3 **Opportunities**

Varna's entrepreneurial ecosystem presents numerous opportunities for growth and development. Strengthening collaborations between support organizations and academic institutions can facilitate knowledge exchange and talent development, driving innovation. Establishing a local fund dedicated to start-up support would offer sustainable financing solutions tailored to the needs of Bulgarian start-ups, fostering their growth at various stages. Moreover, investing in branding and marketing efforts can elevate the visibility of Varna's entrepreneurial ecosystem globally, attracting talent, investors, and business opportunities. Expanding the start-up support infrastructure through initiatives like incubators and innovation hubs will create a more conducive environment for entrepreneurial success, further catalysing economic growth and innovation within the country. Embracing these opportunities can propel Bulgaria's start-up ecosystem to new heights of success and competitiveness on the global stage.

To further enhance **Slovenia's** entrepreneurial ecosystem, several strategies can be implemented. Firstly, there is an opportunity to specialise in key sectors such as healthcare and ICT, leveraging existing

strengths to enhance competitiveness on a global scale. Exploring collaborative funding models and consortium investments can support larger-scale projects, fostering innovation and growth. Regional expansion beyond the capital region can promote balanced development throughout Slovenia, tapping into untapped potential in rural areas. Continued efforts to promote innovation and entrepreneurship are crucial for nurturing the emergence of more innovative start-ups. Networking and internationalization efforts can open doors to global markets and attract investments, propelling the ecosystem onto the global stage. Moreover, working with young generations to develop creativity, innovativeness, and entrepreneurial skills from an early age can cultivate a future-ready workforce and foster a culture of entrepreneurship and innovation throughout the country. By implementing these strategies, Slovenia can unlock its full potential and become a leading hub for entrepreneurship and innovation in Europe.

Amidst the weaknesses, the **Ruhr's** entrepreneurial ecosystem presents significant opportunities for growth and transformation. Firstly, the dynamic developments driven by start-ups and support infrastructure have the potential to catalyse a positive shift in the regional mindset towards innovation and entrepreneurship. Additionally, despite historically low levels of cooperation between cities in the Ruhr due to intra-regional competition, collaboration among public actors involved in the ecosystem shows promise for fostering synergy and mutual benefit. Furthermore, the emergence of many early-stage start-ups with potential to become role models in the near future presents an opportunity to inspire and guide aspiring entrepreneurs, driving further innovation and growth within the ecosystem. By seizing these opportunities and fostering collaboration, the Ruhr region can unlock its full potential as a thriving hub of entrepreneurship and innovation, paving the way for sustainable economic development and prosperity.

3.4 Threats

Varna's entrepreneurial ecosystem faces critical threats that must be addressed for sustained growth. Dependency on project funding poses risks due to fluctuating cycles and limited long-term sustainability. Additionally, convincing potential entrepreneurs to choose start-ups over lucrative opportunities abroad is challenging without strong support mechanisms and success stories to inspire confidence. Overcoming these threats requires diversifying funding sources and enhancing support structures to attract and retain entrepreneurial talent, ensuring Varna remains competitive in the start-up landscape.

Several significant challenges pose threats to **Slovenia's** entrepreneurial ecosystem. The centralization of activities in Ljubljana raises concerns about regional disparities and neglect of rural areas, potentially stifling entrepreneurial growth outside the capital. Infrastructure limitations, including spatial planning constraints and transportation issues, may impede the expansion of business zones and hinder startup development. Moreover, global economic uncertainty can disrupt foreign investment flows and limit start-ups' access to capital, impacting their growth prospects. Intense competition from neighbouring countries for start-ups and foreign investments adds further pressure on Slovenia's ecosystem. Additionally, regulatory changes may introduce uncertainties and complexities, affecting the ease of doing business for start-ups. Finally, the competition for personnel due to a lack of skilled labour poses a significant challenge, potentially hampering the ability of start-ups to attract and retain talent essential for their success. Addressing these challenges requires proactive measures, including infrastructure improvements, regulatory stability, and talent development initiatives, to safeguard and strengthen Slovenia's entrepreneurial ecosystem.

The entrepreneurial ecosystem in the **Ruhr** region faces several notable threats that could impede its growth and sustainability. Firstly, much of the start-up infrastructure relies on project-bound public funding, raising concerns about future funding uncertainty beyond 2024. Additionally, competition for

skilled labour poses a significant challenge, as start-ups vie for talent amidst a shortage of qualified personnel. Moreover, competition for founding teams, while less common, is mentioned in interviews, indicating potential challenges in forming and retaining cohesive start-up teams. Addressing these threats will require strategic planning, diversification of funding sources, efforts to attract and retain skilled labour, and initiatives to foster collaboration and teamwork within the ecosystem. By mitigating these threats, the Ruhr region can strengthen its entrepreneurial ecosystem and enhance its competitiveness on the global stage.

3.5 Conclusions

Varna's entrepreneurial ecosystem is characterised by the presence of six universities as a strengths. This facilitates a rich talent pool and access to resources, fostering a dynamic hub for innovation and start-ups. Meanwhile, Slovenia benefits from a well-distributed supporting infrastructure, fostering collaboration and access to European funding programs. The presence of a unicorn start-up adds to its global recognition, while access to quality education contributes to a favourable environment for start-ups. In contrast, the Ruhr's polycentric nature and strong networking between ecosystem actors create a diverse and vibrant landscape for entrepreneurship. Robust support infrastructure at universities and municipal levels further enhances opportunities for start-ups, while academic excellence in relevant fields ensures a solid foundation for deep tech ventures. Overall, while each ecosystem has its unique strengths, they all contribute to fostering innovation, collaboration, and entrepreneurial success within their respective regions. Continued investment and collaboration will further propel their growth and development in the future.

The entrepreneurial ecosystem in Varna encounters challenges such as centralised resources in Sofia, lack of financial regulations, and brain drain, hindering its competitiveness. Slovenia faces hurdles like spatial planning limitations, centralization in Ljubljana, industry dependency, and limited capital access, hampering its growth potential. Meanwhile, the Ruhr's ecosystem grapples with unclear employment effects, and competition from neighbouring cities, impeding its scalability and success. While Varna lacks diverse resources and regulatory frameworks, Slovenia struggles with industry concentration. The Ruhr contends with insufficient support for later-stage start-ups and competition from established hubs in other cities. Overcoming these weaknesses demands decentralized support and enhanced funding access. Addressing these challenges is essential for fostering inclusive and resilient entrepreneurial ecosystems in Varna, Slovenia, and the Ruhr, propelling them towards sustainable growth and global competitiveness.

Varna's entrepreneurial ecosystem offers ample opportunities for growth, including strengthening collaborations between support organizations and academic institutions, establishing a local fund for startup support, and expanding the start-up support infrastructure. Similarly, Slovenia can capitalize on opportunities such as specialization in key sectors, collaborative funding models, regional expansion, and fostering innovation and entrepreneurship among young generations. Meanwhile, the Ruhr's ecosystem presents opportunities for positive transformation through dynamic developments driven by startups, enhanced collaboration among cities, and the emergence of role model start-ups. By seizing these opportunities and fostering collaboration, the Ruhr region can realise its potential as a thriving hub of entrepreneurship and innovation, fostering sustainable economic development and prosperity.

Varna's entrepreneurial ecosystem grapples with threats like dependency on project funding and the challenge of attracting entrepreneurs away from lucrative opportunities abroad. Diversifying funding sources and enhancing support structures are vital to ensuring sustained growth and competitiveness.

Similarly, Slovenia faces threats such as centralisation in Ljubljana, infrastructure limitations, global economic uncertainty, and intense competition from neighbouring countries. Proactive measures, including infrastructure improvements and talent development, are necessary to safeguard and strengthen Slovenia's ecosystem. Meanwhile, in the Ruhr region, reliance on project-bound public funding, competition for skilled labour, and challenges in forming cohesive founding teams pose significant threats. Strategic planning and efforts to diversify funding sources and attract talent are crucial for enhancing the region's entrepreneurial ecosystem and global competitiveness. Addressing these threats collectively requires concerted efforts and proactive measures across all three regions to foster sustainable growth and innovation.

3.6 Outlook

This report summarises the Ecosys4you activities of the first project months. In the forthcoming year, the project will focus on developing specific activities that will allow the establishment of innovative resource flows between the three entrepreneurial ecosystems. The resource flows are the proposed Ecosys4you activities - Joint Classes, Mentoring, Internships, and Co-ideation Challenges – aiming to nurture entrepreneurial mindsets and practical skills across the three ecosystems, thereby strengthening the internationalisation of each ecosystem. The Joint Classes offer a unique blend of theoretical frameworks and real-life experiences, leveraging the expertise of start-up entrepreneurs from different regions. This approach enriches students' learning by applying theory to practical start-up challenges, fostering innovative thinking and problem-solving abilities. The Mentoring provides guidance by connecting students with experienced mentors from the private sector. Through virtual sessions and structured tasks, mentees gain insights into various stages of business development, enhancing their entrepreneurial acumen and readiness for the start-up journey. The Internships serve as a pivotal opportunity for hands-on learning, bridging the gap between academia and industry. By aligning interns' expectations with the objectives of young companies, this program prepares aspiring entrepreneurs for the realities of start-up ventures, fostering a culture of innovation and resilience. The Co-ideation Challenges further stimulate creativity and collaboration by engaging partners to address diverse business problems. The strategic approach to collecting and structuring information ensures maximum benefit for future founders, organizations, and educators while promoting inclusivity and diversity in entrepreneurship. Overall, these activities are truly complementary compared to the current endeavours in the three ecosystems. They hold the potential to cultivate networking between the three ecosystems, thereby contributing to the ecosystems' internationalisation. Through collaborative efforts and innovative strategies, they can contribute significantly to shaping the future of entrepreneurship across regions.

Entrepreneurial Ecosystem Varna, Bulgaria

Ralitsa Zhekova, Mariya Zlateva and Irina Kircheva (RAPIV)

1 Key characteristics of the ecosystem

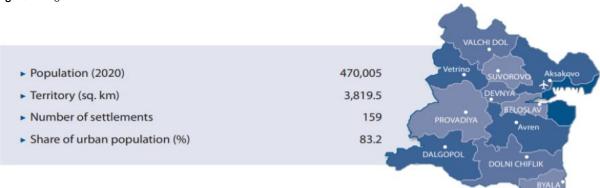
Just a decade ago, Bulgaria did not really have a startup ecosystem despite being traditionally strong in the IT sector. However, since then, the country has been on a steady trajectory to transition from an outsourcing destination into a major innovation hub.

Being a relatively small market, Bulgaria also checks several boxes for a robust startup ecosystem: strong digital infrastructure, variety of support programs, and top tech talent. Today, Bulgaria is home to over 400 startups, 15 venture capital and growth equity firms, and an increasing number of accelerators, supporting associations, and co-working spaces. More and more founders who set up their ventures here are now reaching Series A or even later rounds. There is over €200M in VC funding available for local entrepreneurs as of the beginning of 2021. The local startup ecosystem has also achieved a major milestone in 2022 with its first unicorn, Payhawk. This success story has brought new breath to the ecosystem as Bulgaria grabs the attention of the American and West European VCs.

Varna is the largest city in north-eastern Bulgaria, located along the Black Sea coast and Varna Lake. It is the administrative centre of the municipality and the region. Today, over 5% of the population of the country lives in Varna (Institute for Market Economics; Varna City of Knowledge, Economic Profile and Development Trajectory).

In 2020, Varna remained among the districts with very good demographic development, ranking second after the capital city. Varna is among the districts with the highest share of urban population – 83.2%, compared to 72.9% in the country, although its density is close to the average values – 1,800 persons/sq. km, against the national average of 1,500 persons/sq. Km. (Institute for Market Economics; Regional Profiles - Varna, 2021).

Figure 1. Regional Profiles - Varna



Source: Institute for Market Economy, 2021

Varna is an attractive international educational center. There are 6 universities on the territory of the municipality – University of Economics, Technical University, Medical University "Prof. Dr. Paraskev Stoyanov", Naval Academy "Nikola Vaptsarov", Varna Free University "Chernorizets Hrabar" and Higher School of Management; 3 colleges - College of Tourism, Medical College and Technical College, as well as 65 schools.

Varna has unique characteristics that enable the interweaving of talent and scientific potential with entrepreneurship and business ventures. The 13,000 students in the humanities and social sciences – with a focus on economics and management – support the diverse profile of the local economy and provide the maritime capital's entrepreneurial and business culture. The 15,000 students in technical and applied sciences set the specific economic profile of Varna, with the greatest potential emerging in medicine, information technology, transport and shipping. These are all areas that have shown increasing interest in the last 5 years. Successful HEIs have the potential to attract and retain research staff who, in turn, can count on increased investment in equipment and facilities. This is a prerequisite both for increasing scientific developments and for the transfer of results into applied business ventures. In recent years, medicine has established itself as one of the leading sectors in the economy of Varna, based entirely on the connection between science and business. Medical University - Varna educates 5,300 students, of which 1,500 are foreign (2019). The regional implementation of these personnel exceeds 50%, which shows the connection between the university and the health sector in Varna.

The universities in Varna are oriented towards the new trend and are directed towards information technologies. Five universities from Varna have specializations in the field of informatics and computer science, educating over 2,500 students - an increase of about 750 people in the last five years. The leader in this regard is the Technical University - Varna with nearly 1,700 students in the field of communication and computer technology. The regional implementation of these personnel is over 40%, which means that almost half of the attracted students are realized within the local economy. TU-Varna also opened its own school of computer science, which confirms the trend for secondary education to be oriented towards the digital sphere.

2 Distinctions of the entrepreneurial ecosystem

"The location outside the capital and the difficult accessibility (connection) definitely hinder closer integration and faster development because the main institutions and important entrepreneurial events and meetings are concentrated in the capital. The isolation of Varna and the lack of good connectivity with other European countries creates enormous difficulties in our integration with other European and world ecosystems." (Interview #1, 07.09.2023).

The Bulgarian startup scene is a hotspot for European entrepreneurs and digital nomads, lured by the low cost of living and smart and effective special tax benefits offered by the public sector. Bulgaria boasts one of the lowest personal and corporate tax rates in the European Union, which helps attract foreign investors and tech talent. More promising steps are being taken with the government establishing new agencies to promote entrepreneurship and attract global startups, such as Invest Sofia, and launching initiatives like the startup visa. Besco, is an interesting example of a startup ecosystem think tank which helps the public sector shape policies related to startups and macroeconomic environment supporting the growth.

On the flip side, Bulgaria lacks the resources to support its own startup ecosystem, and is heavily relying on EU funding. This funding was crucial in allowing the ecosystem to jump start, but might slow down further growth. The current mechanisms that are being copied from the EU playbook, such as the Fund of Funds¹, could distort the natural growth of the ecosystem and drive it towards micro management with a lack of market focus and private sector investment. The Bulgarian ecosystem could use less micro management and more infrastructure work on its promotion and strategy. One of the biggest challenges of the ecosystem, which has become an IT outsourcing hub, will be to convince its potential entrepreneurs to give up on excellent conditions while working for foreign companies and dive into building their own startup.

Focus industries with the most potential for technology disruption and growth in Bulgaria are:

Artificial Intelligence

In recent years, there has been a plenitude of local startups building AI-based products in various industries – enterprise software, health, finance, marketing, agriculture, travel, and others.

Fintech

With over 70 fintech companies, 2 corporate fintech accelerators, and a fintech association aiming to develop the community further, this vertical² is probably the most advanced in Bulgaria.

Healthtech

¹ Fund of Funds is established in 2015 and is wholly owned by the Bulgarian state. The Fund of Funds combines resources earmarked for implementation of financial instruments under the national operational programmes, which currently encompass Regions in growth, Innovation and competitiveness, Environment and Human resources development.

² Industry vertical describes a group of companies that focus on a shared niche or specialized market spanning multiple industries.

Healthtech is another quickly developing segment with promise in verticals like 3D printing, bioconversion, as well as digital health platforms.

Varna is the second most innovative place in the country. The StartupBlink's 2022 Global Ecosystem Report, which evaluates the tech performance of startup ecosystems around the world, <u>ranks Varna</u> – the so-called maritime capital of Bulgaria, as the 51th most innovative city in Eastern Europe and the 2nd in Bulgaria, after Sofia.

Varna is becoming famous for its potential to foster innovation, raise engineering and business talent, and attract bigger tech companies from the capital and across the region. The city is also home to six universities, among which the Technical University in Varna and The University of Economics – Varna, and has an IT-specialized high school – the <u>High School of Computer Modeling and Computer Systems</u>. This explains why, according to Seedblink, Varna is a sweet spot for the development of Software, E-commerce, Retail, Marketing, and Sales startups.

At the end of October 2022, the city saw the launch of the second European Deep Innovation Port in Europe as part of the New Innovation Agenda of the EU – the <u>Varna Deep Tech Innovation Port</u> at the University of Economics -Varna. The main goal of the initiative is to turn Varna into an attractive center for the creation and implementation of deep technological innovation and create synergies between different stakeholders – academia, business, startups, youth organizations, and local administration.

3 Key actors

The Varna Region startup ecosystem has a good balance between public and private institutions, different types of stakeholders (incubators, funds, public institutions, etc.) and corporations. It is also very open to cooperate with other startup ecosystems. Lots of forums are being organized lately to make all stakeholders' voices be heard and taken into consideration and, consecutively, their efforts to be united for common goals.

The key stakeholders of Varna regional startup ecosystem are (per type):

Startup:

• Simvoly, Ultraplay, Aitiss, Composity Ltd, Mimirium, Orderadmin, Casualino, Workiton.com, VEVS, iosoftware, Bevine, CoLumbo, PubGalaxy, Kinetik, Econic One, Primeholding, Nula.bg, etc.

Investors:

• Launch Hub Ventures, Eleven, Neveq, Bright Cap Ventures, Empower Capital, Black Peak Capital, Rosslyn Capital Partners, BBF Angels Club, CEO Angels Club, etc. (all of them based in the capital)

Public institutions:

• Fund of the Funds, Bulgarian Small and Medium Enterprises Promotion Agency (BSMEPA), Municipality of Varna.

NGOs:

• Regional Agency for Entrepreneurship and Innovations – Varna, Association Business Agency, Beehive Co-working Space, Varna Economic Development Agency, Bulgarian Business Forums, Smart Varna Foundation, ICT Cluster Varna, BioMed Foundation.

Co-Working Spaces:

• Switch, Innovator, WolloW, Work del Mar, VarnaLab.

4 Interactions between ecosystem actors

"But at the end of the day, it's not so much the big individual events, but the many small opportunities" (Interview #4, 24.07.2023).

In the past 5 years, Varna has become one of the digital hubs and innovation centers in Southeastern Europe and the reasons behind that are several:

- 1. Varna has a growing young population more than 40 000 students, with 6 universities in different fields: technical, economics, medical, maritime, etc. and every year it attracts not only students from the country, but also many foreigners to graduate and work in the city.
- 2. One of the most favourite places for developers, students, entrepreneurs and digital nomads to work and network are surely the main co-working spaces and hubs that were established Switch, Innovator, Wollow, Work del Mar, VarnaLab, CryptoVarna.
- 3. A couple of startup and innovation-related events and initiatives are held in the city to show-case and inspire local tech talents and founders. One of these events is the annual <u>Startup Weekend Varna</u> which gathers groups of developers, business managers, and marketing gurus and allows them to work on a startup idea for 54 hours before pitching it in front of investors. ABLE Activator, the Bulgarian entrepreneurship program, also comes to Varna each year to hold the <u>ABLE Weekend Activator Varna</u>. Innowave Summit gathers world famous experts and speakers from some of the biggest tech companies to help the local businesses grow and go to global markets. Another great event is the Startup Ventures, where people with ideas broadly learn how to validate a startup from top experts. There are many workshops, events and trainings organized by different business support organizations like RAPIV, Smart Varna, Business Agency Association, Beehive, etc.
- 4. In Varna only for the last 2 years have been found more than 20 startups in different areas fintech, blockchain, medicine, IoT, 3D printing and more. This shows to potential investors and business angels the city has a future in terms of developing future unicorns who can boost the economy of the region.
- 5. Some of these startups are already expanding outside the border with the support of some national VC funds and organizations such as: LauncHub, Eleven Ventures, Brightcap Ventures and others.
- Some large tech companies have founded their main centers and headquarters in the city which opened thousands of work places, which also reduced the unemployment rate to below 3% and boosted the economy.

5 Connection between (specific) ecosystem actors and the HEIs

Universities and Higher educational institutions (HEI) are actively supporting entrepreneurship and participate in initiatives of ecosystem actors. The support is provided in several directions:

The second European Deep Innovation Port in Europe as part of the New Innovation Agenda of the EU – the <u>Varna Deep Tech Innovation Port</u> is established at the University of Economics -Varna. The main goal of the initiative is to turn Varna into an attractive center for the creation and implementation of deep technological innovation and create synergies between different stakeholders – academia, business, startups, youth organizations, and local administration.

University of Economics Varna Accelerator works to support progressive entrepreneurial projects and helps develop entrepreneurial culture.

The University of Economics Varna with its department for Agricultural Economics participates actively in the organisation of entrepreneurship support activities of EIT Food Hub Bulgaria, including **Challenge lab.** In the 2023 year edition were involved 20 participants, 8 mentors and about 10 university associated professors who provided their expertise on different topics. The Challenge Lab is a 2.5 days- event targeting startups in agrifood sector, starting from shaping business ideas for meeting specific practical challenges, active work of teams with mentors/ experts and presenting the business ideas at a pitching competition for winning a prize.

Women entrepreneurship centre (EWC) at the Varna Free University is established with the aim to facilitate new company formation by providing an entrepreneurial nurturing environment for female startup and spin-out companies; alleviating their survival and growth, thus encouraging them to reach their full potential. EWC aspire to develop individual talent, skills and personality to give each female business the best possible start, thus fostering entrepreneurship at a local and national level. Within the activities of EWC in 2021 and 2022 RAPIV organized 5-months tarining and mentoring EWA Bulgaria Programme for support of women in agrifood sector, financed by EIT Food.

D-Care Smart Care Labs and D-Care learning programme have been established to support startups from smart care services and eHealth sector in realization of their solutions from idea to market ready product. Medical University Varna and Varna Free University have expressed their support for the initiative. Both universities have developed a joint master's degree programmes for AI in Biomedicine and health with the aim to create a multidisciplinary educational environment for the development of staff with integrated competencies in the field of biomedicine and health, capable of creating teams, models, approaches, products and services to solve medical and health problems in the digital environment

6 Financing mechanisms

On ecosystem level, access to finance is limited because there are no regional funds for supporting startups and entrepreneurship.

Business support organisations (BSOs) and innovation actors implement initiatives for fostering entrepreneurship like accelerators; training and mentoring programmes on project basis, relying on EU funded projects and programmes.

BSOs redirect founders and companies with growth potential to startup events, VC and business angels that operate on national level and are based in Sofia.

"In support of the startup ecosystem and the entrepreneurs in the Republic of Bulgaria, operates the "Fund manager of financial instruments in Bulgaria" EAD (FMFIB), which provides resources for debt and equity instruments. For the period 2021 – 2027 FMFIB will have at its disposal 1 billion euros. The Ministry of Innovation and Growth is the principal of FMFIB and in just two months managed to secure nearly 700 million euros from them. This is what we call the "perfect storm" for the startup ecosystem in Bulgaria. Since the formation of FMFIB in 2016 more than 2 600 companies and startups have been supported through these financial instruments. Additionally, in Bulgaria we have started issuing startup visas to attract talents and innovators from outside the EU to come and develop their high-tech ideas and businesses in our country", stated Alexander Poulev Minister of Innovation and Growth, Bulgaria.3

7 Sectoral specifications

The Varna region has strategically identified "Mechatronics and Microelectronics" and "Informatics and ICT" as key thematic areas for intelligent specialization between 2021 and 2027. These areas align with global technology trends and have the potential to drive economic growth, innovation, and job creation in the region.

One of the primary drivers of Varna's innovation surge is its vibrant academic landscape, including six universities and an IT-specialized high school, nurturing young talent in the fields of technology and computer science. This creates favourable environment for startups in Software, E-commerce, Retail, Marketing, and Sales.

Varna as a coastal city with huge cultural and historical heritage is also a popular tourist destination which explains why there is an increased attraction for entrepreneurs to set up their startups in industries such as Social & Leisure.

These three industries Software and Data, Marketing & Sales, Social & Leisure represent about 90% of the startups represented on the Startup Ecosystem Map of Varna.

8 The ecosystem's location

"The proximity to the sea creates conditions for the development of maritime tourism, logistics, the Varna airport is located on the territory of Aksakovo and opportunities are created for the development of transport and related activities (interview #2, 11.09.2023)

Varna is Bulgaria's third-largest city and includes a resort area on the Black Sea coast. In addition to world-class beaches and resorts, the city also has IT, outsourcing and startup opportunities that are only going to increase.

The startup ecosystem in Bulgaria is very centralized. Varna is the 2nd best startup ecosystem in Bulgaria, after Sofia. We're seeing a consolidation process whereby, if someone wants to do a startup, they

³ Global Startup Ecosystem Report 2023 - <u>https://lp.startupblink.com/report-download/</u>

go to the mainstream ecosystem. Sofia is a very highly centralized ecosystem and serves as leader and driver for the rest of the country.

9 SWOT Analysis

Strengths

- 6 universities available
- Well developed support ecosystem NGOs, co-working spaces, accelerators, etc.
- Location of the ecosystem

Weaknesses

- Centralized ecosystem in Sofia
- Lack of financial regulations & instruments supporting the startups at stage idea
- Lack of financial instruments
- Brain drain
- Still not entirely developed system of business angels
- Support provided mainly by project financing
- Lack of strong role models

Opportunities

- Improvement of linkages between support organisa tions and academia
- Development of local fund for startup support
- Promotion of the brand of the startup ecosystem
- Establishment of additional startup support infra structure

Treats

- Most of the startup support depends only on project funding
- Hard to convince its potential entrepreneurs to give up on excellent conditions while working for foreign companies and dive into building their own startup

10 Lessons Learned for Ecosys4you

The education and entrepreneurial approach are the main components of the sustainable future as they serve as basis for overcoming the challenges faced by Varna entrepreneurial ecosystem.

However, Varna entrepreneurial ecosystem needs to cooperate closer with more developed European ecosystems to enable learning and to bridge the entrepreneurship/innovation "gap".

Establishing additional startup support infrastructure based on cross-ecosystem education activities driven by private sector expertise (joint classes, mentoring, internships, and co-ideation challenges) and networking) is a priority for Varna ecosystem.

Through the Ecosys4you partnership between entrepreneurial ecosystems of the regions Ruhr in Germany (a strong innovator), Varna in Bulgaria (a modest innovator), and Maribor in Slovenia (a moderate innovator) will improve the flow of innovation resources and thus will strengthen the entrepreneurial spirit.

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Interview 1 (07.09.2023): Business support organization, regional level.

Interview 2 (11.09.2023): Local authorities municipal level.

Interview 3 (11.09.2023): Business support organization, regional level.

Interview 4 (11.09.2023): Support structure in a university

Interview 5 (13.09.2023): Support structure in a university

Entrepreneurial Ecosystem Slovenia

Marina Letonja, Zineta Vilman (DOBA Business School)

1 Key characteristics of the ecosystem

The Slovenian entrepreneurial ecosystem has evolved significantly over time. It began its development following Slovenia's independence and reached a pivotal milestone with its accession to the EU, which brought funding opportunities for infrastructure development and various programs. This ecosystem is geographically widespread, with entrepreneurial incubators and technology parks evenly distributed across different regions (12 statistical regions). Despite Slovenia's relatively small market size, it is characterized by high demand, and success at the domestic level often translates to success in international markets. Below in Table 2 are some basic data about Slovenia.

Area	20,273 km²
Population	2,108 million (2021)
Statistical regions	12
GDP (nominal) 2023	65,202 billion USD
GDP per capita	30.840 USD

Table 2. Slovenia-some basic data

Share of urban population	53%
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Source: own table

In the following Table 2, we present a map of the 12 statistical regions in Slovenia, which may differ from the naming of individual Slovenian provinces, as we will specifically point out in the text.



Figure 2. The Slovenian statistical regions

Source: Based on the data from the Statistical Office of the Republic of Slovenia.

Key actors within this ecosystem encompass larger global corporations that contribute to Slovenia's recognition and attract foreign investment. The first (and only) Slovenian unicorn is Oufit7. Additionally, innovative startups like DEWE Soft and Chipolo, Zemanta, RedOrbit play a crucial role. There are 342 startups and scaleups in Slovenia (https://www.startup.si/sl-si/startup-mapa/startupi-scaleupi). 13 very successful and recognized startups are abroad (CubeSensors, BitStamp, DataBox, D Labs, Flaviar (Mimo vrste), Kosei (Pinterest), Celtra, TVBeat, Layer (Invisible Lap), Bellabeat, She's Well).

Various organizations, such as SPS (the Slovenian Enterprise Fund), SID Bank, GZS (Chamber of commerce of Slovenia), OPZ (Craft and entrepreneurship chamber), SPIRIT, AmCham, among others, actively participate in fostering entrepreneurship. The ecosystem also benefits from the engagement of public universities (University of Ljubljana, University of Maribor, University of Primorska) and as well private universities (Univerza in Nova Gorica; while Nova Univerza and Univerza in Novo Mesto do not have a university incubator), which have established their own incubators. University incubators supported 260 startups up to 2015 (no joint recent data) with 90% survival rate (700 new jobs).

The Ministry of Economy, Tourism and sport (MGTŠ) through the public agency SPIRIT and the Slovenian Enterprise Fund (SPS) play vital roles in supporting entrepreneurship initiatives. A culture of interaction and collaboration among ecosystem participants is actively promoted, with programs like SIO (Subjects of innovative environment, there are over 21 incubators, accelerators, hubs, technological parks) facilitating networking opportunities. Moreover, international memberships, such as EBN (European Business Network), aid in benchmarking and certification processes (Interview 7, 8.9.2023)

While the ecosystem does not exhibit strict sectoral specialization, it shows a preference for technology-related ventures. Additionally, niche associations exist within this diverse landscape. The ecosystem's focus is directed toward supporting small businesses, recognizing their potential for significant local impact.

Ljubljana, the capital city, serves as the primary center for business activities and networking. However, regional associations and initiatives, particularly in Štajerska (Podravska statistical region) and Primorska regions (Goriška and Obalno kraška statistical regions), contribute significantly to the ecosystem's development.

Entrepreneurial development faces challenges, primarily related to spatial planning constraints, limited business zones, and transportation issues, particularly in rural areas. There is insufficient land for establishing and expanding business activities for a serious entrepreneur and there is also a shortage of commercial space. While in Gorenjska statistical region for example there are 96 business zones in 18 municipalities none of them are suitable for a substantial investment (Interview 10,11.9.2023). Rural areas often face iinsufficient infrastructure, limited public transportation options, and connectivity gaps.

Capital availability generally poses no significant hurdle for entrepreneurs. However, some may seek funding abroad due to perceived limitations within the local ecosystem. There is lack of financial resources to support bigger scale projects. Stakeholders acknowledge the importance of collaboration, consortium investments, and the pursuit of larger-scale projects to further strengthen the entrepreneurial landscape (Interview 11, 11.9.2023)

2 What is special about the entrepreneurial ecosystem?

"Slovenia is inherently an innovative nation with significant entrepreneurial potential. However, there is a need to change the mindset from school onwards and gain confidence. There is a wealth of knowledge, and we are proficient in multiple languages." (Interview 6, 8.9.2023).

Slovenia's entrepreneurial ecosystem stands out for its global orientation, strong support network, sectoral diversification, active collaboration, regional development initiatives, emphasis on small businesses, global connections, and a clear focus on collaborative efforts for sustained growth. However, it faces some challenges and unique characteristics that shape its dynamics:

Global outlook: Slovenia's relatively small domestic market encourages entrepreneurs to think globally from the start. Entrepreneurs often aim to expand beyond national borders early in their development, which can lead to rapid internationalization (Interview 6, 8.9.2023).

Strong support network: The ecosystem benefits from a robust support network, including a multitude of incubators, technology parks, and business associations. These organizations provide mentorship, resources, and funding opportunities, fostering a nurturing environment for startups and innovative companies. However, systemic financing was present until 2013, ordered by the Entrepreneurship Promotion Act, after which the private sector began to integrate into the supporting environment, leading to a lack of standardization in systemic funding (Interview 2, 11.9.2023).

Diverse sectoral landscape: While there is no strict sectoral specialization, the ecosystem exhibits a growing affinity for technology-related ventures (Interview 3, 08.09.2023). This diversification allows for the exploration of various industries and markets, reducing overreliance on specific sectors.

Active collaboration: Collaboration among ecosystem stakeholders is actively encouraged and promoted through various programs and memberships in international networks. This collaborative spirit enhances knowledge sharing, innovation, and the overall competitiveness of the ecosystem. However, there is a somewhat confusing array of service providers for startups, and the absence of a true accelerator has led to blurred boundaries between incubators and accelerators (Interview 2, 11.9.2023).

Regional initiatives: In addition to the central hub of Ljubljana, regional initiatives in areas like Štajerska and Primorska contribute significantly to the ecosystem's development. These regional hubs support local entrepreneurship and contribute to the overall resilience of the ecosystem. Nevertheless, a clear demarcation of functions and a need for long-term policy and legislation in areas like employment, law on foreigners, and taxes are recognized challenges (Interview 4,08.09.2023).

Lack of financing for more demanding development projects: There is a lack of financing for more demanding development projects (larger scale projects, over 1 mio EUR), especially in the initial stages, where other countries provide higher levels of funding for young companies (Interview 1, 06.09.2023).

Global connections: Membership in international organizations like EBN enables benchmarking, international certification, and access to a broader entrepreneurial network. This global perspective enhances the ecosystem's competitiveness (Interview 7, 8.9.2023).

Recognition of the need for collaboration: Stakeholders within the ecosystem recognize the importance of collaboration, consortium investments, and the pursuit of larger-scale projects. This acknowledgment underlines the commitment to further strengthening the ecosystem's impact. (Interview 5, 11.09.2023; Interview 3, 08.09.2023)

Focus on niche and research-oriented products: Slovenian companies are known for their focus on niche, development-research-oriented products with high added value (Interview 5, 11.09.2023). They generally maintain their focus on niche and research-oriented products/services after entering and operating at the global level (Interview 9, 10.9.2023; Interview 6, 8.9.2023).

3 The ecosystem's evolvement over time

The entrepreneurial ecosystem in Slovenia has undergone significant evolution over time, with numerous milestones and developments shaping its growth and dynamics:

Founding years (Early 1990s): The foundation of the Slovenian entrepreneurial ecosystem dates back to the early 1990s, following the country's declaration of independence from Yugoslavia in 1991. This period marked the commencement of economic reforms and the transition to a market-based economy (Interview 4, 08.09.2023; Interview 13, 27.9.2023).

EU accession (2004): Slovenia's accession to the EU in 2004 was a pivotal moment for the ecosystem. It opened doors to EU funds, which played a crucial role in supporting infrastructure development and various entrepreneurial programs. Pre-accession initiatives like the PHARE programs were instrumental in fostering entrepreneurship (Interview 8, 8.9.2023).

Incubator movement (1990s - 2000s): During this period, incubators such as Inkubator Sežana, founded in 1991, LUI – University Incubator of Ljubljana played a crucial role in nurturing early-stage startups. These incubators provided valuable mentorship, workspace, and access to funding, enabling entrepreneurs to transform their ideas into viable businesses (Interview 4, 08.09.2023; Interview 7, 8.9.2023).

Expansion of support network (2000s): Over the years, the support network for entrepreneurs expanded significantly, marked by the establishment of additional incubators, technology parks, and business associations. These entities acted as strong pillars of support, offering resources and guidance to startups and innovative companies. (Interview 4, 08.09.2023)

Private sector integration (2007): The founding of the startup company Zemanta in 2007, which attracted investors through the London accelerator, marked a significant milestone. This venture, headquartered in New York and later acquired by Outbrain in 2017, contributed to the growth of the startup community in Slovenia (Interview 3, 08.09.2023).

Seed capital program (SK 2014): The SPS program in 2014, focused on seed capital, played a vital role in bridging the gap in seed financing for startups, providing essential support for their early-stage development. (Interview 1, 06.09.2023)

Supportive environment evolution: The Slovenian ecosystem witnessed the establishment of Entrepreneurship centers throughout the country, designed to support the creation, growth, and development of potential and existing entrepreneurs. The transition from traditional chamber-based support to a more inclusive and accessible environment for entrepreneurs occurred around 1998/1999 (Interview 7, 8.9.2023).

Global expansion and internationalization support: Business clubs (15) were established globally with the aim of supporting internationalization efforts, providing access to education, mentors, and external experts. The introduction of a voucher system in 2015 offered incentives for mature companies, further promoting internationalization (Interview 5, 11.09.2023).

SPOT points (Since 2017): The introduction of SPOT points, or Slovenian business points, in 2017 introduced a pyramid system with four levels, facilitating various aspects of entrepreneurship, including information, registration, counseling, and global market access (Interview 5, 11.09.2023; Interview 4, 08.09.2023).

Structured mentoring and expert support: Recognizing the evolving needs of entrepreneurs, there is a growing emphasis on mentoring and expert support, particularly for startups and innovative companies. Pilot projects are being launched to extend mentoring to a wider range of companies beyond startups.

Innovative ecosystem separation: There is a growing recognition of the need to distinguish between the innovative entrepreneurial ecosystem and the traditional craft-entrepreneurial sector, with efforts to cater to both segments (Interview 5, 11.09.2023).

National initiatives: SPIRIT, as a national agency (under umbrella of the ministry - MGŠT), plays a vital role in raising the entrepreneurial culture across all types of companies in Slovenia (Interview 12, 15.9.2023).

Venture capital development: Milestones in the venture capital landscape include the establishment of venture capital funds (the first was Horizonte Venture Management) and increased financing options for startups and scale-ups (Interview 1, 06.09.2023).

Legislation and supportive framework: Acts and programs such as the Act on Encouraging Entrepreneurship have systematically defined conditions for the supportive environment, blending public and private sector efforts.

Ecosystem expansion: The establishment of the Ljubljana Technology Park, Ljubljana University Incubator (LUI), Startup Slovenia initiative, Tovarna podjemov, and other organizations contributed to the growth of the Slovenian entrepreneurial ecosystem. (Interview 4, 08.09.2023)

4 Key actors

"The state has found a way to support entrepreneurship in cooperation with the Chambers of Crafts and of Commerce and Industry. VEM and SPOT points play important role. But entrepreneurship still needs to be encouraged, because we don't have it in our genes" (Interview 13, 27.9.2023).

The entrepreneurial ecosystem in Slovenia is a dynamic and multifaceted landscape that benefits from the active involvement of a wide range of key actors. These actors collectively contribute to the growth and development of entrepreneurship and innovation in the country. They include:

Innovative startups:

Zemanta, DEWE Soft and Chipolo remain prominent within the ecosystem, serving as inspiring success stories. (Interview 4, 08.09.2023) Their rapid growth and international achievements serve as beacons of possibility, encouraging other entrepreneurs to pursue their innovative ideas and expand their operations beyond Slovenia's borders.

Support organizations:

SPS (Slovenian Enterprise Fund), SID Bank, GZS (Chamber of Commerce and Industry of Slovenia), OPZ (Chamber of Crafts and Entrepreneurship), SPIRIT, AmCham (American Chamber of Commerce in Slovenia), and others continue to be indispensable pillars of support. They offer a wide range of assistance, including funding, mentorship, networking opportunities, and advocacy, thus nurturing a favorable environment for entrepreneurs and businesses. (Interview 4, 08.09.2023) SPIRIT is acknowledged by all stakeholders as playing a significant role in the development of entrepreneurship and support for entrepreneurs in Slovenia as a whole. SPIRIT project SPOT SIO and SIO (Subjects of the innovative environment - idea-builders, startups, scale-ups) is worth mentioning - a project that has been carried out several times - education, mentoring, consulting, expert consulting. (Interview 5, 11.09.2023)

Regional development agencies (RRA):

Regional development agencies like RAGOR in Gorenjska statistical region and Develpment center (RC) Novo Mesto as well as Pomurski Technology Park, and Technological Park Primorska, play pivotal roles in promoting entrepreneurship at the local/ regional level. They offer targeted resources and guidance to startups and businesses within specific regions, fostering regional economic development.

Incubators and accelerators:

Tovarna podjemov Maribor, Incubators Sežana and Katapult, provide crucial support to early-stage startups. They offer mentorship, training, co-working spaces, and access to funding, helping startups develop their ideas and scale their operations. Katapult enables the testing and production of physical products and has specialized rigorously. What we're currently missing is an accelerator similar to the ABC Accelerator as it used to be in its past, which played a vital role in providing funding for startup ventures. (Interview 2, 06.09.2023) Even if it were an outpost of a foreign accelerator, it would suffice. Although ABC will retain the role of an accelerator to a lesser extent, it will by no means fill the gap in the entrepreneurial environment (Interview 11, 11.9.2023). Public and one of the private universities have established their incubators, as mentioned previously above, serving as hubs for innovation and entrepreneurship within the academic community. These incubators, like LUI Ljubljana university incubator - offer resources to students and researchers looking to turn their ideas into businesses.

Government entities:

The Ministry of Economy, Tourism and Sport (MGŠT) continues to play a pivotal role in shaping the entrepreneurial landscape through policy development and initiatives aimed at supporting startups and businesses.

The Slovenian Enterprise Fund (SPS):

It remains a vital source of funding, providing various financing options and support programs to facilitate business growth. One of the primary functions of the SPS is to provide financial support to entrepreneurs and businesses. This support comes in various forms, including grants, loans, equity investments, and subsidies. These financial resources are instrumental in helping startups and established businesses secure the necessary capital for growth, innovation, and development (.

Business associations and chambers:

GZS, OPZ, play a role in advocating for the interests of businesses and providing platforms for networking and collaboration. Several international chambers of commerce, e.g. AmCham Slovenia, Advantage Austria - Commercial Section of the Austrian Embassy, German-Slovenian Chamber of Commerce and Industry (AHK Slovenia) etc. provide valuable resources, support, and networking opportunities for businesses seeking to expand their international reach and engage in cross-border activities.

Business angels, venture capital funds:

e.g. South Central Ventures and Fille Rouge Capital, offer crucial financial support and expertise to earlystage startups, helping them bridge the gap between concept and commercialization.

International Networks:

EBN (European Business and Innovation Centre Network) remains a valuable asset for Slovenian entrepreneurs. It provides opportunities for benchmarking, international certification, and expanding global networks, further bolstering the internationalization of local startups.

State Resources and Support:

The state, through entities like MGŠT, SPIRIT, and SID Bank, provides essential resources to create a supportive environment for entrepreneurship. The Slovenian Regional Development Fund (Ribniški Sklad) and SPS contribute significantly to fostering a favorable climate for business growth.

Local and regional iinstitutions and initiatives:

Many local institutions, including accelerators, incubators like Technological Park Ljubljana, and regional institutions like Tovarna podjemov Maribor, Primorski Technological Park, as well as SPS with subsidies, play critical roles in supporting entrepreneurship at the grassroots level.

5 Interactions between ecosystem actors

Interactions among the various actors within the Slovenian entrepreneurial ecosystem are dynamic and fostered through multiple channels. Several networking events serve as catalysts for interactions within the ecosystem. Among them, the most prominent is the PODIM conference. This annual event gathers entrepreneurs, investors (many foreign investors), and ecosystem stakeholders, providing an excellent platform for networking, knowledge sharing, and investment opportunities(Interview 2, 06.09.2023; Interview 4, 08.09.2023). Additionally, events like Brdo – Infodan (Info Day) and the Day of Innovation further facilitate networking and collaboration.

Collaborative programs, such as the SIO (Subjects of innovative environment), play a crucial role in fostering interactions (Interview 5, 11.09.2023). Through SIO, stakeholders come together to support startups, exchange information, and collaborate on various projects. This program encourages networking and cooperation among actors in the ecosystem. The main event of SPS (once a year) is: Forum 100% startup, organized before the tender of the P2 (startup subsidy), with the participation of speakers and investors. It is also worth mentioning MOS (International Craft Fair in Celje), where there is an opportunity for meetings between startups and domestic as well as foreign investors that has not been utilized in the past.

We should mention as well SRIPs (Strategic Research and Innovation Partnerships) which are an example of sectoral connections. Connected entities find it easier to reach lawmakers.

Slovenian key entrepreneurship ecosystem actors, such as incubators and support organizations, are members of international networks like EBN (European Business Network). This membership allows for benchmarking and certification and facilitates interactions on a global scale, enriching the ecosystem with international insights and connections.

6 Connection between (specific) ecosystem actors and the HEIs

Ecosystem actors, such as incubators and innovation hubs, often collaborate closely with higher education institutions (HEI), including universities and research centers. They initiate and participate in various collaborative programs and initiatives that aim to bridge the gap between academia and entrepreneurship. These programs provide opportunities for students, researchers, and faculty members to engage with real-world business challenges, gain practical experience, and contribute their expertise to startups and innovative companies. Universities often serve as valuable sources of talent and research expertise, while ecosystem actors offer students and researchers access to the practical aspects of entrepreneurship and the business world.

Public and one of the private universities in Slovenia have established their own incubators and innovation centers. (Interview 4, 08.09.2023) These specialized facilities provide resources and support to students, alumni, and faculty members looking to transform their innovative ideas into viable businesses. University-based incubators serve as a bridge between academic research and entrepreneurship by offering mentorship, workspace, funding opportunities, and access to networks and investors.

Higher education institutions engage in collaborative research projects with ecosystem actors, especially in sectors like technology, science, and engineering. Chemical Institute, Institute of Biology, and Jozef Stefan Institute (IJS) can be important for expanding sector-specific opportunities.

7 Financing mechanisms

"There is a very high potential in this field because stakeholders realize the need for collaboration and creating larger narratives, also in terms of consortium investments (bringing together multiple investors for larger investments and not focusing only on smaller projects" (Interview 11, 11.9.2023).

In Slovenia's thriving entrepreneurial ecosystem, founders have access to a wide array of financial mechanisms and funding sources to fuel the growth and development of their startups. The availability of these financial options can vary depending on factors such as the stage of development, industry sector, and the specific needs of the startup. Here's an expanded overview that includes recent financial incentives and initiatives:

Public funding programs: The Slovenian Enterprise Fund (SPS) offers a mix of grants, loans, and equity financing tailored to startups at different stages of their journey. It provides essential financial instruments such as seed and startup capital, microloans, and guarantees designed to streamline access to capital for early-stage companies. (Interview 1, 06.09.2023)

Private investors and angel networks: The Business Angels of Slovenia (BAS) offer platforms for startups to connect with potential investors and secure much-needed capital.

Crowdfunding platforms: Several crowdfunding platforms enable founders to raise funds from a broad base of individual investors who believe in their vision.

Accelerators and incubators: They not only provide mentorship and resources but also offer direct investments to startups in exchange for equity, further fueling their growth. (Interview 1, 06.09.2023)

Bank financing: Traditional bank loans and credit lines are accessible for startups, although access may depend on factors such as the startup's financial health, collateral, and creditworthiness.

European Union programs: They serve as valuable sources of finance for startups engaged in innovative projects.

Venture capital and private Equity: Securing these funds can be competitive and may require a proven track record of success.

Recent financial incentives: they include Startup incentives (grants for business startups); Seed capital and equity financing for young innovative companies with growth potential; Venture capital opportunities through programs like the Central European fund of funds for venture capital; Direct credits and microcredits for liquid operations, especially for micro and small businesses; Guarantees for easier borrowing, including interest rate subsidies; Special incentives for specific target groups, such as those focused on digitalization and sustainable development. As well they include incentives for increasing competences: mentoring programs, training, and networking opportunities, which are crucial for founders' personal and business growth; SME training and networking programs tailored to sustainable development; Vouchers, providing co-financing for various initiatives, support entrepreneurs in enhancing their skills and market presence. There are also specific initiatives for sustainable development including those supporting health, energy-efficient supply chains, environmental initiatives, and digital transformation in the 4.0 industry (Interview 1, 06.09.2023xxxx).

8 Sectoral specifications

Slovenian ecosystem is not sectorally oriented due to the small market size and a focus on innovation rather than sector-specific limitations. While there are some instances of specialization, the overall approach is diverse and adaptable to different industries and technologies. The focus on innovation is closely tied to the availability of funding sources, allowing flexibility in supporting various sectors. The only exceptions are sectors that are covered differently in EU tenders. (Interview 5, 11.09.2023) While sectoral specialization is not prevalent, some regions and incubators exhibit specialization based on their strengths. For instance, Ljubljana University Incubator specializes in health, with a connection to 26 faculties and a focus on technological projects. Kovacnica Kranj specializes in food and Katapult is specialized in physical products, particularly in the development of hardware products, recognizing the challenges in this sector. (Interview 5, 11.09.2023). RC Novo Mesto is specialised and focuses on robotics applications and automatization of production processes and digitalization. For the purpose of this specialization they established technological institute Rudolf – through which they collaborate with

companies in the region and provide practical training for high school kids and students. Inkubator Sežana is trying to orient itself towards the creative industries associated with karst stone and photography. Furthermore, there are specific fund orientations within verticals, including WEB3 technologies and biotech.

9 The ecosystem's location

"The entrepreneurial ecosystem is highly dispersed, almost too much." (Interview 2, 06.09.2023)

Slovenia's entrepreneurial ecosystem does not appear to be a barrier in terms of location - Slovenia is small, any region can be reached within two to three hours. Practically all regions are covered with basic support infrastructure for entrepreneurial activities (incubators, technological parks etc.), which has developed very quickly. The Slovenian startups can start anywhere in the Slovenian environment, but they have as well good opportunities to connect with other entrepreneurial ecosystems, e.g. in Italy and Austria. (Interview13, 30.08.2023; Interview 7, 08.09.2023).

10 The ratio between supporting infrastructure and actual startups in the ecosystem

The ratio between supporting infrastructure and actual startups in the ecosystem appears to be wellbalanced, with a significant investment in providing a conducive environment for startups to grow and succeed. This balance fosters innovation, entrepreneurship, and the development of a thriving startup ecosystem in Slovenia. However the ratio between supporting infrastructure and actual startups in the ecosystem can vary significantly depending on the region and the specific ecosystem. Successful example represents Incubator Sežana, which is located in Coastal-Karst region. Over the years, they have established 370 companies. They follow companies for up to 5 years, and the survival rate of companies is 85%.

While a robust supporting infrastructure, including incubators, accelerators, and funding sources, is crucial for nurturing and guiding startups, the ultimate goal is to see a healthy number of actual startups thriving and contributing to economic growth

11 SWOT Analysis

Strengths

- supporting infrastructure, including entrepreneurial incubators, technology parks, and regional development agencies – covering all the territory of Slovenia
- a culture of collaboration and networking among ecosystem actors, fostering innovation and knowledge sharing
- access to European funding programs, supporting infrastructure development and entrepreneurship initiatives
- Global Recognition one unicorn
- Education and talent Access to quality education and a skilled workforce contribute to a favourable environment for startups
- there are role models (large and successful startups)

Weaknesses

- Spatial planning limitations and a shortage of suitable business zones hinder entrepreneurial development, particularly in rural areas
- Centralization tendency, many support activities concentrated in Ljubljana, the capital of Slovenia
- Dependency on specific industries while the ecosystem supports various sectors, there is a need to diversify further to reduce dependency on specific industries.
- Limited access to capital some startups seek funding abroad due to perceived limitations in the local ecosystem (larger scale projects)

Opportunities

- Specialization in key sectors: opportunities exist for the ecosystem to specialize in key sectors such as health care, ICT, and more, enhancing competitiveness.
- Collaborative funding: exploring collaborative funding models and consortium investments can support largerscale projects.
- Regional expansion: expanding entrepreneurial activities to regions outside the capital region can promote balanced development in Slovenia as a whole.
- Innovation promotion: continued efforts to promote innovation and entrepreneurship can lead to the emergence of more innovative startups
- Networking and internationalization can open doors to global markets and investments.
- Working with young generations development of creativity, innovativeness, entrepreneurial skills in primary schools

Threats

- Centralization risk: the centralization of activities in Ljubljana may lead to regional disparities and neglect of rural areas
- Infrastructure limitations: spatial planning constraints and transportation issues may limit the growth of business zones and startups
- Global economic uncertainty: can impact the flow of foreign investment and affect startups' access to capital
- Competition: from neighbouring countries in attracting startups and foreign investments
- Regulatory changes: can impact the ease of doing business for startups
- Competition for personnel due to lack of skilled labour.

12 Lessons Learned for Ecosys4you

- A supportive and well-developed environment for the development of startups.
- Various programs and projects promote the sustainable development of startups, scale-ups, and SMEs through specialized partnerships, both in Slovenia and on the international stage.
- While there are multiple financing options, some startups may still face challenges in accessing finance. Factors such as the stage of development, the novelty of the idea, and the sector can impact the ease of securing funding.

• Startups in niche or highly specialized sectors may find it more challenging to attract investors.

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Entrepreneurial Ecosystem in the Ruhr, Germany

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1 Introduction to the Ruhr's entrepreneurial ecosystem

The Ruhr, situated in the western part of Germany, is a densely populated polycentric area that comprises 53 cities and is home to approximately 5.3 million residents. It hosts 22 universities and universities of applied sciences educating about 290,000 students, 26,000 of whom graduate each year (Kriegesmann et al. 2019; Metropole Ruhr 2023). The entrepreneurial ecosystem stretches across the entire region with activities concentrated in the four larger cities of Dortmund, Bochum, Essen and Duisburg. According to recent figures, the ecosystem has generated 598 startups & scaleups (Gründerallianz Dealroom 2023), of which the majority is in the B2B segment. Only recently have there been more startups with B2C business models (Interview 14, 31.08.2023).

The entrepreneurial ecosystem has numerous support activities and a blend of municipal, regional and university-based initiatives. Private initiatives account for a smaller share. Most of the activities, like events or competitions, and infrastructures, like incubators or accelerators, are funded with public money. While the public money has boosted activities, it is also considered a threat by some interviewees. Funding is predominantly project based and many of the projects terminate in 2024 (Interview 14, 31.08.2023; Interview 12, 25.08.2023). It is currently unclear if these activities can continue after 2024.

The foundation of the ecosystem can be traced back to the early 2000s. But it was only with the foundation of the ruhrHUB in 2016 that networking, cooperation, and visibility substantially increased. The ruhrHUB is a startup accelerator initiative by the six municipalities Dortmund, Essen, Bochum, Gelsenkirchen, Mülheim and Duisburg and the regional economic development agency Business Metropole Ruhr (BMR). In addition to its accelerator activities, the ruhrHUB organises large events for startups, such as the ruhrSUMMIT, which is considered to be an important annual meeting by the ecosystem's actors. The ruhrHUB is financed 50% by the federal state of North Rhine Westphalia through the #DWNRW-Program and 50% by its shareholders, which are the aforementioned six municipalities and the BMR.

Most universities and universities of applied sciences have developed startup support infrastructures during the last 5-7 years, e.g. the World Factory at the Ruhr University of Bochum, the ANDERSMACHER of the Westphalian University of Applied Sciences or the CET at the TU Dortmund University. In addition, the municipal economic development agencies have increased their capacities to support startups. For example, there are four startup competitions in Dortmund: start2grow (tech), greenhouse (social & impact entrepreneurship), urban foundations (foundational economy), and DOaccelerate (international scope, currently under redevelopment). Duisburg recently developed the incubator garageDU in 2022, Bochum hosts the business plan competition Senkrechtstarter, and developed the municipal incubator named Werk X. The city of Essen has hosted the H2hub since 2021 with a focus on hydrogen startups.

2 Distinctions of the Ruhr's entrepreneurial ecosystem

"The Ruhr is actually more interesting in terms of structure than Berlin, because the structure here is more diversified and not so focused. You can use the strengths of the cities and develop focal points. The connections between the cities could be expanded here and there, but in many places the overarching cooperation between the cities works very well" (Interview 4, 24.07.2023).

The entrepreneurial ecosystem's distinctions can be summed up as follows: (1) there is an extraordinary density of municipalities and universities providing a lot of support infrastructures for startups; (2) the ecosystem actors have developed a strong regional network with intensive and diverse cooperation structures; (3) the actors' mindsets are rooted in the regional culture, which means they are considered very authentic and honest; (4) there is broad sectoral diversity and (5) a well-balanced complementarity of startup-support infrastructure exists across the different cities.

1 - Density of municipalities and universities: Almost all interviewees considered the density of municipalities and universities with many students as a distinction. It results in complementary startup-support structures and initiatives. The universities focus on the specialisation of their faculties with notable spinout potential. Examples are CUBE5, a cybersecurity incubator at the RUB, or the ruhrvalley Startup-Campus of three universities of applied sciences (University of Applied Sciences Dortmund, University of Applied Sciences Bochum, and Westphalian University of Applied Sciences). The municipal development agencies and other municipal actors have broader scope, both in terms of sectors and spatial scope that can reach out at the national or international level. However, there are also critical voices claiming that the "double offer leads to confusion (...) and as a new startup centre, this makes it rather

difficult to find your own foothold" (Interview 2, 18.07.2023). The parallel structures were also criticised by another interviewee (Interview 10, 07.08.2023).

2 - Networking and cooperation: Good networking and cooperation among the various actors is considered as an advantage by the interviewees. The actors know each other very well (Interview 14, 31.08.2023). It is common practice to provide consulting for founding teams across different cities' support structures. If there is better suited consultancy elsewhere, founding teams are sent out to profit from the other cities' facilities. However, despite all the activities, one interviewee from a private startup support facility believes that "universities in the Ruhr area are still not so good at startup culture, little startup is taught. There is a lot of startup support and offers, but this is often only project based. They have one year to set up, then one year to try to make it permanent and then one year to look for new project funding. In some cases, the formats take each other's few founders" (Interview 3, 17.07.2023).

3 - The actors' mindset: Unlike the startups with very fast scaling in Berlin, the startup scene here is characterised by small startups. According to an interviewee, "that adds to the authenticity. The authenticity and the mindset we have here is really nice. There is an authentic willingness to achieve something here" (Interview 4, 24.07.2023). Another interviewee put it as follows: "The kind of people and their authenticity positively influence the entrepreneurial ecosystem, as there is no arrogance" (Interview 8, 08.08.2012).

4 - Sectoral diversity: A certain sectoral specialisation of the Ruhr entrepreneurial ecosystem exists in the municipalities. For example, logistics is a focus in the cities of Dortmund and Duisburg, cybersecurity has a stronghold in Bochum and in Gelsenkirchen, while in Essen there is a focus on digital startups and industrial tech, and in Mülheim on e-commerce and retail (Interview 14, 31.08.2023). There are also initiatives and infrastructure dedicated to supporting female founders, such as the Female Founders Ruhr which is supported by the Initiativkreis Ruhr (Female Founders Ruhr 2023) or the centre for female entrepreneurs in Dortmund (Gründerinnenzentrum Dortmund 2023).

5 - Complementarity of support infrastructure: There is diverse support infrastructure for all kinds of business ideas and founder teams. However, a lot of the offers concern pre- and early startup phases and there are significantly fewer that concentrate on scaling-up. Only the ruhrMASTERS launched by the ruhrHUB and Scale-up.NRW launched by the federal state of North Rhine Westphalia provide fund-ing for scaleups (Interview 14, 31.08.2023; Interview 12, 25.08.2023).

3 The ecosystem's evolution over time

"10 years ago, the support ecosystem consisted only of starter centres. The ruhrHUB community initiative was a milestone and the ecosystem has become stronger and more visible. 'The Ruhr is doing something', this was an important message" (Interview 9, 11.08.2023).

Startup support activities began at the end of the last millennium with the foundation of the Gründer Support Ruhr (GSR), a network of mentors and business angels, in 1998 (Gründer Support Ruhr 2023), and of the Business Angel Alliance Ruhr (BAAR) in 1999 (ruhrHUB 2023). This was followed by the first startup competition start2grow in 2001, launched in the city of Dortmund (Interview 13, 30.08.2023),

and by the senkrechtstarter startup competition in Bochum in 2006 (Interview 1, 12.07.2023). These competitions are now well established and focus primarily on high-tech startups.

In addition, the STARTERCENTERS NRW were established. They are financed by the federal state of North Rhine Westphalia and run by the chambers of commerce and crafts, partly in cooperation with the municipalities. For example, the STARTERCENTER NRW for Emscher-Lippe, a sub-region with some municipalities from the Ruhr, commenced its activities in Gelsenkirchen in 2007 (IHK Nord Westfalen 2023). They aim mainly to support company foundations in the crafts or retail sector and are less suited to supporting high-tech startups who wish to scale-up. Interviewees suggest that during this early phase of the ecosystem there was little cooperation on the inter-municipal level. Rather each city strived to establish a support system locally (Interview 14, 31.08.2023; Interview 12, 25.08.2023). Hence, there was no real Ruhr entrepreneurial ecosystem around 2010 (Interview 7, 02.08.2023).

A milestone in the development of today's entrepreneurial ecosystem in the Ruhr was the foundation of the ruhrHUB, because it is an inter-municipal initiative (Interview 5, 28.07.2023) that organised the first ruhrSUMMIT in the year 2017 (Interview 8, 08.08.2012). The ruhrSUMMIT evolved into the regional meet & greet event for all startups and ecosystem actors and is considered very important because of its character as a "class reunion" (Interview 12, 25.08.2023). All actors of the entrepreneurial ecosystem attend the ruhrSUMMIT, which has evolved so that it now provides an "umbrella" function for all the smaller events taking place across the region (Interview 6, 26.07.2023). Founding teams can pitch their business ideas and in addition there are investors and keynotes given by successful company founders. Due to the impact of the first ruhrSUMMIT on establishing the ecosystem, it can be considered a field-configuring event (Schüßler et al. 2015).

Actors started to talk of an entrepreneurial ecosystem after 2017 and "it all became really dynamic" (Interview 12, 25.08.2023). However, the COVID-19 pandemic massively reduced activities and a lot of events were held online (Interview 14, 31.08.2023). Meanwhile, cooperation and interaction have returned to pre-pandemic levels in most cases. It is only in the smaller cities that activities such as a "*Gründerstammtisch*" have not yet been restarted (Interview 9, 11.08.2023).

4 Key actors

"Many, there is not one." (Interview 12, 25.08.2023)

Municipal actors / economic development agencies:

There are 53 local economic development agencies in the Ruhr, offering basic support for all those interested in founding a business. The larger economic development agencies in Essen, Bochum, Dortmund and Duisburg have established dedicated startup infrastructure such as incubators/hubs and prestige business plan competitions.

Regional economic development agencies:

There are several regional economic development agencies, for example the Business Metropole Ruhr for the entire region and the Win Emscher Lippe for the northern parts of the Ruhr region. These agencies are interested and supportive regarding the entrepreneurial ecosystem. They currently focus on coordination and support activities.

Regional and/or inter-municipal initiatives:

The ruhrHUB is an outstanding region-wide initiative clearly deemed successful by the interviewees. Its launch was seen as being the initial spark of the ecosystem by many interviewees.

Universities and universities of applied sciences

There are 22 universities in total, the most important universities are the Ruhr University Bochum (RUB), TU Dortmund University (TUDO) and the University of Duisburg Essen (UDE). Important universities of applied sciences are in Bochum, Dortmund, Essen, Bottrop and the Westphalian University of Applied Sciences (Gelsenkirchen, Bocholt and Recklinghausen). Universities and universities of applied sciences have further developed their technology transfer offices to establish targeted startup infrastructure. In addition, the RUB was able to attract national funding for developing CUBE5, an incubator for cybersecurity startups.

There is substantial NRW-funded startup support infrastructure at two of the Ruhr universities:

Worldfactory startup centre at RUB Bochum.

CET Centre for entrepreneurship and transfer TUDO.

Furthermore, six NRW universities received funding as part of the Programme Excellence Startup Centre NRW.

Alliances of universities and universities of applied sciences:

The ruhrvalley StartUp-Campus is an initiative by three universities of applied sciences and is becoming increasingly visible (Interview 14, 31.08.2023). The University Alliance Ruhr is an alliance between the three large universities in Bochum, Essen, and Dortmund but it has no particular startup activities. These are connected to the universities directly.

Private sector initiatives and actors:

Private initiatives include BRYCK, the Günderallianz Ruhr, the Business Angel Alliance Ruhr (BAAR), Cusp Capital Partners GmbH, Gründer4Ruhr, the Initiativkreis Ruhr, the Impact Factory Duisburg and labs.ruhr. These private-sector initiatives have considerable overlaps with public initiatives. Importantly, BRYCK and the BAAR are distinguished by the fact that these two initiatives have the financial power to finance startups. This finance is provided by business angels in case of the BAAR, and by the RAG Foundation as a financial investor with regional roots in the case of BRYK. This is a strong advantage compared to the many public sector initiatives.

5 Interactions between ecosystem actors

"But at the end of the day, it's not so much the single big events, but the many small opportunities" (Interview 4, 24.07.2023).

The largest event is the ruhrSUMMIT, organised by the ruhrHUB on a yearly basis. It is perceived as the meet & greet event of the scene and considered important by most interviewees. The last ruhrHUB was structured into different 'towns' such as 'her hood', 'digital health', 'future web' and 'impact' (ruhr-SUMMIT 2023). The ruhrSTARTUPWEEK each September is also organised by the ruhrHUB. It takes place across the entire region in the different cities which all host events, such as workshops, pitches, parties, consultancies, etc. (ruhrHUB STARTUPWEEK 2023).

In addition, there are events on the municipal level, for example ceremonies and parties connected to the competitions start2grow or senkrechtstarter. Sector-specific events are very important and a useful addition, as stated in Interview 14: "Problems and concerns are not disclosed on the ruhrSUMMIT's big stage, but rather at the small and more informal events" (Interview 14, 31.08.2023).

As mentioned above, the higher education institutions are important players in the ecosystem. They provide their own startup infrastructure and generate a large share of startups. Cooperation between the large universities and municipal activities is intensive, as is cooperation between the universities and the startups they generate, e.g. between professors and founders (Interview 4, 24.07.2023)

6 Financing mechanisms

The funding landscape for the pre- and early startup phases is very diverse. The means to get funding include:

- Competitions with financial awards in the form of one-time payments, such as start2grow in Dortmund. Some other competitions have non-material awards but, for example, consultancy.
- Scholarships such as the Gründerstipendium.NRW are a way to finance founders in the early development phase of a startup. The Gründerstipendium.NRW is funded by the state of North Rhine Westphalia. The funding is only 1000 euros a month. A second scholarship, also financed by North Rhine Westphalia, is EXIST, which targets graduates from higher education institutions. Equally, the economic development agency in Bochum grants a scholarship to founders if they set up a business in Bochum (1500 euros for six months).
- NRW.SeedCap for highly successful young companies is a programme run by the Bank of North Rhine Westphalia to support companies by providing capital of between 100,000 and 500,000 euros provided that a private investor or a business angel invests the same amount of capital. A similar finance mechanism is the Invest Grant from the Federal Office for Economic Affairs and Export Control. The Invest Grant facilitates startups in their search for venture capital investors and is thus also a mechanism to mobilise venture capital.
- The BAAR forum of the Business Angel Alliance Ruhr offers an opportunity to pitch to attract business angel investment. There is no information about the success rate, as angels are often very secretive. The pitching startups are usually already established.

Getting financial support in later startup phases is more challenging than in the early phases.

7 Sectoral specifications

There are specialisations across the entrepreneurial ecosystem within the different cities. Logistics is a focus in the cities of Dortmund and Duisburg, as these cities have inland harbours. In addition, Dortmund specialises in supporting IT startups and there is a strong connection to the renowned computer science faculty at the TU Dortmund University. Cybersecurity has a stronghold in Bochum because of the very successful cybersecurity research at the Ruhr University Bochum (RUB) and in Gelsenkirchen due to the Institute for Internet Security, If(is), at the Westphalian University of Applied Sciences. Essen has a focus on digital startups and industrial tech, and Mülheim on e-commerce and retail (Interview

14, 31.08.2023). In addition to cybersecurity, another sectoral focus in Bochum is on digital health startups. Two initiatives focus on social entrepreneurship, Greenhouse in Dortmund (Interview 13, 30.08.2023) and the Social Impact Factory in Duisburg (Interview 11, 18.08.2023).

8 The ecosystem's location

"Other ecosystems such as Berlin, Hamburg, Munich, Frankfurt cannot be compared with the Ruhr, comparing oneself with others is pointless; the Ruhr is strong in itself; however, one can learn from each other" (Interview 5, 28.07.2023).

The location becomes relevant when startups grow (Interview 15, 27.09.2023), because there are difficulties in servicing "top-level" startups in the Ruhr region. They prefer Cologne or Düsseldorf because of the image and international atmosphere (Interview 1, 12.07.2023). A favourable regional image is more important in the startup community than low living costs (Interview 1, 12.07.2023). This means that although low living costs are often assumed to be one of the advantages of the Ruhr, this is highly questioned by one of the interviewees. However, there is a visible sharpening of economic competence, even if the high-tech focuses in the Ruhr region have not yet been adequately communicated to the outside world (Interview 1, 12.07.2023).

9 SWOT Analysis

Strengths

- Polycentric region with diverse specialisations
- Strong networking between the ecosystem actors
- Support infrastructure at universities and the municipal level
- Complementarity between support infrastructure
- Local, regional, national and international range of activities
- Academic excellence in areas relevant for deeptech startups (ICT, cybersecurity, healthcaretech, industry 4.0, hydrogen, [AI])
- Currently much public support for startups in pre- and early foundation phases
- There are role models (large and successful startups)

Weaknesses

- Strong focus on early startup phases, less support infrastructure in late phases
- Unclear employment effects
- Double structures across municipalities (e.g. numerous startup competitions and pitches)
- Difficult to provide services for top-level startups due to the better regional images in Cologne and Düsseldorf
- No unicorn (to date)
- Lack of seed and scale-up finance is debated as a weakness; it does exist but probably not as much as in other regions of Germany (Munich, Berlin)

Opportunities

- The dynamic developments spurred by startups and support infrastructure might cause a positive change in the regional mindset
- Cooperation between the Ruhr's cities was on a very low level due to intraregional competition (for funding, company settlements, new attractions like concert halls, etc.); however, cooperation of public actors involved in the ecosystem is deemed fruitful
- Many early-stage startups that may become role models in the near future

10 Lessons Learned for Ecosys4you

Threats

- Most of the startup infrastructure depends on projectbound public money; future funding is unclear from 2024+
- Competition for personnel due to lack of skilled labour
- Competition for founding teams (not often but mentioned in the interviews)

The entrepreneurial ecosystem of the Ruhr with its diverse sectors, variety of actors and multiplicity of supporting infrastructures is a promising playground for cross-ecosystem cooperation within the Ecosys4you project. Nevertheless, when launching new offers for young entrepreneurs, it is important to avoid parallel structures and doubling of opportunities. Furthermore, long-term funding strategies for the launched activities are essential, since a lot of supporting infrastructures are project based and therefore threatened by termination after the expiration of the funding.

An advantage for the ecosystem would be to provide continuous start-up education opportunities for young people to inspire and educate them for startup entrepreneurship. Furthermore, by presenting Ruhr startups as valuable working opportunities for young people, they could gain qualified interns or even employees. The engagement of students in cross-ecosystem exchange may also present opportunities for the building of international founding teams. Moreover, the rich experience and role models in different sectors should be utilized for such international exchange and mutual learning within the project.

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Interview 3 (17.07.2023): Private startup support facility.

Interview 4 (24.07.2023): Support structure in a university or university of applied sciences.

Interview 5 (28.07.2023): Private startup support initiative.

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Consortium



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Venture Biographies



ENGAGING ENTREPRENEURIAL ECOSYSTEMS FOR THE YOUTH

BOOK: Venture Biography



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Disclaimer

The document presents a story of an existing startup prepared through desk research and a narrative interview with the founder. For reasons of data protection, the names of people, cities, support programmes and companies are exchanged with pseudonyms. The biography has been approved for publication by the startup and can be used for further research by citing it accordingly (see below).

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1 ID Card

Name of the start-up (Pseudonym)	BOOK
Which ecosystem?	Slovenia
Founding date	Idea 2012, founding 2014
Sector	
No of employees	16
(Expected) Turnover	EUR 250.000
Male/female founder	female
Timeslots of start-up phases	
idea generation	2012-2014
incubation	2014-2016
consolidation	2016-onwards
Funding / financial support	Own funding, business incubator

2 Founder(s)' Background and Motivation

The story unfolds with Mila, a prolific self-published writer who transcends the label of a mere wordsmith to embody the essence of an entrepreneur with an indomitable spirit. Embarking on her entrepreneurial journey at the tender age of 19, she forged her path, establishing her own enterprise. Beyond her solo ventures, she co-founded a company comprised of female entrepreneurs, orchestrating Slovenia's largest event dedicated to female entrepreneurship, a testament to her leadership and vision.

A passionate advocate for both literature and entrepreneurship, Mila shares her insights through lectures, both domestically and internationally, championing the pursuit of genuine happiness as the cornerstone of success. Mila, deeply rooted in her love for Slovenia, traverses the length and breadth of her homeland, finding solace in its verdant hills and drawing inspiration from its vibrant populace. Her profound admiration for the creativity that thrives within her compatriots fuels her journey into the realm of entrepreneurship and literature, where she pens tales that celebrate the indomitable spirit of fellow entrepreneurs.

Amidst her odyssey, a pivotal question emerged:

"What kind of publisher do I wish to encounter as a writer?"

The answer crystallized: "One that offers comprehensive support, allowing me to focus on my passion for writing and book promotion, while assisting with other essential tasks."

Thus, in May 2014, she conceived a distinct yet innovative business model, birthing the publishing company BOOK into existence.

3 Business Model

BOOK Publishing House represents a hybrid model that blends elements of both self-publishing and traditional publishing. Authors have the option to choose between traditional publishing or BOOK's distinctive business model. Under this model, authors and the publisher jointly invest 50/50 in the publication of the book, thereafter sharing profits or losses in a roughly equivalent proportion. However, a higher percentage of profits is allocated to those responsible for sales. Mila recognizes the pivotal role of sales in the publishing industry and thus places particular emphasis on this aspect of the business.

In an effort to empower authors, BOOK's model rewards those who take an active role in selling their books. If an author sells the book independently, they receive 70%-80% of the added value, whereas if the book is sold by the publisher, the author receives 40% and the publisher receives 60%. Thus, in this model, authors stand to earn more than the publisher. This unique approach distinguishes BOOK as the sole publishing house in Slovenia to adopt such a strategy.

However, achieving these high percentages necessitated the establishment of a system of shared services, where costs are variable rather than fixed. This innovative system is made feasible through the support of the incubators in which BOOK operates. These incubators provide essential resources and infrastructure, enabling BOOK to implement its unique business model effectively.

The prominent company that oversees the incubator extends support to BOOK Publishing House in various areas such as accounting, finance, distribution, and logistics. Additionally, access to machinery is available for utilization if required. Within the incubator, which accommodates approximately 100 companies, a unified ERP system has been developed to streamline common activities for all entities. BOOK Publishing House contributes a fixed monthly percentage of its profits to the incubator, enabling it to effectively compete with larger publishers.

By avoiding fixed costs and adopting a model where expenses are tied to variable revenues, BOOK Publishing House can navigate economic uncertainties with greater flexibility.

"Because if you bind your model to fixed costs, you fall into the wheels, you have to have more buffer for times of crisis. Well, the publishing house was able to give this buffer back to the authors, because the time of crisis just means that there will be less revenue, but on the other hand, there will be less costs."

As Mila said, this innovative approach provides a buffer during times of crisis, as lower revenues are accompanied by reduced costs. This adaptable business model originated from the need to differentiate from the multitude of publishers in Slovenia, numbering around 1,400. Mila's determination to stand out led her to focus exclusively on Slovenian authors, including those who are relatively unknown.

While many publishers opt for printing abroad, Mila remains steadfast in her commitment to printing locally in Slovenia, even when others deem it fashionable to outsource to countries like China, Bosnia, or Poland. This dedication to supporting local industry underscores BOOK Publishing House's unique approach and commitment to promoting Slovenian authors and businesses.

Essentially, the company's costs fluctuate with its variable revenues, providing a level of stability. This innovative business model emerged from the necessity to stand out amidst the 1,400 registered publishers in Slovenia. Mila sought to distinguish herself by focusing exclusively on Slovenian authors, even those who were lesser-known.

While conventional publishing houses favored foreign, internationally renowned authors, Mila made a deliberate choice to champion local talent. She adamantly decided to print books in Slovenia, rejecting the trend of outsourcing to countries like China or Bosnia or Poland.

"NO! We print in Slovenia", she claimed.

Upon closer examination of the Slovenian publishing landscape, Mila discovered that approximately 6,000 books are sold annually in Slovenia, with an average price of EUR 22 per book and an average print run of 350 copies. Amidst the vast number of publishers, half of the expenses are typically allocated to distribution. Crunching the numbers revealed that achieving success in Slovenia would necessitate only one bestselling book per month.

Furthermore, Mila identified a significant gap in the market - there were no books chronicling the stories of individual Slovenian entrepreneurs who shaped the country's business landscape. Recognizing this niche, she envisioned capturing the narratives of successful Slovenian entrepreneurs to document the evolution of entrepreneurship in Slovenia. Another untapped market niche she identified was Slovenian businessman-musicians, a demographic that lacked representation in existing publications.

4 Start-up development

4.1 Idea-Generation

The beginning: Fall 2012- May 2014

Mila, a prominent Slovenian writer renowned for her works on entrepreneurship and personal growth, enjoyed widespread success with her bestselling books in Slovenia. Her literary journey began over a decade ago when she penned her first book, which quickly gained popularity, with 300 copies purchased by libraries and numerous sales in schools. Mila's expertise extended beyond writing; she conducted well-attended seminars on book writing, despite hosting them infrequently.

While Mila cherished the art of writing, she harbored reservations about traditional publishing practices, particularly the disproportionate earnings retained by classic publishing houses—often 70% to 80%—leaving authors with a small share. Determined to address this imbalance, Mila embarked on a quest to revolutionize the publishing landscape. Her vision materialized in May 2014 with the establishment of BOOK, a publishing company designed to foster a mutually beneficial relationship between authors and publishers, ensuring both parties thrive.

Test phase: June 2014 to March 2016

Already a recognized public figure with successful book sales, Mila viewed BOOK as another milestone in her entrepreneurial and creative endeavours. Leveraging her established reputation, she actively promoted the publishing house under her name. However, amidst her achievements, Mila found unparalleled joy in the initial milestone: witnessing the sale of the first book published by her own publishing house.

4.2 Incubation / Founding

Mila initially invested EUR 10,000 of her own funds into the first book, and since then, she has continued to self-fund BOOK without seeking external sources. Despite initially lacking sales skills, she has honed her marketing abilities within the challenging publishing industry landscape. Operating in a declining market with limited interest from venture capitalists and business angels, Mila has navigated product development and sales independently, without support from an incubator or substantial assistance from the Public Book Agency, which typically favors larger publishing houses.

Despite these challenges, Mila has identified a unique niche: publishing works that are culturally and historically significant to Slovenia, often overlooked by other publishers. Her publishing house operates under the motto of embracing what others exclude, focusing on books tailored to a specific demographic—primarily women in their 30s and 40s who purchase books as gifts, and Slovenian authors with compelling stories to share.

4.3 Scaling-up / Consolidation

Embarking on her entrepreneurial journey, Mila forged a close partnership with a business incubator initiated by a prominent Slovenian company with a global focus. This collaboration sparked the development of a unique and forward-thinking business model, driving significant growth for her publishing company. As a strategic development manager and content creator within the incubator, Mila played a pivotal role in establishing a shared services system. This innovative approach streamlined operations not only for herself but also for numerous other entrepreneurs, earning Mila recognition with the European Enterprise Promotion Award for her contributions to the training program centered around these shared services.

One tangible benefit of this system is evident in logistics costs: while the standard postal service charges EUR 5 per item for book delivery, the shared service system slashes this expense to just EUR 2 per book by leveraging the combined volume of 100 companies. Although this arrangement doesn't provide direct financial assistance, it significantly reduces Mila's development costs, which she estimates would otherwise require a personal investment of at least EUR 20,000. Moreover, beyond financial savings, the incubator has provided invaluable infrastructure and access to shared resources, further enhancing Mila's entrepreneurial journey.

"If I go to the post office to send a book, I would pay 5 euros per book. If this is done through the shared services system in the incubator, 100 companies are involved and the ceiling is 2 euros per book."

The recognition of this business model's innovation was further cemented when Mila and her company received the Golden Award from the Slovenian Chamber of Commerce and Industry in 2019. This accolade not only celebrated their innovative approach to publishing but also affirmed the model's potential as a transformative force in the industry.

Another ambitious milestone Mila set was the publication of one book per month, aiming for an annual turnover of EUR 250,000—a goal she proudly achieved by the end of 2023. Considering the average price of a book ranges from EUR 15 to EUR 20, this achievement underscores the volume of sales managed directly through her publishing house, benefiting authors financially and demonstrating a profound love for books and the literary craft.

Mila underscores the significance of a robust business model and efficient systems, enabling her to remain composed even during turbulent market conditions. Despite the hurdles presented by Slovenia's comparatively small market, characterized by a stark contrast between prolific book publishing per capita and low purchase rates, Mila's resilient model ensures her venture can weather

market fluctuations for up to six months without suffering losses. This strategic approach not only showcases her adaptability and dedication to her love for books but also her ability to maneuver through the intricacies of the publishing industry with inventive solutions.

"Despite the current severe crisis, I find solace in knowing that with this model, I have a six-month buffer and little to lose. However, what truly concerns me is the poor state of the market. My ambitions are hindered by the limitations imposed by the size of the Slovenian market. While Slovenia boasts the highest rate of book publications per capita, the actual number of books purchased remains disappointingly low."

Imprint

Publisher and Contact

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Ecosys4you – Engaging Entrepreneurial Ecosystems for the Youth (2023-2026) strives to bridge the entrepreneurial ecosystems of the Ruhr, Germany, Varna, Bulgaria and Slovenia by connecting young founders, startups, HEIs and other ecosystem actors.

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ENGAGING ENTREPRENEURIAL ECOSYSTEMS FOR THE YOUTH

EUROBILL: Venture Biography



This project has received funding from the European Union's Horizon Europe research and innovation programme under Grant Agreement No. 101100432

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Disclaimer

The document presents a story of an existing startup prepared through desk research and a narrative interview with the founder. For reasons of data protection, the names of people, cities, support programmes and companies are exchanged with pseudonyms. The biography has been approved for publication by the startup and can be used for further research by citing it accordingly (see below).

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1 ID Card

Name of the startup (Pseudonym)	EUROBILL
Which ecosystem?	Slovenia
Founding date	Idea 2011, founding 2015
Sector	FinTech
No. of employees	16
(Expected) Turnover	200-300 mio EUR
Male/female founder	Male
Timeslots of start-up phases	
idea generation	2011-2013
incubation	2013-2015
consolidation	2016-onwards
Funding / financial support	Founders, Slovenian Enterprise Fund, foreign investment funds

2 Founder(s)' Background and Motivation

The story begins with a man named Bill, who was in his 40s. Throughout his career, he had been involved in the financial and investment sectors, both in brokerage firms and investment funds. During the formation of the company we are discussing, he sold some of his investments. It's worth emphasizing that he gained his financial knowledge abroad - specifically in America. Interestingly, the idea of founding such a company did not originate with him, but with his colleagues whom he knew from previous jobs and collaborations. Like him, they excelled in the field of finance and investing, and they too acquired their knowledge in this area abroad.

It all began in September 2008 when the financial crisis led to the liquidation of a foreign bank's branch in Ljubljana, where Bill's friends were employed. They began selling a portfolio of financial investments dealing with credits issued by credit companies. This was their first encounter with the unorganized market for debt sales. Recognizing the underdeveloped state of the Slovenian factoring market (4%) compared to the European average (10%), they conceived the idea of establishing an online platform for debt offerings. Motivated by this realization, they embarked on developing the concept of an online bulletin board for the sale of receivables, identifying the untapped potential within the Slovenian factoring market and envisioning opportunities for growth and advancement.

In 2011, the company EUROBILL was established, but in the initial phase, the project wasn't successful. Then, at the end of 2013, Bill's friends called and approached him, not only to join the project but also to invest in their idea. Bill took some time for reflection, and in 2015, he joined the project as a project developer and as an investor - a co-owner. Today, he is one of the three majority shareholders

3 Business Model

The key difference in Bill's perspective and perspective of others involved in the project was that they were thinking of expanding to the south, while Bill was considering expansion to the east. Eventually, only the expansion to Croatia (east) later materialized. After initial attempts and difficulties with the bulletin board, they decided to seek capital to establish a real exchange market for trading nonstandard receivables. A key moment was the meeting with an investor who informed them that he cannot invest due to a non-compete clause, which did not deter them. They discussed and all of them invested capital in the company, which was formed as a joint-stock company. They hired a programmer who programmed for them for 12 months to set up a stock settlement system and an order book for the internal clearing depository company. In addition, they established a register of all claims, with which they then conducted delivery versus payment settlements. During the first year (2014/2015), besides hiring the programmer, they met every month for 2-3 hours for brainstorming sessions to create development ideas, search for the best possible settlement and working methods, and to discuss the system functionality and automation. They realized that the increase in turnover in factoring in Slovenia could only be achieved if they were cost competitive. This means minimizing transaction costs by maximizing automation of the entire process. They succeeded in achieving these goals in November 2015. And in 2018 the company reached a break-even point. Since than the product has not changed significantly and is the same today as it was then.

The company is structured as a joint-stock company, as it operates in the demanding financial sector, and although it is a smaller financial intermediary, risks need to be adequately hedged and sufficient capital must be available to cover them, which can be ensured in a joint-stock company with more diversified ownership. Initially, there were four shareholders in the company: in addition to the first three idea creators, there was also an IT expert. Later, the number of shareholders increased with institutional investors who supported the project, such as the Slovenian Enterprise Fund and larger foreign private investment funds.

Later, or after the COVID crisis in 2021, also other employees entered the shareholder structure, and today the company has 23 shareholders. Bill is the largest shareholder. The company also has a two-tier management system: a two-member management board and a supervisory board. Today, the company in Ljubljana employs 13 people, and in the subsidiary in Croatia, which they opened in 2017, they employ 3 employees. Bill has been involved in the operational management of the company since 2020 and takes care of its development, penetration of foreign markets and acquisition of investors and customers. The company today has a turnover of EUR 120 million, and its potential is estimated to EUR 200 - 300 million.

4 Start-up development

The main reason for setting up the company was certainly the global financial crisis which started in 2008 and caused the bankruptcy of banks and companies all over the world, and Slovenia was no exception, as everyone was looking for a way to survive. Coincidentally, two of the players in this story (and it was not Bill) saw the possibility of creating an unorganised market for receivables/payables for micro, small and medium-sized enterprises as a way to solve their financial problems by developing a suitable online platform. They realised that they did not have the knowledge or the ability to contact the right investors themselves, so they looked for Bill, who was strong in this area of expertise, and that's when their common story began. The following paragraphs tell the story of the company from the first idea to the present day.

4.1 Idea-Generation

"I would say that generating an idea has the greatest characteristic, excessive optimism, which is otherwise good because this idea would never be realised, but there is usually a certain naivety, especially with technological inventions, because to-be entrepreneurs don't know how to properly assess the cost of sales when budgeting and planning projects."

The beginning: Fall 2008 to September 2011

In September 2008, two of Bill's former business partners and friends were involved in the sale of the portfolio of the foreign subsidiary where they worked. The reason was the global financial crisis. Companies were in financial difficulties and, in the absence of stable sources of finance, many micro, small and medium-sized enterprises collapsed. The two friends concluded that it would make sense to help these small businesses with micro-financing by buying their receivables early and offering them to investors who would like to buy them for a reasonable return. The idea matured in 2011 when they set up EUROBILL, but it never really took off because they were unable to attract investors who perceived too much unsecured risk in the new offering.

Test phase: October 2011 to February 2015

The test period of setting up an unorganised claims market lasted two whole years (from 2011 to 2013) and was unsuccessful because there were not enough investors. As Bill was known to have contacts mainly with foreign investors from his time as a student in the USA and also from his past working experience, the idea promoters, his two friends, approached him and invited him to join the project and also to invest, as they knew that he had sold some of his projects and investments. The amount they considered sufficient to seriously start a company was EUR 150,000.

The deal did not happen immediately, but they agreed to meet regularly to develop all aspects of the idea, from the product, the way of selling, attracting investors, market penetration, IT support for the whole process, underwriting the risks. The arrangement lasted for a year. After one year, in 2014, they hired a programmer (IT specialist) who spent one year creating a proper online trading platform, which went live in 2015. This date is considered to be the serious start of the company's activities, notwithstanding the fact that it had been established much earlier.

4.2 Incubation / Founding

The decision to invest their own capital was made in early 2015. In March of that year, Bill took the initiative by investing EUR 150,000 in the company, thereby becoming its principal shareholder. While all stakeholders contributed their own funds to the venture, Bill's investment far surpassed the others.

Specifically, the remaining three shareholders each injected EUR 7,500 into the company, totaling three times that amount. Subsequently, in order to ensure smooth operations until November 2016, Bill injected an additional EUR 13,000 into the company. It was during this period that the Slovenian Enterprise Fund announced a financing opportunity for start-up development (SK200 2016 - Seed Capital - Convertible Loan for Business Start-ups) totaling EUR 100,000, which they successfully secured through a tender process. Additionally, a private foreign equity fund invested EUR 200,000, bringing the total capital raised for the business to EUR 465,000. Bill played a central role as the driving force and primary developer of the business, taking the lead in contacting potential investors and presenting the business opportunity. His efforts proved highly successful, leading to the official commencement of trading for micro, small, and medium-sized companies on the unregulated receivables market in 2015.

Initially, they relied on self-funding, with the Slovenian Enterprise Fund entering the picture only after they had already committed resources to developing the idea and demonstrated its sustainability and viability in the market. While Bill acknowledges the positive role played by the Slovenian Enterprise Fund, he notes its lack of seed (angel) capital. Slovenia faces a general scarcity of such early-stage funding, with some available through incubators, primarily in the form of free services. However, there remains a significant gap, as business angels are either ineffective or tend to provide minimal investments (ranging from EUR 10,000 to EUR 100,000), often shying away from funding the developmental phase of ideas altogether.

At the beginning, the leading clients were only wealthy Slovenians and wealthy Slovenian companies that had a surplus of liquidity. From 2019 onwards, about 45% of money comes from abroad (investment funds). The Slovenian funds did not show enough interest.

Bill asserts, "I've approached various funds, such as the one designated for the decommissioning of the nuclear power plant, but unfortunately, I didn't succeed. Without the support of foreign investors, we wouldn't have weathered the challenges of COVID-19."

Amidst the pandemic crisis in 2020, the company implemented wage cuts and offered workers a stake in the company. Consequently, the employees now hold a small ownership stake in the company, leading to increased motivation among them. As a result, the company currently boasts 23 shareholders.

4.3 Scaling-up / Consolidation

"And then everything seemed promising until COVID-19 hit, instilling fear across the board."

During the initial two years, the company incurred losses. However, in the final quarter of 2018, it turned profitable, a trend that continued, ultimately offsetting all previous deficits. By the close of 2019, EUROBILL had facilitated over EUR 160 million in financing to Slovenian businesses and sole proprietors via its online platform.

Following its success and expansion in Slovenia, EUROBILL ventured into the Croatian market in April 2019. In Croatia, it offers mutual financing services, including online sales of receivables and short-term loans. These services cater to companies seeking swift and convenient financing solutions, while also providing an appealing and secure investment option for those seeking higher returns compared to traditional bank deposits.

The company primarily leveraged social media platforms such as Facebook and LinkedIn for its marketing efforts, with a minor presence on Twitter. While LinkedIn provided some promotional opportunities requiring purchases, the company also utilized traditional media channels like the newspapers Delo and Finance, particularly through their online editions, which offered solid coverage.

At the onset of 2020, the emergence of the COVID-19 pandemic exacerbated economic conditions, initially leading to a slight reduction in market liquidity. Despite this, the company remained vigilant, continuously monitoring the situation and devising optimal strategies to ensure the seamless operation of its platform. However, in March 2020, the declaration of a global pandemic significantly impacted all economic sectors and populations worldwide. Investor confidence waned, leading to a cessation of fund investments amid uncertainty about the future. Concurrently, debtors faced challenges meeting their obligations, exacerbated by the non-functioning of courts, hindering legal resolution of claims. This tumultuous period resulted in a staggering 70% decline in turnover from February to April 2020, plunging the company back into a loss-making phase that endured for 15 months, from April 2020 to August 2021.

During the nadir of this downturn, the company's capital dwindled to a mere $\in 60,000$ from its initial $\notin 465,000$. However, a subsequent recovery ensued, leading the company back into profitability. While many funding recipients succumbed to bankruptcy during this tumultuous phase, most were reimbursed. At the peak of the crisis, one-third of the company's portfolio encountered difficulties, with receivables experiencing delays of up to 90 days.

The intervention of the state to rescue struggling companies played a pivotal role in the recovery process, facilitating the restoration of a significant portion of the company's portfolio. Nonetheless, not all receivables were recovered, necessitating some write-offs.

By the close of 2019, investors enjoyed an average annualized return of 4.18%. However, the onset of the crisis in 2020 resulted in a negative return of -1.6% for investors. Such a downturn made it challenging to introduce new products and attract potential investors. Furthermore, after experiencing robust growth rates ranging from 30% to 40% in the initial two years, followed by even higher rates exceeding 100%, the growth trajectory came to a halt in the aftermath of the COVID-19 pandemic in 2020. Bill, however, views this stagnation as relatively manageable, considering that rapid growth in finance often entails heightened risks.

EUROBILL benefited significantly from the low-interest-rate environment, presenting itself as an attractive alternative investment avenue. Unlike bank deposits, which yielded negative returns for investors amid low-interest rates, EUROBILL remained profitable. In 2022, despite prevailing economic conditions, the company achieved a yield of 3.5%, which, while commendable, still fell below the inflation rate. The subsequent year, 2023, saw a similar return as in 2022, alongside a turnover of EUR 120 million.

Reflecting on the financial crisis, Bill notes the Slovenian government's program designed to aid struggling companies. Recognizing the need for funding to cover wages and procure replacement materials, EUROBILL seized upon this opportunity to support companies during their time of need.

Bill identified an opportunity to assist struggling companies by leveraging existing infrastructure. EUROBILL could facilitate the distribution of government funds earmarked for this purpose. With a comprehensive infrastructure already in place, EUROBILL proposed to the government to provide support to micro and small enterprises, a segment overlooked by banks due to the relatively small amounts involved. Their infrastructure encompassed essential processes such as registration, customer verification, anti-money laundering measures, and remote personal identification - crucial during the COVID-19 pandemic. However, their proposal received no response or cooperation from the

government, despite pioneering efforts in several areas. They even had to petition the Supreme Court to recognize bills of exchange as effective security instruments in financial transactions, as banks refused to acknowledge them based on the differing stance of the Association of Slovenian Banks and the law.

The Slovenian Enterprise Fund provided support to the company within the entrepreneurial ecosystem. While programs such as SK 200, SK 75, and others were beneficial, they mainly catered to companies in later stages of development. The fund also offered mentoring services through these programs, yet the quality of mentorship was lacking. Many mentors appeared unmotivated, burdening entrepreneurs with bureaucratic reporting requirements and offering little proactive engagement. Bill advocates for a shift in the mentorship approach, urging the fund to motivate mentors, assign them more active roles, and better prepare them mentally for project involvement.

"It's imperative to identify mentors who possess foresight. We must recognize that within start-ups, there are young adults aged 20-25 with promising ideas eager to develop something meaningful. Often, these individuals, though skilled as engineers, lack knowledge in marketing or sales. Even as experienced financiers ourselves, we found it challenging to find mentors who could adequately support us. While we might have benefited from mentorship programs like SPS at the outset, unfortunately, none were available."

Another significant achievement was establishing a fiduciary account for client funds, distinct from our own assets. Initially, this privilege was limited to brokerage houses, real estate firms, and stock exchanges—categories which we did not fall under. However, leveraging an EU directive, we successfully advocated for this option to be extended legislatively, ultimately passing into law.

In general, legislative constraints surrounding financial intermediation have hindered our development. Early on, these regulations acted as a deterrent, adversely impacting our competitiveness.

"Allow me to address one more crucial point", Bill said, "While it's understandable for pension funds and insurance companies to adopt conservative investment strategies, given their responsibility to safeguard the savings of individuals over decades, I believe our legislation is overly rigid regarding their investment options."

EUROBILL, as a financial intermediary, is barred from servicing pension funds, insurance companies, or pension entities due to legal restrictions. Yet, such partnerships could provide excellent diversification opportunities, offering a risk-free option with a modest 1% return - a standard practice in risk diversification. Furthermore, investments in seed capital or angel capital often yield higher returns compared to government bonds.

Another idea shared by Bill: "Moreover, the significant decline in government bond values over the past year has led to substantial losses for pension funds, ranging from 10% to 20%. To address this issue, we should advocate for reforms by lobbying the Insurance Supervisory Authority and the Stock Exchange."

Another pressing issue is EUROBILL's abundant demand from entrepreneurs seeking to sell receivables. Despite a current turnover of EUR 120 million, this figure could potentially reach EUR 200-300 million if sufficient investors were available. Unfortunately, the domestic market lacks the necessary capital, necessitating ventures abroad.

"However, ample funds lie dormant in our bank accounts. Supporting the development of micro, small, and medium-sized enterprises (MSMEs) would bolster GDP growth. I advocate for state policies and regulatory reforms by the Insurance Supervisory Authority to facilitate the recycling and reinvestment of these funds, supplemented by tax incentives."

During the adoption of COVID-19 legislation aimed at mitigating economic fallout, the entire financial industry, including EUROBILL, was conspicuously excluded. As a young company grappling with a 70% drop in turnover, EUROBILL was unable to seek assistance. It was only during the third wave of legislation amendments that provisions were made to offer relief, allowing for reduced working hours. Struggling with diminished activity and revenue, the company found itself ineligible for other forms of subsidy support.

"However, we are not a bank; we operate as financial intermediaries. Therefore, it's crucial to recognize that legislation cannot be uniformly applied to both entities. This discrepancy suggests a lack of understanding among legislators regarding the nuances of our industry."

Bill perceives a significant issue within the start-up scene stemming from the reluctance of start-ups and entrepreneurs to enlist expertise in various fields such as sales, idea evaluation, and risk assessment. Oftentimes, entrepreneurs place unwavering confidence in their ideas and struggle to withstand even well-intentioned criticism.

"I receive numerous individual proposals for investment - ingenious inventions abound. However, while these individuals may excel as engineers, they often lack the foresight to comprehend the complexities involved. Effective budgeting, cash flow analysis, risk assessment, and market evaluation are essential skills. I once encountered a brilliant idea for an alternative to payment cards, yet the entrepreneurs behind it were ill-equipped to promote it effectively. While concepts may appear promising on paper, the absence of risk management expertise hampers their potential success," concluded Bill.

Imprint

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ENGAGING ENTREPRENEURIAL ECOSYSTEMS FOR THE YOUTH

GREEN: Venture Biography



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1 ID Card

Name of the startup (Pseudonym)	GREEN
Which ecosystem?	Slovenia
Founding date	Idea 2017, founding 2019
Sector	Food, cosmetics, well-being
No of employees	3 + 1 intern
(Expected) Turnover	EUR 3 million
Male/female founder	Female
Timeslots of start-up phases	
idea generation	2012-2014
incubation	2015-2017
consolidation	2017-onwards
Funding / financial support	start-up competition, SEF

2 Founder(s)' Background and Motivation

Suzy's entrepreneurial odyssey commenced during her pursuit of a Master's in Entrepreneurship, where she delved into the corporate realm with a position at a sports center in a quaint Slovenian town. After dedicating a year and a half to this role, Suzy found herself yearning for fresh challenges and the autonomy to explore her innovative ideas. Fueled by her fervor for healthy living, sports, and culinary arts, Suzy pondered the prospect of transforming her passions into a viable business venture.

Driven by her entrepreneurial zeal and a penchant for online marketing, Suzy took the courageous leap to establish her own company. Understanding the significance of collaboration and synergizing complementary skills, she invited her friend and classmate, Nina, to join her on this entrepreneurial voyage. United by their shared dedication to promoting wholesome lifestyles and offering access to premium natural products, Suzy and Nina embarked on the exhilarating journey of company building. Initially, for the first six months, they juggled their entrepreneurial pursuits alongside their day jobs, until eventually relinquishing their employment to fully devote themselves to the burgeoning business. Their inaugural months proved fruitful, marking a promising start to their entrepreneurial endeavor.

3 Business Model

GREEN thrives as an e-commerce business, specializing in the provision of health-conscious fare, superfoods, natural cosmetics, and products crafted to enhance well-being. Sprouting into existence around April 2013, GREEN seized upon its dedication to championing a wholesome lifestyle and delivering top-tier, natural offerings. Anchored by its digital emporium, the company's primary revenue stream flows from its online store, offering customers seamless access to a diverse array of goods.

Moreover, GREEN bolsters its revenue through the creation and sale of its own branded products, affording greater control over quality and market positioning.

To captivate audiences and spur sales, GREEN leans heavily on digital marketing tactics, encompassing social media engagement, email campaigns, insightful blogging, and other online avenues. Educational content, spanning topics from nutrition and healthy living to delectable recipes and product usage tips, serves as a beacon of value, nurturing brand loyalty among customers. Collaborations with influencers within the health and wellness sphere further amplify GREEN's visibility and extend its reach to new audiences.

Expanding its reach beyond the digital realm, GREEN forges strategic partnerships with health food stores, specialty shops, pharmacies, and various retail outlets, diversifying its distribution channels and fueling revenue growth. Adaptability is key to GREEN's success, as it continuously broadens its product offerings to meet evolving market demands and trends, ensuring its competitive edge remains sharp.

In essence, GREEN's business ethos revolves around delivering premium products, advocating for a healthy lifestyle, and harnessing the power of digital marketing and strategic alliances to propel sales and elevate brand awareness. Indeed, the company stands as a steadfast ally in the pursuit of a wholesome, vibrant lifestyle.

"The company acts as an ally in a healthy lifestyle."

4 Startup development

4.1 Idea-Generation

The beginning: September 2012 to April 2013

Realizing that she couldn't tackle the project alone, Suzy extended an invitation to her college classmate, Nina, to join forces. Their journey began with the task of choosing a name, a process that involved brainstorming sessions until the perfect fit emerged. To kickstart their endeavor, they pooled resources by borrowing EUR 7,500 (the initial capital) from their supportive parents.

Navigating through the vast expanse of the internet, they scoured Google to uncover potential suppliers. After careful consideration of business terms and pricing, they settled on two suppliers from England and several from Slovenia. With a clear vision in mind, they hastily crafted a concise business plan encompassing revenue projections, expenses, and a rudimentary marketing strategy—all condensed onto a single page.

With finances tight in the fledgling stages, Suzy and Nina ingeniously opted to operate out of Suzy's modest abode, despite its less-than-ideal accessibility and unreliable internet connection. However, as their venture gained traction, they transitioned to a more professional setting, securing a 20 square meter office in a neighboring town after two months of operation.

In their growing GREEN kingdom, the warehouse boasted an impressive assortment of approximately 400 diverse products, with nearly half sourced locally from Slovenia. Ensuring the quality and integrity of their offerings, all non-Slovenian products bore at least one certification, whether it be Eurolist, Vegan, Soil Association, or Fair Trade.

Furthermore, the burgeoning GREEN empire boasted a range of around 90 products under its own brand, reflecting their commitment to delivering premium-quality goods. Despite the humble

beginnings, Suzy and Nina's entrepreneurial journey was marked by perseverance, resourcefulness, and an unwavering dedication to their shared vision of promoting a healthier lifestyle through GREEN.

"Our offer is expanding from week to week - of course according to the wishes of our customers".

Test phase: October 2013 to January 2014

Within a span of 11 months, their digital presence flourished with 35,000 Facebook views, an email database of 15,000 subscribers, and a steady stream of 35,000 monthly website visitors. Amidst this digital frenzy, they successfully sold 14,000 of their wholesome packages, embodying their operational motto: "Do what you enjoy, seek, and stimulate customers."

Their clientele, predominantly women comprising approximately 95%, were drawn in initially by the allure of daily healthy recipes shared on Facebook. Leveraging this engagement, they strategically showcased their products and promotional offers, fostering a dialogue with followers to solicit valuable feedback and garner likes. Expanding their reach, they ventured into various social networks, embracing platforms like Instagram and Pinterest to broaden their community.

"This is cost-effective marketing," Suzy remarked, recognizing the financial constraints of their startup phase. "You need to attract the customer, give them some cooking ideas, advice for a healthy life. This builds trust and attracts the customer. But you also need to sell to the customer."

In the art of sealing the deal, Suzy emphasized the importance of offering customers a myriad of payment options and product selections from multiple suppliers. Coupled with a thoughtful gesture a gift—and a genuine inquiry about additional needs, their approach aimed to provide a comprehensive and seamless user experience, fostering customer satisfaction and loyalty.

4.2 Incubation / Founding

During its incubation phase, GREEN embarked on a transformative journey of ideation and validation. Fueled by Suzy's fervor for healthy living and entrepreneurship, the seeds were sown for what would become a thriving health food store. Drawing upon their collective expertise in entrepreneurship and marketing, they delved deep into market research, meticulously validating their business concept and crafting a comprehensive business plan. With initial funding sourced from personal coffers and a crystal-clear vision driving them forward, they braved the hurdles of establishing their online presence, forging supplier relationships, and refining their product selection. Despite facing constraints on resources, their unwavering commitment to delivering top-tier products and championing a healthy lifestyle laid a robust groundwork for GREEN's future growth and prosperity.

Reflecting on their journey, Suzy remarked, "We vowed never to hire relatives or friends, yet we took the leap, and it paid off."

In 2015, their dedication and hard work bore fruit as they earned the prestigious title of online retailer of the year, cementing their position as a leader in the health and wellness space.

4.3 Scaling-up / Consolidation

GREEN's visionary team recognized the challenge posed by market fragmentation and the prevalence of misinformation surrounding healthy living. From its inception, they've tackled this issue head-on by offering verified recipes, top-tier products, and expert advice, with a particular emphasis on addressing common health concerns such as obesity, high cholesterol, anemia, gluten and lactose allergies, as well as issues related to motivation, energy, and stress. Central to their ethos is the belief in the transformative power of proper nutrition and a holistic approach to wellness in managing, if not eradicating, the symptoms of various ailments.

With aspirations to lead the healthy food market in Slovenia and beyond, GREEN embarked on an ambitious expansion journey. They ventured into Croatia in 2015 and secured a lucrative EUR 100,000 contract in Montenegro the same year. In the autumn of 2015, recognizing the burgeoning demand from international clientele, they launched an English-language online store to cater to a global audience. Despite starting with a modest annual turnover of approximately EUR 300,000, the company experienced meteoric growth, reaching EUR 500,000 within three years and currently boasting an impressive turnover of around EUR 3 million. Employing a dedicated team of 12 staff members, they now dispatch over 500,000 parcels annually.

Reflecting on their evolution, Suzy said, "In the beginning, we aimed to offer a comprehensive range of products. However, we soon realized the importance of quality over quantity and made the strategic decision to streamline our offerings."

Initially boasting a catalog of approximately 1,000 products, including their own branded items, GREEN has undergone a strategic refinement, trimming its product selection to around 80 offerings, with an unwavering focus on quality. Despite operating without external investors, they secured a ϵ 75,000 convertible loan through the Slovenian Enterprise Fund's SK75 Seed Capital program in 2017. Around 20-25% of their budget is earmarked for marketing, with half of their dedicated team tasked with amplifying their promotional efforts.

With a robust social media presence boasting over 150,000 followers across various platforms, including TikTok, GREEN remains committed to expanding its promotional footprint. Prioritizing brandbuilding endeavors, they recognize the pivotal role of robust distribution channels in navigating the competitive market landscape. Email marketing continues to be a cornerstone of their customer engagement strategy, accounting for approximately 20-25% of their outreach efforts. Presently, GREEN's team comprises 12 dedicated members, collectively driving the company's vision forward.

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ENGAGING ENTREPRENEURIAL ECOSYSTEMS FOR THE YOUTH

Bees Buzz Ads: Venture Biography



This project has received funding from the European Union's Horizon Europe research and innovation programme under Grant Agreement No. 101100432

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Disclaimer

The document presents a short story of an existing startup prepared through desk research and a narrative interview with the founder. For data protection, the names of people, cities, support programmes and companies are exchanged with pseudonyms. The biography has been approved for publication by the startup and can be used for further research by citing it accordingly (see below).

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Zlateva, M. (2024): Bee Buzz Ads – Venture Biography. A deliverable within the Ecosys4you project funded by the European Union's Horizon Europe research and innovation programme under Grant Agreement No. 101100432. Varna: RAPIV.

1 ID Card

Name of the startup	Bees Buzz Ads
Ecosystem	Varna
Founding date	2019
Sector	Digital marketing
No of employees	2+1
(Expected) Turnover	50 000 - 100 000
Male/female founder	Male
Timeslots of startup phases	
idea generation	2018-2019
incubation	2019-2020
consolidation	2021 – onwards
Funding / financial support	Own financial resources, funding from OP Development of Human Resources 2014-2020

2 Founders Background and Motivation

Christian was only 23 years old when decided to start his own business. He had just graduated with a bachelor's in international business at the University of Economics – Varna and started searching for his own place to live and work. Spending a few years at a local business support organization as a project expert, he gained some experience in starting and developing a business. He continued with his education and obtained a master's in project management. But he still didn't feel that being an employee and doing office work was what he wanted to do for the rest of his life. He had a deep desire to begin his own undertaking activity. He had a unique possibility at RAPIV to learn firsthand the difficulties and challenges starting a business faces and different approaches to overcome them. He became increasingly confident, and when he met a like-minded person who wanted to support him, he understood that this was the chance he had been waiting for and grabbed it immediately.

Freedom was one very important source for motivation for him – to be free to use the time in the way he wants, to be free to take own decisions and not to depend on anybody. He had a clear view that becoming an entrepreneur would require a lot of efforts, not only from a technical point of view but in management and administrative tasks as well, but the feeling that he would be the only one to decide when and how gave him the strength to take the final decision - he left his stable and secure job and dived in the deep waters of the business.

3 Business Modell

Bees buzz ads is a digital marketing agency. Their key goal is to lead their partners to business success. They believe that real added value can be created when an equal relationship is built between them

and their customers. A relationship is based on trust. Whether they are going to do a complete marketing strategy, an advertising campaign, branding or just a business card, they approach professionally and according to their established processes, which they adapt to the specific business case. Their actions are aimed at a result corresponding to the set goals.

The main services provided by Bees buzz ads are:

- Creation of digital content graphical design, copywriting, photography, video, info graphics;
- Performance marketing advertisement campaigns in social media, websites, email campaign, media planning;
- Account management, business branding, online advertisement, and consulting.

Today, the company has a lot of clients from different sectors. The company currently employs three people.

4 Startup development

4.1 Idea-Generation

Why digital marketing? Yes, Christian wanted to start his own company but still was not sure what to do. He has a stable base in marketing. His mentor was very experienced in providing advertising services. Therefore, he decided to close the cycle and go deep into digital marketing. He attended additional professional courses on this topic. So, logically, Christian and his life-partner started thinking about their brand and how they could enter the local and then the national market. Some preliminary conversations with potential clients were held to better understand the market's expectations.

On the 9th of October 2019, he founded his company, which gave a boost to their creativity and shaped their path for the next years.

4.2 Incubation / Founding

The beginning was hard. There were moments when they provided some minor services, even free of charge, to attract clients and gain some experience and self-confidence. Then they decided that better distribution of responsibilities and tasks among them was necessary – Christian took over all the organisational, administrative and management parts, contact with clients and negotiations, marketing consulting and branding, Mihaela – creative work, e.g. advertising services, design, and digital support.

Step-by-step, they managed to establish very good collaboration and provided high-quality services. After the first contracts, the Covid-19 pandemic started. Contrary to other sectors, the pandemic gave them a huge boost in development. They managed to find key clients in the tourism and educational sectors during 2020 mainly because their clients had to change their business model - to go online, so Bees Buzz Ads was there to help them. This validated them as specialists, and they become more confident for further business development.

The balance between the number of clients and the number of employees was crucial for the future development of the company.

They faced a problem with hiring qualified personnel. So, they decided to start their own internship programme to find the right persons to whom they could pass their know-how and company values. Even being a startup without any HR management experience, they managed to create a good working environment and to attract suitable people.

Additionally, they identified the fiscal burden as a challenge. It was difficult for them as a starting company to secure all the social and health insurances and taxes linked to the salaries of the staff.

At that moment, they realised that if they wanted to scale up, they need external financing. Christian went to the bank to apply for a loan, but being a startup, the conditions were not attractive at all. Therefore, they decided to search for public funding. Again, they faced the same problem. They realised that being a startup, the possibilities are extremely restricted. They had to count on their own savings to pre-finance the company. They obtained small financing under OP Development of Human Resources 2014 – 2020 for the development of the marketing plan of the company.

4.3 Scaling-up / Consolidation

Since 2021, they have managed to overcome most of the difficulties faced by startups during the first years of their existence, ensure stability in the market and attract new clients – more than 50 brands all over the country. The company's turnover increases every year by a minimum of 20%.

Even though they achieved success, they still struggle to find qualified staff. So, currently, they are open to any kind of support in this direction. Lack of qualified staff is a big burden when responding to the needs of the clients. Christian admits that several orders were rejected because of this. But they remain positive, as the results of the company are going high well enough at a smooth pace.

At the moment, the AI supports them in generating content, but it cannot replace the creativity of people and personal touch. However, they use it as a tool for optimisation of processes in the company.

Future plans include enlarging the activity of the company in the same or different markets. Currently, they are looking to expand the office space and establish a video recording studio. They believe that the future of ads is in video content. Therefore, a lot of effort will be made in this direction.

Imprint

Publisher and Contact

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Consortium





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ENGAGING ENTREPRENEURIAL ECOSYSTEMS FOR THE YOUTH

Comp: Venture Biography



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Kircheva, I. (2024): Comp – Venture Biography. A deliverable within the Ecosys4you project funded by the European Union's Horizon Europe research and innovation programme under Grant Agreement No. 101100432. Varna: RAPIV.

1 ID Card

Name of the startup	Comp Ltd
Which ecosystem?	Varna
Founding date	idea 2010-2013, founding 2014
Sector	Software company
No of employees	8
(Expected) Turnover	100 000 – 150 000 EUR
Male/female founder	Male
Timeslots of startup phases	
idea generation	2010-2013
incubation	2013-2015
consolidation	2015-onwards
Funding / financial support	Own funds

2 Founder(s)' Background and Motivation

The founder has a background in economics and Informatics. His career started as a business consultant in a large software company, his main expertise being in implementing business software solutions like CRM, ERP, business intelligence, POS helpdesk, e-commerce, etc.

He shares that he had the opportunity to work with world-renowned companies offering business software, and he realised that it was not so difficult to introduce this type of software to large companies when you have the necessary knowledge and means. He also noticed that this was not the case with small and medium-sized companies – for them, the price was too high, and the time for the implementation was too long. He became curious and searched if there were already such solutions, but the ones he found were not many, and the ones on the market were not very good. The available solutions were made the other way around – initiated by entrepreneurs or company owners or someone who saw that there was such a problem, but they did not have the necessary knowledge and technical expertise to develop it professionally to make a competitive product.

That is how he first came up with the idea, but at the time, he only knew how to implement software. He had no knowledge of how it is developed or the necessary marketing and sales experience. Now, when he looks back, he sees that his biggest strength was his experience and expertise in software consulting and implementation. What he found most difficult was learning the skills necessary to develop the business idea successfully.

As to his experience as an entrepreneur, he has had many other ideas, some of them successful and others not, which made it easier for him to give it another try with this idea. He also likes to take risks, and his curiosity leads him to always search for solutions to different problems. It was also interesting to try something new as the work as a software consultant was becoming comfortable and not as challenging as a job. At the time, he had already identified himself as an entrepreneur, but he did not

fully realise the extent to which he would have to submerge in this new endeavour and the personal sacrifices it would take. Like for example, from one point forward, he had to deprive himself of the comfort and income of a permanent job to be a full-time company owner and manager.

Looking back at their hardships and the mistakes that have been made, Comp founder shares that what he was missing and wishes that he had during that time is a mentor – someone experienced in the field, whom he could ask for an opinion and could save him a lot of time and efforts that "learning from mistakes" usually takes. Here also comes the role of the entrepreneurship ecosystem – he attends local networking events like Varnapreneurs, which started this year in Varna, where he is eager to share his experience and advice with young people who would like to develop in the IT sphere. At these events, he often meets people who help him find solutions for issues faced by the company – here, he also adds the role of the online community with forums like Quora, where he often finds support and advice from IT professionals who have encountered the same problem.

3 Business Modell

The mission of Comp is to help SMEs realise their full potential by providing them with entire business software solutions. Currently, the company portfolio includes the following solutions: Enterprise Resource planning (ERP), Customer Relationship Management (CRM), Business Intelligence (BI), eCommerce, Point-of-Sale (POS), Help Desk (HD).

The ideal client for the software developed by Comp is an SME with personnel of 5-10 people and up to 100 people. Usually, these are trade companies – wholesale and retail, small manufacturing companies, and services companies.

4 Startup development

The idea for establishing Comp started from the need to solve a concrete problem – small and mediumsized companies needed tools and software solutions that are tailored to their needs and would allow them to: better manage their business resources, organise their orders and relationships with the clients, and make it possible to sell their products or services online. At the same time, these solutions had to be affordable and customisable to fit the needs of a specific company.

4.1 Idea-Generation

It took more than a year and a half from the initial idea to the time the founder fully realised what they would do. He was still working full time as a business consultant when he found his team – three other young people with little or no experience, 2 were programmers (1 of them was a co-founder) and the third one – took the role of sales and marketing and they together decided that they want to start their own business.

4.2 Incubation / Founding

It was about the same time they decided to start a company (Comp was established in 2014) when they also decided to move from Sofia to Varna. It was, to an extent, a personal decision – because the founder and his business partners are from Varna. On the other hand, salaries in Varna during that time were 50% lower than in Sofia, and this was a factor for the new company, which had to rely on its own funds.

There were, of course, disadvantages as well. For example, finding people with the right sales and marketing experience in Sofia would be far easier than in Varna. These differences are not so big now due to globalisation and after COVID-19, when everybody can work from anywhere, especially in the IT field. Online training opportunities are now also available to everyone (like SoftUni), but everything was new to our young team back then. Based on his international experience (20-30 countries) and having led staff trainings during his work as a software consultant, he organised trainings for his team, mainly on the aspects of working with international clients. This later was a great advantage for the team that started Comp.

He relied on his savings for the company's start, but they lasted for about a year, and then he borrowed some loans and credit. The company has not used any government support in the form of grants or other support. One of the reasons for this is that he thinks that viable businesses should not rely on subsidies but make their profit on market principles. He would approve of some type of support in the beginning –for example, there is a "tax vacation" in the first years of a startup in some countries for startups in the IT sector. This is necessary because in the software business, it would take 3 to 5 years to develop own product and realise it on the market, and this is a sphere that is very labour intensive and depends on highly qualified staff, which makes the staff costs a heavy burden for a newly established company.

During the development and testing of its software solution, the company secured its revenue by working on outsourcing projects for other companies. It was sometimes difficult to keep the balance between these projects and the development of own products. In the end, having this source of revenue was important, but it also took a considerable part of the company's resources. As a result, the release of the development of the final product was delayed by at least a year or a year and a half. Another challenge the company faced was introducing the product to the market. Martin has realised the difficult way: it is not enough to only have a good product. Especially in the beginning, marketing campaigns and sales experience is crucial.

4.3 Scaling-up / Consolidation

Currently, the Comp team consists of eight people based in Varna, Bulgaria, and there are 2 to 3 people from Ethiopia. The main team performs main activities like programming and client support, while for many of the non-essential activities, the company relies on freelancers (activities like server maintenance, cyber security, basic programming tasks, marketing agencies, etc.)

The main goal remains to develop its own software products that don't need complex setups. They have a straightforward process that involves analysing a client's business for an hour or two, setting up the system, and making quick improvements. After the initial training, there's a month of hands-on support to fix initial mistakes. The company has a marketing and advertising strategy in place. From the beginning, they relied more on their website and SEO optimisation, and they implemented Google Adwords campaigns. Now, the focus is more on social media ad campaigns. Also, many new clients are attracted by the recommendation of old clients, who are satisfied with the software and the services offered by Comp.

As for the future, Martin looking to expand the client base abroad – although the company has international clients, they have the potential to attract even more because their product is competitive and applicable to other countries and languages. In this regard, they lack the methodology to enter foreign markets. He considers this a problem for many Bulgarian companies, and more support is necessary. A logical next step for him would be to look at the neighbouring countries – Greece, Serbia, and Türkiye. "Especially in Greece, there are not many good products, which might be a great opportunity for us".

Imprint

Publisher and Contact

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full service awareness agency



ENGAGING ENTREPRENEURIAL ECOSYSTEMS FOR THE YOUTH

Nearshore IT Centre Varna: Venture Biography



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1 ID Card

Name of the startup	Nearshore IT Centre Varna
Which ecosystem?	Varna
Founding date	05.12.2019
Sector	IT Services
No of employees	7
(Expected) Turnover	100 000 – 150 000 EUR
Male/female founder	Female and male
Timeslots of startup phases	
idea generation	2019
incubation	2019-2020
consolidation	2021-onwards
Funding / financial support	Own financial resources

2 Founders Background and Motivation

The main characters in our story are the founders of the Nearshore IT Centre Varna – Svetlyo and Marina partners in life and in business.

When it comes to his background, Svetlyo has a Master's degree in Industrial management from the Technical University – Varna, plus a second Master's degree in Corporate finance from the University of Economics – Varna. He has substantial experience in business and marketing development, establishment of foreign contacts and internationalisation of companies, enterprise architecture and project management, gained while working as a consultant for the High-technology Business Incubator in Varna and for German companies. Furthermore, he has very strong family role models in doing business in the face of his father and brother. There was a time when he supported their business activity but always wanted to have his own undertaking initiative. That is why he co-founded a company with two other friends. Maybe it was not the right moment, or for some other reason, this company didn't develop well, and they had to close it. But he always knew that the business is in his veins, and he will soon succeed.

Marina has a Master's in Finances from the University of Economics – Varna and a strong background in the financial and banking sector. She worked in a bank for many years, gaining a lot of knowledge in financing planning, reporting, and accounting.

One day, he received a very attractive professional proposal from a German company, and both decided to grab the opportunity and start a new adventure. This adventure was even bigger for her as she became a mother and decided to stay home and care for the kids. They used every year spent in Germany to gain experience. They created a network of contacts, as they knew that someday they would return to Bulgaria and put all the gathered knowledge into developing their own business.

3 Business Modell

Nearshore IT Centre Varna is focused on providing nearshore IT services, consulting, and reinforcing the existing teams with additional expertise.

Consulting services are mainly from the area of:

- Enterprise architecture management and governance;
- IT strategy development, business analysis and planning,
- Project management;
- IT application portfolio management;
- Company digital transformation;
- Common information modelling.

Nearshore IT Centre Varna provides possibilities for software development, maintenance, support of teams, as well as outsourcing of the activities. The approach is tailored-oriented – it could boost clients' SW development projects with a dedicated team, delivering extra skills and knowledge. The team could include a SW development specialist, managed by a team leader from Varna or the client's organisation. The company is flexible enough and could provide an additional developer and account manager as a primary contact person. Through its team, they provide:

- Software development and implementation;
- Application maintenance and support;
- Remote security support and administration

As mentioned above, they use two models:

Option 1: Partner-steered team: The team works remotely from Bulgaria under the management of the client and steers, extending the client's in-house IT team.

Option 2: Managed team: The team is managed by Nearshore IT Centre Varna as a service and delivers the respective tasks and projects for the clients. The clients could rely on a full or part-time team lead/ Project Manager from Nearshore IT Centre Varna to handle tasks and management team.

Today, the company has clients from different sectors and countries. It operates mainly on international markets, e.g., Germany, but it also targets the rest of the DACH region Austria and Switzerland, Benelux, and Nordic Countries. The company currently employs seven people.

4 Startup development

"Great things in business are never done by one person; they're done by a team of people." Steve Jobs

4.1 Idea-Generation

The journey starts with the decision to move back from Germany to Bulgaria. For them, the hardest part in this phase was deciding whether to go out of their comfort zone – a stable job, an acceptable monthly salary, and jumping into the insecure deep waters of entrepreneurship. It was also obligatory for both of them to be sure that there would be a smooth transition for the whole family. They knew that going in this direction meant that Marina also had to dedicate more time to the business than childcare. Work-life balance is usually difficult to achieve. But she managed with the support of the rest of the family and available childcare – kindergarten and school.

The beginning: from spring to winter of 2019

As he came from an entrepreneurship family with a solid consulting service background, it was easy for him to shape the idea quickly. Since he had some business experience, he didn't face any problems with the company's legal registration. Both were aware of all the necessary procedures to be followed. He managed to organise all the documentation needed for a few months, and they jointly founded the company in December 2019.

4.2 Incubation / Founding

The beginning was hard. They had to count on their savings to pre-finance the company. There were only two of them – he was responsible for administrative and consulting activities, and she was doing the financial management and accounting. Initially, they started with consulting in IT project management, enterprise architecture and portfolio management. The first clients are from Germany. They managed to attract them based on the experience they gained and their existing contact network, friends, and fellows. Knowing that these first clients would be "the face of the company" and could support their rise, they put a lot of effort and gave their heart to providing the best quality service. And since then, they have never decreased the quality level. The fast scaling-up of the company is the main proof of this fact.

The balance between the number of clients and the number of employees was crucial for the company's future development. Attracting new clients is essential for the stable development and enlarging the company.

Fortunately, due to a well-prepared business plan and enough resources, they managed to overcome the most difficulties faced by startups during the first years of their existence, ensuring stability in the market and the possibility of keeping the main staff.

4.3 Scaling-up / Consolidation

Since 2021, they have been running Nearshore IT Centre Varna, through which they started outsourcing some services and software development. The number of clients from Germany increased; a new long-term partnership with a client from the Czech Republic was established. The clients' main activities are in the fields of software development, IT services, agrifood, etc.

Even though they achieved success, they still struggle to reach new clients and markets. So, currently, they are open to any support in this direction. They identify the lack of startup support for attending international IT sector exhibitions where micro, small and medium-sized companies could meet and match as a barrier.

Another challenge for scaling up the company, indicated by the founder's difficulties, is recruiting qualified IT developers and specialists to form the teams requested by the clients of Nearshore IT Centre Varna. Lack of qualified staff is a big burden when responding to the clients' needs. He admits that even several deals failed because of this. But they remain positive, as the company's results are going high well enough at a smooth pace.

During the last year, technological giants have massively released people into the global market due to economic difficulties also affecting Bulgaria. Hopefully, this is an opportunity to develop the Nearshore IT Centre Varna and possibly enter other markets.

Future plans include enlarging the company's activity in the same or different markets and developing a customer-oriented IT platform.

Imprint

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Cloud Services: Venture Biography



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1 ID Card

Name of the startup	Cloud Services Ltd
Which ecosystem?	Varna
Founding date	idea 2012, founding 2013, April 1
Sector	IT/cloud services and software development
No of employees	15
(Expected) Turnover in 2023	480 000 €
Male/female founder	Male founder/female manager
Timeslots of startup phases	
idea generation	2012-2013
incubation	2013-2015
consolidation	2015-onwards
Funding / financial support	Own sources, American and Bulgarian investors

2 Founder(s)' Background and Motivation

Diliyan studied and lived in the US for more than 10 years and worked in the financial field as an investment and credit consultant in European and American banks and financial institutions. However, he felt that he must do something by himself and be his own boss, so he decided to move back to Bulgaria with his family in 2008. He started his own company in telecommunications – Phonecom, and then started another company dealing with online marketing: NextLevelMarketing. And in 2012, he came together with a few partner companies in the IT sector and friends in Varna, with whom he decided to create a kind of data centre and provide cloud solutions – an opportunity that did not exist in the Bulgarian market yet.

That is how Cloud Services came to life. The founder oversees Cloud Services day-to-day operations and leads sales and marketing. He holds an MBA from Babson College and a master's in finance from the University of National and World Economy, Sofia, Bulgaria.

3 Business Modell

Cloud Services provides universal and adaptive cloud services that aim to address the specific needs of customers. Cloud Services has built its cloud using the latest advancements in multi-tenant cloud architecture, relying on cutting-edge server hardware, networking, security, virtualization, and management technology. They host their infrastructure in an independent class Tier 3 data centre in Sofia, Bulgaria.

They provide 24-hours phone and email customer support as professional cloud administration services for customers who need help transitioning to the cloud or require ongoing administration of their cloud resources. Cloud Services' cloud uses Linux KVM as its virtualization hypervisor technology.

They provide cloud services like visualization, VPNaaS, DNSaaS, LBaaS, FireWallaaS, object storage and block storage, and cloud solutions like private cloud, managed cloud, public cloud, self-hosted cloud, distributed storage back-up solutions, web hosting, private Git-repository manager, QRScale, OCR, ticket-tracking system, private communication system, e-learning, training and consulting.

Customers have the choice between paying per hour cloud services or monthly subscriptions. Most customers start with a month subscription to try it out, before deciding if it is a convenient model for them. Some use the hour service.

The expected turnover for 2023 is 460 000 €. The company currently employs 16 people and rents a space as an office.

The company now is run mostly by the founder who oversees customer relations. The manager is the one that is keeping the day-to-day running of the office. There are also all together 15 team leaders, programmers, and developers.

4 Startup development

4.1 Idea-Generation

In 2012, Diliyan and a couple of friends in the IT sector came together since they had some capital and talked about different opportunities that do not exist in Bulgaria. It appeared that all of them faced the need for servers to offer working services, so the question that appeared was where to host them and where to keep them. They decided it is wise to have a kind of data centre, and then started discussing cloud opportunities. "The cloud was not very popular at that time, but there was a theoretical opportunity, and we knew that Amazon had something similar", the founder shared during the interview.

They also contacted some American partners, who were working for Amazon and their cloud, so they have revealed what they are doing to the founder and his partners started to look for their own cheaper solutions and develop their own software. It turned out that there are different solutions already existing as open-source solutions. They reviewed the existing ones and found one that was quite successful: it was developed by NASA for their computers, and was supported by all major players like DELL, HP, CISCO, and Microsoft, without Google and Amazon. It was an open-source solution for the digitalization of machines called Open Data.

They also found another solution - again open source, for storage, and they started to develop it further. However, being in an open-source environment, you have no manual – so they learned by developing it.

4.2 Incubation / Founding

The company was registered on April 1, 2013, and first they bought the machines and the equipment. They also attracted some funding from business angels in the US.

After they received the financing, they selected the distributor of the new equipment – servers, switches, etc. and started installing the two open-source software solutions. They hired two administrators with Linux, because the equipment was Linux-based. They selected the data centre and prepared for the actual work. An integrator was selected who promised that he would write the code and it will integrate the whole software. For six months, they have been trying to work with this integrator and they have not been able to make it operational. The two people they hired tried 3 to 4

times daily to install the cloud, but the installation was not working. So, finally, they realized that this software was not working, and decided to do the integration by themselves. Only after three weeks, they were able to make everything operational. The next step was to start the website and sign with their first clients.

They have started with the marketing campaign to attract clients. They held a press conference in Varna as well. During that time, the cloud was already becoming very popular, and they organized some conferences together with other companies operating in Sofia to popularize it. In 2013-2014, they had no competitors in Varna.

The challenges they faced were the following: Bulgarian company managers didn't believe the use of a cloud for security reasons. Many potential clients told them that they didn't want to use the cloud, and it was so because they were not familiar with the process.

During that time, there was only Amazon and two years after the founder started the company in Bulgaria, it was Google and Microsoft. Of course, the clients began to hear about the possibilities offered by the cloud, but they said, "It is in the US, not here". "When the product was widely adopted, it was five/six years after that, and there was no more challenge after that." So, instead of focusing on the B2B model in the beginning, they have focused on B2C.

They had difficulties explaining the difference between hosting and cloud, and why the prices vary so much. So, when they started to look at prices, they were not competitive, but when people became more educated, the attitude changed.

4.3 Scaling-up / Consolidation

After 2015, Cloud Services went through different developments and added many services to their portfolio. "In 2015, we already had the big ones entering the market. There was Amazon, but it was just a cloud." So, they decided to invest in the second level of development – platform, and they started to sell platforms as a service.

The founder and one of his partners, realized that they had to start developing their own solutions to be more competitive. Meanwhile, his partner has decided to restart his "old" IT company and exited Cloud Services. Then, Diliyan outsourced some of his programmers to American partners to attract some finance and develop his own platform solutions. During the next years, he reconstructed the company's website a couple of times. There were some challenging times: a couple of his colleagues left, but some of them also came back.

The founder also had challenges not with the market, but with competitors – when Microsoft and Google entered the market, they monopolized it, providing server production. When the others had to buy equipment, they had to wait, and it was hard to be competitive with the prices of the "big" companies. Furthermore, of course, a lot of companies offering cloud infrastructure stepped on the market and many clients chose what was cheaper, more secure, and reliable.

Then Cloud Services tried to attract startups that knew them and preferred custom-made solutions. They also offered web hosting, and during the Covid-19 pandemics, they offered Moodle to some of the universities based in Varna and platform support. Recently, they also developed AI solutions integrated into their open-source platform.

"We are unique in that we have already been on the market for 10 years. There is no manual, but we know all the problems that can appear. Our competitive advantage is that we use open source, and we can work with any kind of machine, so we can use any hardware. We are not dependent on a particular

producer, to make a cloud for the client. In many custom solutions, we provide better prices, and are flexible."

The focus of Cloud Services for the last couple of years was Bulgarian clients that would like to have locally based clouds, not use the American clouds and "since the demand in Europe and the Middle East for non-American companies providing cloud infrastructure and solutions is growing, we believe we have a potential market there as well" – says the founder.

Right now, Cloud Services is trying to exit – they have separated the business – the programmers and the developers. The programmers were sold to an American company, and Cloud Services bought back the investors' shares, offering them 2,5 times return on investment. Now the company has the infrastructure and some developers to focus their attention on one thing – the development and support of a private cloud.

Imprint

Publisher and Contact

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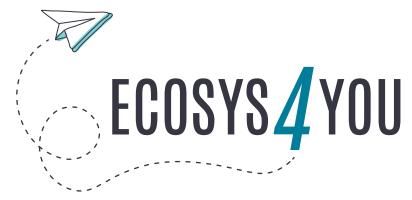




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ENGAGING ENTREPRENEURIAL ECOSYSTEMS FOR THE YOUTH

E-CAP: Venture Biography



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Disclaimer

The document presents a story of an existing startup prepared through desk research and a narrative interview with the founder. For reasons of data protection, the names of people, cities, support programmes and companies are exchanged with pseudonyms. The biography has been approved for publication by the startup and can be used for further research by citing it accordingly (see below).

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1 ID Card

Name of the startup	E-CAP
Which ecosystem?	Varna
Founding date	Idea: 2012, Founding date: 2017, September 25
Sector	IT/environmental compliance assistance software for ships
No of employees	4
(Expected) Turnover	200 000 €
Male/female founder	Male founders
Timeslots of startup phases	
idea generation	2012-2015
incubation	2015-2017
consolidation	2017-onwards
Funding / financial support	Own sources, American investors

2 Founder(s)' Background and Motivation

While working in the shipping industry, the two founders gained experience ranging from shipboard and bridge systems to intense environmental regulations. They faced challenges linked to the maze of regulations, all of which must be adhered to conserve the marine environment realistically and promote a positive reputation and avoid costly violations.

E-CAP was founded in 2017 in response to the need to reduce the risk of seawater contamination due to human error. Yavor has 10+ years of work experience as a corporate environmental manager and first environmental officer at different shipping companies. He is responsible for business contacts and marketing.

Christopher has 10+ years of work experience as chief officer and first officer at different shipping companies. He is responsible for technical issues.

3 Business Model

E-CAP is a startup company established in 2017 to develop an innovative expert system for planning and managing waste ship disposal processes in line with the Environmental Compliance Assistance Program (ECAP).

ECAP is a software system installed on a vessel navigation bridge to help plan and monitor the vessel's environmental operations. It uses electronic navigation charts and calculates the vessel's position in relation to regulated areas. The operational aspects of the ECAP systems alone are useful for the ship's crew, although at its core is the requirement to provide various levels of environmental regulations and their respective boundaries.

Another service offered by the company is ECAP Hub. It includes almost 15,000+ marine protected areas throughout the globe and provides a centralized database of marine environmental regulations.

Although the main objective of the Hub is to provide information for the ECAP, many shipping organizations choose the Hub platform to identify and provide its members with these environmental regulations and information. The ECAP Hub is the platform for which policymakers and regulatory bodies can provide the details of the regulations under their responsibility.

The company's main clients are shipping companies and regulation bodies. Currently, the software is installed on 50 ships of one of the biggest cruise companies and is used on 250 ships of three integration partners.

4 Startup development

4.1 Idea-Generation

The two founders met in 2012 while working as an environmental officer and chief officer for one of the big shipping companies. They had to follow company regulations that their ships must follow to avoid heavy fines and penalties for violating the environmental laws and regulations set forth. They observed that the research for these regulations is mostly done manually, and there is considerable room for human errors as well as the possibility of missing critical information.

The following year, they stepped on the idea of building software to help plan and monitor the ship's environmental operations. In the following months, they decided to develop the idea further. In the years till 2015, it was just the two of them working remotely from each other, communicating, and developing the initial idea.

4.2 Incubation / Founding

In 2015, they started the first company, which involved 6 shareholders. To get the initial funding in 2017, they applied for a grant under ERDF, <u>Innovations and Competitiveness</u> Program with the funding organization Ministry of Innovation and Growth in Bulgaria. They were successful under the procedure <u>BG16RFOP002-1.002</u> "Support for development of innovation by startups", and they received 200,000 EUR to develop the product ECAP - optimized ship waste management system.

In August 2017, a contract for incubation between company and Business Incubator – Varna (with the Regional Agency for Entrepreneurship and Innovations – Varna) was also signed. The company was accepted for incubation with the project "Development of an innovative product - an interactive electronic map for the marine protected areas around the world". The main activities to achieve the project goal were prototype activities and activities supporting its future market realization.

The company was operating till the end of 2017. After the felling out of the original shareholders due to the differences in the approach, the two original founders started again in the autumn of 2017 with another company, E-CAP, using the knowledge from what they had learned during the previous company, and they outsourced all the IT development to a company based in Sofia. They worked with them to build their first viable testing product for the market.

4.3 Scaling-up / Consolidation

In Feb 2020, they had their first major client and did their first ECAP installations on ships of one of the biggest cruise companies. During that time, they had already had issues with their major developers.

According to the two founders, outsourcing the software's development was a mistake. It was not a mistake to get things going, but the problem was keeping the deadlines for development.

After the first ECAP installations on ships, they were also trying another market approach – looking for existing solutions that could integrate their product. By June 2021, they had won the deal with the same cruise company to install on their entire fleet. In January 2022, they finally split ties with the software development company. They wanted a better deal with them but decided to cut the contract instead.

At that time, an investor wanted to invest 1.5 M dollars in the company. He did the due diligence, and the only condition he posed was to have the developers under their company. They tried to negotiate with the outsourcing company to hire two people who had already worked on the product and enforce internal quality insurance. Still, the contract with the software development company was cut at the end.

It was a rough transition for the company, but they managed to hire a developer who helped them build their internal team.

According to the founders, the main challenge was related to the team. "If you have the right resources and the time to build the team first internally, it is something that all other companies taking our path should consider", revealed one of the founders.

During the COVID-19 pandemic, they had to adapt. They developed another opportunity to integrate partners and started generating some revenues from other products they have developed.

Now, they outsource small tasks, not the software development itself – they have two separate lawyers and hired a marketing company to help them with sales for four months. Unfortunately, the marketing company succeeded in marketing, not sales. "We need more support – in sales, marketing, everyday management and negotiations, so we can concentrate more on support of our products and their development", they admitted.

They also tried to approach a large European Accelerator, and their advisors helped apply, but they were unsuccessful.

That is why they decided to look for another round of investment of 1.5 M Euro. They hired advisors to help them organize the round for commission – they would like to find one local VC fund that understands the local environment and one industry impact fund.

Imprint

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Consortium







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ENGAGING ENTREPRENEURIAL ECOSYSTEMS FOR THE YOUTH

Kinetik Automotive Ltd: Venture Biography



This project has received funding from the European Union's Horizon Europe research and innovation programme under Grant Agreement No. 101100432

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1 ID Card

Name of the startup	Kinetik Automotive Ltd
Which ecosystem?	Varna
Founding date	2016
Sector	Automotive
No of employees	15
(Expected) Turnover	250 000 – 300 000 EUR
Male/female founder	Male
Timeslots of startup phases	
idea generation	2016-2018
incubation	2018-2021
consolidation	2021-2023
Funding / financial support	Own funds, crowdfunding (fundraising campaign)

2 Founder(s)' Background and Motivation

Theodor is a serial entrepreneur who has started seven or eight businesses in the last 13 years. His first venture involved the development of banking software, which had the unfortunate luck of coming to light months before the 2008 global financial crisis.

One of his favourite projects is Emailio – a software application aimed to improve the habits and overall experience of users of email services. The idea for the app won Startup Weekend in Varna and, soon after that, became one of the first startups to receive support from Venture Capital fund Eleven. The founder's team is young and ambitious. They apply and are accepted into one of the most prestigious startup accelerators in the world - Y Combinator- and he moves to Silicon Valley.

"They invited us for an interview before we even had an existing product – we only had one demo, but they liked us and gave us a chance", he recalls. Although Emailio did not reach business success, this idea continued to be developed at Duke University in the United States to help organise the data from research studies received by email.

He spent 5 years in the United States, working on various projects while running his software company, Dev Laps, based in Varna.

On one of his returns to Bulgaria, he and his long-time friend from high school discussed trends in the electric car market. "Back then, Tesla was not what it is now," recalls the entrepreneur. At that point, they both decided to take on a "side project" to design and build their own sports electric car from scratch, not as a business project or solving a specific problem but based only on their shared passion for electric cars and naive believe that they can do something that usually requires huge investments and hundreds of qualified professional staff.

Looking back at his entrepreneurial path, he marks some important milestones, like his passion for STEM and graduating from the High School of Mathematics in Varna, Bulgaria. His then schoolmate was

passionate about drawing cars, later becoming a professional graphical designer and a co-founder of Kinetik Automotive.

As to his professional experience, the entrepreneur greatly values his first job at an Irish company as an intermediary in returning taxes to students and workers who worked or studied abroad. The company later became one of his major clients when he had his own software business, proving how important it is to keep good relations with former employers.

He had always been eager to explore other countries and cultures. That was one of the main reasons to enrol in an 18-month Japanese management course at the University of National and World Economy in Sofia. He was also a student in telecommunications at the Technical University in Varna at that time.

Although he was the youngest and least experienced from the group in the management course, he was highly motivated to graduate among the top four – who were awarded a visit to Japan, including meetings with top management at some of the most renowned factories like Honda and Toyota.

He values his experience in Japan highly and says that it changed his views in many ways. He also valued how crucial the culture and mentality of the people is for a company's success. "Culture eats strategy for breakfast", he cites a famous quote from Peter Drucker.

After his return from Japan, he started as an entrepreneur. His first idea was for an online platform that connects people who are looking for credits with banks, then into the insurance business and so on through his experience in Silicon Valley and then finally returning to Bulgaria, where he founded Kinetik Automotive and Kinetik Karting, a few years after.

3 Business Modell

The initial business idea was to create a highly customisable sports electric car. Using rapid prototyping technologies and large 3D printing, the idea was to create a unique user experience for high-end customers who can choose their own car characteristics and, with the help of the Kinetik automotive designers' team, create the sports car of their dreams. This is how Model 07 was created following the vision of Kinetik Automotive Company.

One major setback of the realisation of their product are the legal requirements that must be met to prove its technical safety and to be approved for driving on the roads. It would cost thousands, even for a small part, to pass the necessary tests and millions for the whole car to be officially "road legal".

In parallel, the team was developing eKart - an electric karting vehicle – a niche that was not yet fully exploited. The other products on the market were often normal cars that were electrified without considering the changes in the weight distribution of the battery and other specifics of the design of electric vehicles.

Finally, an incident at the production plant in 2021, when all equipment, including the Model 7 and 3D printers, burnt in a fire caused by an electric short-circuit, led to the decision to restart the company, and rebuild everything, but this time fully in the direction of electric karting.

The business model was further developed to offer electric karting as a service: The company has developed one of the best designs, combined with their own software. This made it possible to adjust the car's characteristics to the pilot's progress by only changing the software settings, thus eliminating the necessity to change the vehicle itself – as was the case with the other vehicles.

4 Startup development

Like every great story, that of Kinetik began with a single idea and the question, 'Why not?'. Back in 2016, they embarked on a journey to create the world's first all-electric sports car for the track. It was envisaged to be highly customisable and extremely exciting to drive, with proprietary software and completely built in-house.

The project was met with a lot of scepticism, and the team was told they were way out of our reach and had no chance of succeeding. People's attitudes changed, however, as Kinetik unveiled their fully operational prototype at the John Atanasoff Innovation Forum in late 2019, having accomplished all the above-mentioned criteria and a lot more.

4.1 Idea-Generation

The idea for establishing Kinetik started as an experiment, led by the enthusiasm of its founders to try something new that no one has done before. The restrains in the resources and lack of experience they compensated by trying new approaches like 3D printing and learning from their own experience and failures.

Their first project envisages the electrification of the Lotus 7. "It's a classic track car - light, with great handling," says the entrepreneur. Another important factor is that the entire Lotus 7 design is in the public domain and can be used freely.

The initial idea was to try to replace the diesel motor with an electric one. The moment the "car", a chassis with a motor, goes to the test track, they decide to continue and create their own design for an electric car.

4.2 Incubation / Founding

2018-2021

The company Kinetik Automotive was founded in 2018. It started as a hobby in the garage of the software company Dev Lab, which he also founded.

They realised from the moment they wanted to design their own electric car that this could not be done in a conventional way – neither did they have the means or the experience to do so. The founders saw an opportunity in the new 3D printing technologies. They purchased the largest printer on the market from Germany and started experimenting with it. It took almost a year and a half to study the technique. For example, they had to learn how to regulate the temperature in the hall so that the details could cool down in the proper conditions. The slightest change from opening the door of the premises could lead to damaging the parts and having to start all over again. The printer could make details up to 1 m2, so the engineers had to figure out how to assemble the larger parts by joining several small ones. The manufacturer of the 3D printers supported them in this challenge by donating the consumables for the 3D printing. For them, as the printer's seller, it was also useful to learn about this new type of application and the capabilities of their equipment.

The first prototype of Model 07 was ready and operational in 2019 and was successfully showcased at the John Atanasov forum that held place in Sofia Tech Park.

The rapid prototyping technology helped develop several prototypes of eKarts in parallel, which was to become their main division and develop in a successful business model of eKarting as a service.

An unfortunate event marks the end of this phase – a fire broke out in the production base, burning the Model 07 prototype and all the machinery. Only two of the eKarts were saved by the team. Fortunately, no one was harmed. Soon after the fire, Kinetik started a fundraising campaign for donations and attracted volunteers and other companies who offered their help to clean up and rebuild the factory. Only a few months after the incident, the team decided to start over with their projects, even though with a much-reduced capacity. This time, they put their effort into the more promising eKarting project.

4.3 Scaling-up / Consolidation

Starting from three people in the beginning, the team of Kinetik now consists of 15 people. Most of them have studied abroad or had careers in large multinational companies but were attracted to the challenge of creating something new and revolutionary.

From the beginning, it was decided to "reinvent" the electric karting: to make own chassis with the necessary distribution of the weight of the batteries, make their own optimised design and help considerably reduce the eKart's weight.

Furthermore, Kinetik Karts developed in-house software that would allow one eKart to have settings to be piloted in different piloting classes through software modifications. This makes it possible for a pilot to develop and progress through the different levels without buying a new eKart for each new category. Other features include using cloud solutions to see real-time data for the pilot performance and for the specific track and terrain.

For the future, the main goal remains to create a new business model of "eKarting as a service": To offer a fleet of 20 eKarts, to be able to position them in a given country or on a given track and, together with local partners, to organise eKarting championships. Pilots who want to participate can use the eKarts and all the accompanying services. All they have to do is to pay a participation fee. New features in the software platform are envisaged, using AI, to help collect data from many pilots on a given terrain. The data will then be analysed and used for reference by the pilots to train them and use it as a tool to improve their performance.

Furthermore, having realised the importance of STEM education, Kinetik has developed its <u>STEAM</u> <u>Educational Go-Kart Kit</u> as a way to give back to the community and inspire the next generation of electric automobiles and engineers.

The EduKartGo is an educational kit provided to high schools, educational organisations, colleges, and universities. The recipients will receive their karts disassembled part by part until the very last nut. Together with that, the kit will have all the needed tools to be assembled, video instructions for the students, a learning curriculum for the participants (both students and teachers), and extra materials such as graphics for the bumpers.

The STEAM EduKartGo Kit is foreseen to be built by students between 8th and 12th grade or 1st-grade university students, where up to 20 future engineers and car enthusiasts will be able to join forces.

It is calculated that the whole assembly of the STEAM EduKartGo Kit can take up to 70 lessons. This includes theory and practices. In matters of studied disciplines, the kit covers SEVEN directions:

Science Electronics; Mechanics; Software and hardware programming; 3D printing and modelling; Green mobility; Graphic design & Digital Marketing

Imprint

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ENGAGING ENTREPRENEURIAL ECOSYSTEMS FOR THE YOUTH

AWARE7: Venture Biography



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Disclaimer

The document presents a story of the start-up AWARE7 prepared through desk research and a narrative interview with one of the founders. The biography has been approved for publication by the founder and can be used for further research by citing it accordingly (see below).

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1 ID Card

Name of the startup	AWARE7
Which ecosystem?	The Ruhr
foundation date	idea 2018, foundation 2019
Sector	Cybersecurity
No of employees	45
Male/female founder	male
Start-up phases	
idea generation	2018
incubation	2019-2021
consolidation	2023-onwards
Funding / financial support	EXIST Research Transfer via a cybersecurity incubator programme of neighbouring university

2 Founder(s)' Background and Motivation

Chris studied computer science in his BSc and moved to the Ruhr to study for a master's in cybersecurity. Matteo conducted a BSc in engineering before he moved to the Ruhr to study cybersecurity in his master at the same university as Chris. Both founders come from a do-it-yourself scene in the leisure sector. Chris was a DJ when he was a student and did it as a part-time job. So he knew the pressures of being on stage and being responsible for the music in the club. Matteo has played in various bands, and the bands needed to do everything by themselves, from setting up the stage to organising accommodation etc. Matteo: "These are things that I think helped us to run the business and deal with the uncertainty." Still, Matteo pointed out that he actually never intended to start his own venture, because of some failed venture activities of his relatives.

3 Business Modell

AWARE7 is a start-up specialised in cybersecurity services, especially lifehacking, pentesting and phishing simulation as well as consulting for B2B. As a university spin-off, the company also participates in third party-funded applied cybersecurity research projects.

4 Startup development

4.1 Idea-Generation

The idea to start a venture is related to the work of Chris and Matteo at a cybersecurity research institute linked to the master class in cybersecurity they studied. Both had contracts as scientific assistants at the institute. Chris took over a lifehacking project at the research institute in 2016. The project had not gone as planned and was financially deficient. The person who had the project upfront was not the project manager type, so the project had outstanding debts. About two to three months after Chris took over the project, he asked Matteo if he would like to join the project. Matteo had already represented the institute several times by then and Chris had realised his potential for live hacking shows. Together, they managed to develop the lifehacking project that it become profitable and was able to finance their salaries until around 2018.

Then, a project through which Chris was funded came to an end, and the two of them considered whether a new acquisition with funding from the Federal Ministry of Education and Research should be targeted. At around the same time, Matteo and Chris presented the institute at a large cybersecurity trade fair and organised a lifehacking event. At the evening party of the trade fair, they made the decision to found their venture AWARE7. Different aspects can together at the party. First the ending of the project and the need to look for new project funding. Second, at the party, Chris and others talked about Chris' technology blog, which was called AWARE7. The name was chosen specifically because there were no Google entries for it. Chris blogged about all sorts of IT-related topics, especially IT security, but it was also about the five best free image editing programmes for Mac, for example. It was just a place to try things out. Matteo also started posting at this blog and it became clear from the number of clicks that the blog and its topics were actually attracting interest. Third, the continued successful and profitable management of the lifehacking project in the last two years and their successful lifehacking show at the trade show. Building on this, the decision was made to found a company called AWARE7. They approached their professor and head of the institute, who also happened to be at the trade fair party and agreed to spin off the life hacking activities to AWARE7.

4.2 Incubation / Founding

Thanks to the existing blog and lifehacking business model, the business plan was finalised quickly. A month later, Chris and Matteo sat at the notary's office and signed the partnership agreement. On 4 January 2019, they were entered in the commercial register and have been operating as AWARE7 ever since. In preparation for the foundation, Matteo and Chris spoke to the local business development agency and the business development agency of a neighbouring city in addition to talking to the head of the cybersecurity institute. In the neighbouring city they were introduced to other important people in the field of IT security, so that Matteo and Chris were able to get a rough idea of what a spin-off is like. However, as there was pressure to make a decision due to the expiring contract, the legal form and partner structure was decided in a rush. As Matteo recalls: "And then we founded the company and said, yes, well, we don't have that much time to think about 'what exactly are we going to do?'" In addition to Matteo and Chris as managing partners, the director of the research institute become the third partner. All three have contributed equally to the capital to set up the limited company [GmbH].

Matteo clarified that the professor contributed to the capital necessary to establish the limited company. However, it was no real seed funding which would have allowed the young venture to pay for first salaries etc. Rather, Chris and Matteo were employed at €450 basis [marginal employment or

mini-jobs to German labour legislation] and paid their salary from their first lifehacking jobs. Revising the foundation process Matteo noted "With hindsight, you could perhaps say that a few things could have been organised more cleverly. For example, you should have set up a holding company to hold the shares. Ultimately, the question of the organisational form is a maths game, but it could have been a little different [...] Back then, we simply wouldn't have founded the company without the involvement of the head of the institute." Neither Matteo nor Chris come from wealthy families. Matteo even kept a screenshot of his account balance of \notin 4.20 directly after the start-up.

In addition to the GmbH, a GbR was founded, which also holds shares in AWARE7. The idea was to give the employees a stake in the company. In the end, however, this could have been avoided, as in corporate practice, participation is regulated via virtual company shares. In hindsight, setting up the additional GbR turned out to be a bad idea, "we should perhaps have thought about it a little more carefully," said Matteo. "But on the other hand, we probably wouldn't have... So then we would have spent ages discussing it".

At the beginning AWARE7 was located at free desks in the office of the cybersecurity institute. However, the young company quickly move to an office space at some distance from the university to have more space to grow the business. The new office space was commissioned by the city and its business development agency. Though AWARE7 was well connected to the cybersecurity institute and the first employees came from there, the spatial separation had advantages for the young venture. As they were no longer located in the institute, it became clear to everyone that they were now an independent company and the founders were excluded from tasks and obligations related to the institute.

In the business world, everything is a little less administrative, the projects are simpler and the two could work more independently, so that further activities, such as penetration testing, were quickly added to the lifehacking. The development of the penetration testing is Matteo's speciality and they received research funding for this. The cybersecurity incubator programme run by a university in the neighbouring city enabled a ca. €300 000 research grant. The incubator programme had the ability to recommend teams for the Federal Ministry of Education and Research funded Exist Transfer of Research grant¹. Matteo and Chris applied with their first results from a research project they had conducted at the cybersecurity institute and proposed to develop software that quickly calculates a first penetration risk score based on publicly available data. Exist Transfer of Research consists of two phases. In the first phase, the university receives the funding, and the founding team is hired and can employ other people to further develop the technology for commercialisation. If successful, the venture will formally be founded, and the first project funding from the grant will be received. As AWARE7 was already founded, they were only allowed to apply for funding for phase 2 and were eventually successful with their application.

The grant helped to pay wages and hire more employees, enabling them to hire five people for minijobs from mid-2019. It was used to implement the penetration testing product that is still used in the sales process today. In retrospect, Matteo found Exist Transfer of Research and the whole cybersecurity incubator very helpful. He attended mentoring workshops on marketing, for example, where you simply have to try things out according to a certain concept. In principle, AWARE7 still does that today. Contact with the cybersecurity incubator (located at a neighbouring university) was initially made on a personal level because Matteo knew one of the manager from an event. The head of the cybersecurity incubator approached Matteo to encourage an application to Exist Transfer of Research via his incubator. Matteo was also doing his PhD with a professor at the university in the neighbouring city that runs the

¹ https://www.exist.de/EXIST/Navigation/DE/Gruendungsfoerderung/EXIST-Forschungstransfer/exist-forschungstransfer.html

cybersecurity incubator programme. His PhD research is partly related to the Exist Transfer of Research work but unrelated to the foundation of AWARE7 and his PhD supervisor is not involved in AWARE7.

AWARE7 had its own revenue right from the start and the business went well and grew based on growing earnings. In particular, the lifehacking and training business flourished, where shows and lectures were mainly held for large cooperates. It was helpful that Chris and Matteo were able to convert the private sector partners of their old project at the cybersecurity institute into customers. At a major lifehacking show, they were once told off the record that their prices were much lower compared to their competitors. However, making low-price offers was not intended, but the result of lack of knowledge on price structures in the corporate world. Following that, they became more confident in their abilities and gradually increased their pricing. AWARE7 was able to hire more speakers and by the end of 2019, the number of employees had grown to fourteen people. Matteo pointed out "It was very good that a large corporation could be named as a reference customer on our AWARE7 website at some point. We had confirmation from them that we were allowed to do this, so we did some live hacking. And of course, that always helps, everyone knows them, has somehow seen this logo before and knows that they are an important player in the market." It was equally important to win the consumer advice centre as another client.

During this period, Chris and Matteo also pitched their business at two larger event, but they didn't feel that pitching was a good fit for their business. They are already constantly pitching to customers and doing lifehacking. But when you pitch against start-ups that are active in the B2C segment, you don't stand a chance. AWARE7 has never needed to win cash prizes or raise external capital from investors, because it has generated revenue from the outset. This allowed the company to maintain the freedom to do things that the founders deemed appropriate.

Then came the Covid19 pandemic in March 2020, which completely changed AWARE7's business model. The whole marketing strategy was anchored around lifehacking events. The startup's services, which went beyond the lifehacking topic, were then presented at these events. The marketing or sales strategy was: AWARE7 employees gave these livehacking presentations and talked about the additional services on offer in a non-offensive way. Two or three new orders were actually always generated from this. With the pandemic, all events were cancelled, challenging the business model of AWARE7. Consequently, the company must cut jobs and shrank to thirteen people, who, however, only worked in a total of five full-time positions.

4.3 Scaling-up / Consolidation

The Covid-19 pandemic was used to reorganise the company. Other fields have been added, e.g. in the area of online learning and consulting. This was favoured by an amendment to the Critical Infrastructures Act, which extended the amount of sectors under supervision. This enabled AWARE7 to acquire further projects and expand the business area. In addition to the consulting project, the product range was also further developed. AWARE7 now offers phishing, simulations and e-learning provided by the company (in-house development and hosting). Furthermore the founders heavily invested in certificates to fulfil legal requirement for certain consulting jobs, and to demonstrate their competence and reliability as cybersecurity company, despite the relative young age of AWARE7 and its founders. The business expansion and certification eventually payed out and at the time of interviewing in December 2023, 45 people worked for AWARE7.

To foster this scaling, Chris and Matteo introduced a middle management in Early 2023. They further successfully applied for an accelerator programme from the Ruhr but eventually decided to not take part in it. They felt that the offers did not suit to their organically growing company and that they could not train their new middle management as they had hoped.

AWARE7 is currently planning for the coming year 2024 and wants to act rather conservatively, which means consolidating first in order to keep sales and employment constant. However, there will soon be a new amendment to the law, which will mean that even more companies will have to deal with the topic of cybersecurity. As a result, the scope of possible clients will continue to grow. The question is how the market will develop. But the company will probably continue to grow in 2024 and the target for the end of 2026 is around 100 employees. Here the location in the technology park is limiting the company, as the park is almost completely occupied and hesitant to offer additional office space.

5 Reflection and Conclusion

Due to the personal engagement of Chris and Matteo, they are often asked to represent the ecosystem as regional ambassadors. This commitment is part of AWARE7's strategy to have as many touchpoints with potential customers as possible, be it online during the Covid19-pandemic or offline, as in the recent time. Even though Matteo stated, he feels uncomfortable to talk about himself and the start-up's success story at events, such representation is important as a marketing strategy for the company. Matteo reflects: "Especially in the early phase of a start-up, as a founder, you are also the brand".

Another reason for their strong regional engagement is the location of AWARE7 in a city neighbouring the current cybersecurity hotspot in the Ruhr. It requires the founders' continuous efforts to remain on the radar system of the many cybersecurity actors located in the neighbouring city and to profit from the "buzz" over there. For example, in contrast to support structures at AWARE7's current location, the actors' expertise in consulting high-tech start-ups and the capacity to organise delegation trips to other countries is really advanced in the neighbouring city. Matteo and Chris could profit from it several times.

Both founders would like to stay at the recent location with AWARE7. Especially Chris is strongly committed to the city, as he grew up there and strives to contribute to the city's economic development. However, given the expansion plans of having 100 employees by the end of 2026, future questions are if there is enough office space available in the technology park and reliable commitment of city officials to provide the much needed space.

Imprint

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Ecosys4you – Engaging Entrepreneurial Ecosystems for the Youth (2023-2026) strives to bridge the entrepreneurial ecosystems of the Ruhr, Germany, Varna, Bulgaria and Slovenia by connecting young founders, startups, HEIs and other ecosystem actors.

Consortium







This project has received funding from the European Union's Horizon Europe research and innovation programme under Grant Agreement No. 101100432

full service awareness agency



ENGAGING ENTREPRENEURIAL ECOSYSTEMS FOR THE YOUTH

Exchange Education for Habitation: Venture Biography



This project has received funding from the European Union's Horizon Europe research and innovation programme under Grant Agreement No. 101100432

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Disclaimer

The document presents a story of an existing startup prepared through desk research and a narrative interview with the founder. The biography has been approved for publication by the startup and can be used for further research by citing it accordingly (see below).

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1 ID Card

Startup name	Exchange Habitation for Education
Which ecosystem?	Ruhr
Founding date	Idea 2011, foundation 2014
Sector	Social Enterprise (NGO)
No of employees	18 employees + 24 volunteers
(Expected) Turnover 2023	1.500,000€
Male/female founder	Female (and male at the beginning)
Startup phases	
idea generation	2011
incubation/founding	2011-2014
consolidation/scaling	2018 non-systemic scaling; 2020 onwards – systemic scaling
Funding / financial support	70% foundations, 30% – donations from business and citizens, public money

2 Founder(s)' Background and Motivation

Christine, one of the two founders, has a versatile and turbulent life experience. In her teenage years, she unexpectedly became a mother and still managed to finish school with the third-highest score on the state exams in her school. She defeated the odds, even though the student council advised her to quit her education and focus on being a parent. "*In my mind, I always try to turn a weakness into strength because I don't want to be seen as a victim of circumstances!*" Passing forward, when Christine brought the first sentence about Exchange Education for Habitation to paper in 2011, she didn't even know what a social entrepreneur was. Now, 12 years later, she is the CEO of the initiative – an established social enterprise with five locations and one franchise.

Christine, freshly graduated from her philosophy studies, worked for an agency responsible for the campaign 'Cultural Capital of Europe' in 2008, which the Ruhr region won. There, she met Mustafa, a young man from a Turkish working family ('Gastarbeiter'). Mustafa grew up in Duisburg, one of the larger Ruhr cities, in a district characterised by heavy socioeconomic conditions and a high number of migrants. His parents speak just a little German; his mother was a housewife, and his father provided for the family. As a child, Mustafa befriended a German boy from his class, whose mother took him by the hand and showed him that there is more to the world than the "hood". She insisted that he learn proper German, took him to the theatre, and encouraged him to attend a student exchange programme in another country. Her mentoring proved valuable for Mustafa, and he understood how crucial cultural support is for children. He became very active in his community and, in 2008, was working with a collective of youngsters striving to enhance the neighbourhood's positive image. This is where he and Christine met.

Christine joined the collective's campaign as part of the 'Cultural Capital of Europe'. She and Mustafa bonded not only over their work but also over their shared ideas and passion for changing something

in districts such as the one Mustafa grew up in so that children can have an equal chance of a better life.

3 Business Modell

In its eight years of operation, Exchange Education for Habitation has established itself as an impactful non-governmental social enterprise within the field of education, providing services and support for economically disadvantaged children. Their services follow threefold goals – providing educational mentoring for children, offering free-of-charge living for the mentors (i.e. young adults), and networking within the neighbourhoods to enhance the general quality of life through cooperation. Essential for the business model is that they receive the habitation space at a very low fee or even rent-free and take care of it (e.g. renovate) at their own costs. "We are a traditional NGO with a small operational business for a specific purpose. We don't have a substantial commercial enterprise and can only sustain ourselves to a limited extent through self-financing".

In 2023 they are operating in five locations within the Ruhr area and have helped establish a franchise organisation in another large city. At every location, there are 2 management positions – one person responsible for the educational and didactical activities and one running the project management and fundraising. These local fundraisers are responsible for mobilising the community to support the project – from the baker on the corner to larger companies. Christine and one main fundraiser are responsible for the overarching project management and financing. 30 mentors work directly with the 350 children.

To sustain their operation, Christine must put 1,5 Million euros on the table annually. Most of the budget (65-70%) comes from foundations, and the rest is divided between donations from businesses, civil society, or public funding. Christine, however, wants to switch the balance towards more equal proportions. In 2019, she took inspiration from the 17. SDG, specifically targeting partnerships among different actors. With this idea in mind, Christine strives to establish a public-private partnership financing model for Exchange Education for Habitation. The services they offer benefit society in general and municipalities specifically, but integration and increased quality of life aren't goals any actor can achieve alone. "*It cannot be that only the city takes action, it cannot be that only foundations are involved, and it cannot be that only companies or individuals contribute. We all have to do our part.*" Now, post-COVID, with the rising inflation and energy prices, with the military conflicts in Ukraine and the Middle East, Christine admits that people are genuinely not that akin to donating money to charity.

In its capacity as an educational service provider, Exchange Education for Habitation is allowed to settle educational vouchers with the municipalities within the German Package 'Education and Participation' ('Bildung und Teilhabe') at most locations they are operating. Nevertheless, Christine admits that the bureaucracy around the Package is so much that it is not working for them. "*If it was possible to settle everything we deliver to the children through the programme, it will make up to 40-50% of all expenses per location. Unfortunately, this is not the case, and I am forced to look for alternatives.*" The association receives some money from the state for the mentors since they are participating as part of their Federal Voluntary Year (Bundesfreiwilligendienst). Furthermore, at Location 2, a small part of the city budget is dedicated to Exchange Education for Habitation. Christine aims to roll out such financial recognition at the other locations as well. She admits that finding the money to keep the services operating is her most challenging job. "*When I can plan six months ahead and have no concerns about my liquidity, I can sleep very well.*" But to get there and keep the pace requires a lot of endurance.

4 Startup development

Exchange Education for Habitation addresses all the negative characteristics of Mustafa's neighbourhood: limited level of education, a lack of networking opportunities, and minimal access to (high-)quality education and other resources. Back in 2011, there was a 12% vacancy rate in the neighbourhood of Marxloh, and its reputation was extremely poor. It was often referred to as a money laundering district and a 'no-go area,' a place to avoid. "*We essentially realised that in a place where nobody lives, nobody wants to live*". As soon as the 'Cultural Capital of Europe' had finished, Christine and Mustafa decided to start their own agency to continue their work, namely, to push on projects on the interface between city development, economics, and arts and culture. The goal was to push the quality of life in left-behind districts such as Mustafa's home one, even if it meant 'only' dealing with the stigma of living there. Due to their personal life stories, they both knew how vital supporting infrastructures are, leading them to found Exchange Education for Habitation.

4.1 Idea-Generation

The idea for Exchange Education for Habitation arose during the joint work of the founders within the 'Cultural Capital of Europe' campaign. In 2011, when Christine and Mustafa agreed on what they wanted to pursue, Christine wrote the first concept of Exchange Education for Habitation. Coming from a philosophy study, she knew nothing about business model canvases or SRS¹ reports and just laid the idea on paper. She crafted a document nearly the size of a master's thesis. By coincidence, she stumbled upon a call for proposals published by the Vodafone Foundation and the recently established Social Entrepreneurship Academy in Munich. Together, the two organisations initiated an award competition, the most significant social entrepreneurship and education grant at the time. Through this application process, Christine first encountered the term 'social entrepreneurship'. Recognising the alignment with her work, she realised that their efforts were not in vain, and there was a clear vision driving their mission.

Christine and Mustafa submitted their application, were invited to pitch their idea, and ultimately secured the grant — 40,000 euros in funds and valuable business consulting. With this support, they could establish an association. Until then, they pushed the project with their own money in their free time. Suddenly, they could afford legal assistance to draft their bylaws and create a basic website. Travel expenses became reimbursable. This financial boost was particularly crucial for Christine, who, as a single parent working a modest job, had experienced periods of reliance on the social system. Finding financial stability was a significant challenge during that phase.

4.2 Incubation / Founding

The winning of the first award marks a pivotal point in the official founding of Exchange Education for Habitation. More than the money, the consulting became the catalyst for their initiative. Christine admits to maintaining a lasting and amicable connection with the consultant, who remains a valued association member. There was a strong interpersonal connection between them, and with her guidance, Christine shaped the project in its formative phase. Back then, the now widely recognised tools such as Business Model Canvases and agile management methodologies, some of which are nowadays even included in academic curricula, and the diverse array of hubs and labs were not yet

¹ SRS stands for Social Return on Investment, a framework used to measure and communicate the social impact of a social enterprise by assessing the social, environmental, and economic outcomes. Often the results are presented in the form of reports.

established. The available knowledge from the academy leaned more towards the theoretical and academic realm, lacking practical insights into organisational development and financial management. The challenges extended to finding the right tax advisory firm, with Christine and the team receiving inaccurate advice regarding their charitable status.

To overcome these hurdles, Christine sought feedback from experienced people in her network, particularly those familiar with the non-profit sector. Their guidance, though valuable, could only illuminate certain aspects, as the intricacies of the non-profit landscape remained somewhat elusive. Christine navigated this early phase with determination, recognising the need for a broader understanding of the legal and financial aspects of the non-profit sector.

Despite the difficulties, the team managed to establish the association in 2012. After winning the award and through generous donations, they purchased two fully renovated 80-square-meter apartments for €50,000. Here they set up the first shared living communities ('Wohngemeinschaften, WGs'). Additionally, they initiated discussions with the church and the local community, including the Diocese of Essen. To their delight, the diocese offered them a part of an old Villa that had been vacant for over 15 years, rent-free. In exchange, they committed to renovating the space, which became the nucleus of their work with the children, now referred to as the 'Exchange Bar'.

Christine faced significant opposition in the early days, particularly from local district politicians. Surprisingly for her, everyone she encountered from outside the city was enthusiastic and supportive of the project. However, the closer the project came to the home city, the stronger the headwind became. It was a valuable, albeit challenging, lesson for Christine, who, at the time, was inexperienced in navigating the intricacies of establishing an organisation in the social sector. Their endeavour occurred amid well-established political landscapes and life support systems, which had known each other for years, creating a complex network. Christine found herself venturing into the territory of the social-political party, surrounded by, at first, a non-supportive city development company. Her partner, Mustafa, was known in the neighbourhood for his engagement in political matters without holding back. It took some time until local politics took them seriously. Fortunately, Christine had support from key figures who believed fervently in the project. Notably, the former CEO of the Vodafone Foundation played a role akin to a guardian angel. He not only championed the cause but also suggested the formation of a board of trustees, offering to take on the role of chairperson. In addition, Christine enlisted the expertise of a media professional and other influential individuals, creating a protective shield for the project, as these supporters genuinely believed in the transformative potential of the idea.

The journey continued with a second recognition, another award with a background support system. Unfortunately, this time, the support did not prove to be very helpful. "Two seemingly lost individuals one from the banking sector and another from the legal context—sat at the helm without genuinely understanding the project's vision". Instead of contributing, this award added to the workload. Following that phase, awards continued to roll in, some with financial rewards that significantly boosted their funds, and others brought increased attention, creating a positive feedback loop. Recently, Christine was honoured to receive the 14th award, a notably generous sum of €140,000. While this undoubtedly benefits the organisation's financial health, Christine still recalls their first award and provided support as the most crucial. "It is one of the best things that could have happened for us".

Despite the success, the hurdles were not completely overcome. Over the course of several years, Mustafa faced health challenges and relocated to Turkey. In 2015, after a successful launch, Christine found herself navigating the project's challenges alone. "A time when you really see who your true friends are", she recalls. The city's administration, for example, rarely missed a press event; however, Christine's earnest calls for assistance went unanswered. In these trying times, the Vodafone

Foundation emerged as an unexpected but crucial ally, deviating from their typical funding priorities to provide essential support. At one point, the Social Entrepreneurship Academy and the Vodafone Foundation assigned a fundraiser to Christine's cause. Although engaging an external fundraiser didn't yield the anticipated results, it left Christine with a valuable lesson – fundraising is undeniably a matter for the CEO. Retrospectively, Christine recognises a vital need for a dedicated financial manager. Christine took on the responsibility of handling all administrative and financial matters on her own in the project's early stages. A job that became unbearable with its growth. This revelation underscored the importance of advising fellow founders, especially those without a commercial background like her, to prioritise hiring someone from the financial sector as soon as possible, even if not full-time.

4.3 Scaling-up / Consolidation

The successful launch led to the interest of other districts in having the same project implemented. In 2018, a second location was opened in Gelsenkirchen, another Ruhr area city; three other cities followed, and in 2023, an opportunity arose for the first franchise model in Hamburg. Franchising is seen as the most sensible scaling model for the future. "*A one-woman show at 5 locations in the Ruhr area is enough for me*", says Christine. The story behind every new location, however, is different.

Non-systemic scaling

While the first location, Duisburg, was directly connected with the personal story of one of the founders, Gelsenkirchen, as location 2 was found by chance. Since one of the main tasks of Christine as a manager in the association is to secure funding, she raised donations and wrote grant applications for funding at different institutions and companies nearby. One of these was the foundation of the water provision company at Gelsenkirchen. After reading the application, the foundation manager was so impressed by the project that she approached Christine personally with the proposal to launch the same project in a left-behind district there. The foundation, together with the urban renewal company, worked seamlessly to bring Christine and her team to Gelsenkirchen in 2018. "*They rolled out the red carpet for us and said, 'Here is the building', which they had truly and beautifully renovated for us*".

This scaling activity happened by chance. In the beginning, there was no plan or strategic thinking about scaling, but rather, "Let's do it if we can". However, the two locations quickly became too much for Christine. As a graduate in philosophy, numbers were a weakness for her, yet she managed to bring the association's budget up to \notin 400.000. However, with all the fundraising and legal requirements that came with them, the job became so complex that Christine was on the brink of quitting everything in 2019. Luckily, soon after, through her personal network, she coincidently met someone who temporarily assumed the role of financial management for the association. The new CFO brought nearly two decades of extensive experience in the non-profit sector to the table. He worked in a consultancy company in a smaller city nearby, which soon became location 3.

Systemic scaling strategy

Before the third location was opened, Christine applied for another entrepreneurship scholarship at the Impact Factory, a local incubator. The programme distinguished three phases of development – ideation, foundation, and scaling – and each candidate could choose where to go. Even though some years had passed since Exchange Education for Habitation started, Christine joined the first phase to reflect on her business model. Additionally, a colleague from the association joined the Open Transfer Accelerator, which proved to be a valuable sparring partner for further developing scaling ideas. Furthermore, in 2020, the association secured a significant grant from another foundation with the specific aim of scaling up. This allowed Christine to bring on board a dedicated team member tasked with identifying potential locations for expansion and devising strategies for scalability. Scaling proved

a unique challenge, as Christine's initiative was a clear precedent. Unlike conventional startups, her organisation was interlaced with complex structures, making each expansion like founding a new company. During the application process for the Auridis Foundation, Christine was forced to develop an impact plan, which was very challenging but helped her and the team to focus. With the help of the accelerator and the foundation itself, they developed a scaling strategy. Internally, the team designed a comprehensive tool, a sort of Excel spreadsheet, where socioeconomic data can be put and a rating matrix can guide the decision-making process. The team invested substantial effort in thoroughly analysing the characteristics of various neighbourhoods. Some of the criteria include a well-connected network and proximity to multiple schools; finding a landlord who isn't a private entity; striking the right balance – not too much availability of other supporting infrastructures and not too close to an existing location to avoid internal competition and potential loss of supporters; ideally, being close to a university and the city centre. These criteria guided their expansion at locations 4 and 5, while location 3 was established more out of personal reasons, very bottom-up, without the active participation of the local municipality.

Location 3, Witten, is where Christine finished her school and university education, where her family lives, and she has a good social network. After moving there, she decided to open another Exchange Education for Habitation base. The hope was that since there are a couple of Waldorf schools (Waldorfschule²) nearby, a social mix of children could finally be achieved. This is the one component missing in most other locations since the disadvantaged children were mostly among themselves. IN Witten, however, there was a good chance that children from higher-earning families may also join Exchange Education for Habitation. These hopes, however, proved hard to achieve. "*The more affluent people here are indeed not as open as we thought and prefer not to mingle their children so much with the foreign children*", admits Christine.

Location 3 was established around the time when COVID-19 hit. With the help of a friend, Exchange Education for Habitation managed to set up a secure online platform for the kids to meet very fast. Through some donations, they managed to secure mobile devices for all children as well and kept the services running. "*Since the pandemic – in 2020, we've more than doubled our team and actually opened three more locations over the past three years.*"

At location 4, Dortmund, there has been a discussion about implementing Exchange Education for Habitation for many years. Christine can't recall who initially sparked the interest in the city. In the past years, however, the conversation would periodically surface – the city expressing a desire, inviting exploration of a particular economically deprived neighbourhood. Communication would ebb and flow rekindled through a contact Christine knew from Duisburg. During this time, Christine's team assessed the possibility of implementation in the suggested part of the city. However, they found themselves caught in a political manoeuvre. One councilwoman was adamant about having them in that particular location because it was her electoral district. However, after conducting a small analysis, it became clear that Exchange Education for Habitation was not essential there, given the abundance of existing support networks. The association always aspired to make a difference, not just be one of many, and identified another neighbourhood in the same city that would benefit more from their services. The implementation required the involvement of political and municipal networks and designated contacts at every step. This was a frustrating period for Christine. Since they went their own way rather than the suggested one, they were initially restricted from actively recruiting children, and the organisation received no financial support from the city. The situation prompted confusion and questions about the

² Waldorf schools are an alternative education system developed by the German philosopher Rudolf Steiner. The aim is to alter education to the personal needs of children by supporting their intellectual, artistic, and practical skills, with an emphasis on imagination and creativity.

path forward. Christine asserted her position, expressing that the current constraints were inhibiting their familiar approach, which proved successful at the other locations. Gradually, they gained permission to resume activities in a manner familiar to them. Currently, there is an ongoing process of reconciliation with the city, and Christine acknowledges a steep learning curve in navigating local politics, an area she considers her current focus. Similarly, at location 5, Essen, they overran the city and identified the neighbourhood in need themselves, implemented Exchange Education for Habitation and kept working.

Franchising - the model for the future

During the application process for the last substantial funding from the Auridis Foundation in 2020, Christine was forced to develop a very ambitious scaling plan, requiring her to open multiple Exchange Education for Habitation bases across Germany till 2027. Even while writing the document, Christine knew that this was not achievable. "*People often didn't appreciate how complex and labour-intensive managing even a single location could be.*" Through their research for the scaling strategy, Christine encountered the option of social franchising, which appealed to her as the only sensible alternative. Her main wish for fast and successful expansion is the implementation of Exchange Education for Habitation within existing social structures; however, they didn't show any interest. "*They're seen as conventional, and we are perceived as innovative*", concludes Christine. The franchise model requires a founding person with enthusiasm to overcome the hurdles of establishing a social enterprise.

Fortunately, the first franchise model was successfully launched in August 2023 in Hamburg, away from the Ruhr. A former employee from Duisburg moved to the city for personal reasons, had a child, and realised, searching for a new perspective, that she wanted to continue her Exchange Education for Habitation job. This aligned with the development of the idea of a franchise. She took the initiative and, together with Christine, founded a new association. Christine is also on the board but more as a figurehead. The new founder is essentially Christine's copy and handles everything as a licensee, successfully establishing a new location. By learning how to navigate the franchise together, both can train the next person to become a franchisee. "*The fortunate circumstance is that we both had a lot of tolerance for each other's mistakes. She knew that I didn't have this transfer structure yet, and I had to adjust my expectations for her. And now, I plan to search for additional franchisees within the next two years.*"

5 Reflection and Conclusion

Today, Christine is active in the entrepreneurship scene. She was a private lecturer at an entrepreneurship academy for three years and occasionally holds seminars at a local university. With her 8 years of social entrepreneurship experience and successful scaling strategy, she is also invited as an expert at the Open Transfer Accelerator.

Christine's journey envelopes together with the development of entrepreneurship-supporting structures in Germany over the years. At the time when she started with Exchange Education for Habitation, the systematic supporting structures available now, were just starting. "*If I was to start today with a new idea, I could choose my programmes, apply, and essentially select the entire three-phase support model. That option didn't exist back then*". Christine simply started doing things, a couple of times being among the first to try a new programme. For instance, Exchange Education for Habitation was the first winner of the Social Entrepreneurship Academy back in 2011. Similarly, she was in the first batch to undergo the Impact Factory's programme in 2019. Though there are many supporting options nowadays, she recently underwent a somewhat disappointing certified training this year in the field of

Non-Profit leadership. Although the content didn't match the promising title, her main motivation for entering the programme was to gain a deeper understanding of what she had been doing over the last ten years and to retrospectively bring structure to her experiences. This retrospective approach has characterised her life and entrepreneurship all along. "*I cannot learn on standby, go through a programme, and then thoroughly establish a company. Instead, I must find it first and then see or at least have it running concurrently*".

Furthermore, Christine reflects on the Ruhr region's potential for supporting startups. "Unfortunately, founding something always has to hurt a bit." In her opinion, the cliché of necessity being the mother of invention has quite a bit of truth to it. She honestly admits that the best ideas have come during the darkest and most difficult hours because creativity is required. She sees herself as uncomfortable for the team because everyone seeks security, routine, and minimal change, while she likes to come in and shake things up. Yet, a degree of discomfort is needed because thinking stops when it gets too comfortable. "That's the death of an educational project, probably for any company that isn't a government agency".

Christine points out the unique challenges in the Ruhr area, where housing issues differ from Berlin, Munich, or Hamburg. There are vacant spaces that need conscious recognition by municipalities and cities to facilitate entrepreneurship. Empty spaces and affordable rents for commercial areas are crucial for realising new ideas. Walking through Witten, Christine recognises numerous great places that could be utilised with the right ideas. However, local leaders need to comprehend that money doesn't only come from traditional industries. There are existing infrastructures waiting to be used. For example, her last award in the autumn of 2023 came from a gathering of 1000 lawyers in Germany. During this event, she emphasised the power lawyers have and how they could make a significant impact if every law firm committed to working pro bono for such organisations. Access to legal advice, things not immediately visible or considered, is as important as learning how to fill out a business model canvas or write a business plan. "*Utilising and activating existing structures is an area with considerable potential for improvement*".

Imprint

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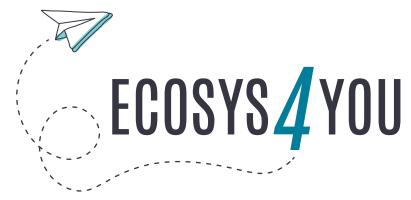
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ENGAGING ENTREPRENEURIAL ECOSYSTEMS FOR THE YOUTH

SustainConsult: Venture Biography



This project has received funding from the European Union's Horizon Europe research and innovation programme under Grant Agreement No. 101100432

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1 ID Card

Pseudonym	SustainConsult
Which ecosystem?	Ruhr
Founding date	founding 2016 as hobby/side project, restart 2020
Sector	Sustainability Consultancy (GmbH)
No of employees	33 (15 consultants, further students, and interns)
(Expected) Turnover	
Male/female founder	male
Startup phases	
idea generation	2016 (out of a previous job, as side project)
incubation/founding	2020
consolidation/scaling	2024-onwards
Funding / financial support	none

2 Founder(s)' Background and Motivation

The history of SustainConsult started, while the founders were working for a Corporate and their job was to develop an innovation department. Both were qualified business economists. In 2014 they opened one of the first (inofficial) coworking spaces in a city in the Ruhr and organised startup events. "We realised that the topic of innovation and business development within a Corporate is, of course, relatively difficult. And we wondered, how can that work better?". The two colleagues designed a creative solution that didn't have to go through the strict corporate processes of decision making, and then tested innovation with a partner. "During that time, I was in Amsterdam and learned about lean machine and lean startup methods". They participated at the first Ruhr Summit, organised startup camps for students, networked in the startup ecosystem and offered Design Thinking Workshops for the corporate. However, in this early phase both were employed at the corporate.

3 Business Modell

SustainConsult supports companies during their sustainable transformation from strategy to implementation of new sustainable business models and products. At the beginning, the startup didn't have to do any acquisition, as it had signed a contract with the Corporate and now continued to work for the Corporate as an external company instead as an employee. The company discussed funding opportunities with the economic development agency, but none were forthcoming. The company then went to a sustainable bank and took out an overdraft facility. Nowadays, the company's majority of customers are situated in the Ruhr, others in Germany and in Switzerland. SustainConsult offer consultancy, events and workshops for startups and sustainable companies. The company certifies others according to the B Corp certification and undertakes sustainability assessments.

4 Startup development

4.1 Idea-Generation

Thomas and Max, his cofounder, were working as innovation managers in a traditional company (corporate) in the Ruhr since 2014. They participated at and organised a lot of startup-events and were inspired in 2016 to start their own company as a hobby project next to their regular employment. Their first product was to validate innovation in companies, and they carried out customer tests and did these in a standardised way for companies. That was their first product.

"Being now a company, we were on the other side at startup events," said Thomas. They collected new experiences, got feedback from their pitches, and met other founders at a 'Gründerstammtisch' (Round Table for founders and startups). "I met there a person with skills in IT development, and in exchange I helped him out with his business management issues" said Thomas enthusiastically. "And suddenly we had a part-time job to offer for a student." However, a little later both founders got children and their startup laid down for a while.

In 2019/2020 the Corporate was taken over, and after 12 years, Thomas' learning curve has flattened out, which is why he has decided to leave the company. "Another support network that had definitely had a very strong influence on my startup journey is the <u>Happy Startup School</u> from England. It's an international group. I went there for the first time in 2016, I think, and I've been following them online for a while. I am in their online community, I go to their events, and then I spent a week with them in India with lots of people who were kind of like: What are we going to do with our lives now? A journey of self- and impact-discovery." This journey gave Thomas personal motivation to start with a startup all over again focusing sustainable impact. Furthermore, he managed the subsidiary for the Corporate that made innovations for the Corporate, that worked quite well, but even they reached their limits in terms of speed requirements and creativity. "And then we spoke to the lawyers and asked, how can we solve this problem. In the end it turned out that we can't actually solve this within the Corporate, the best we can do is pass it on externally". Thomas recognized that someone external to the company was needed as a cooperation partner and realised this was his chance: "I said great, I want to leave anyway."

4.2 Incubation / Founding

Due to these developments, Thomas took Max's part of the company, because Max wanted to stay in the Corporate. At the beginning of 2020, SustainConsult was re-established. Thomas moved into a coworking space and hat two employees in the beginning, quickly adding additional colleagues who helped to set up the organisation. They had their first project for the Corporate he worked in before. In the end of 2020, they counted eight employees including students. From the beginning on Grubengold focussed on sustainability in their organisational setup (e.g. BCorp certification)

The location in a coworking space led to further contacts and the acquisition of additional mentoring contracts. "We made a deal with another startup that we also got to know at the coworking-space. They helped us with marketing, and we helped them with design issues. Because we had a designer in the team, so we swapped hours. But we needed a tax consultant again, who then explained to us, how it would be mapped for tax purposes and things like that." The support infrastructure was again useful for Thomas.

Furthermore, the company took part in the startup round table and exchanged ideas with other companies on questions such as "*How do you organise your work? How do you organise your scheduling, how do you calculate your hourly rates?*"

Covid-19 hit in the very beginning of the startup's (second) founding phase. It was not possible for SustainConsult to apply for public Corona aid (funding), as no turnover was achieved in the year before and many events were cancelled. During the pandemic, an influential individual in the Ruhr's entrepreneurial ecosystem developed an online entrepreneurship training course and SustainConsult and other startups provided the content for it. "*That was also marketing and networking for us.*"

SustainConsult tried also to grow further alongside the contract with the Corporate and wanted to develop further towards the sustainability context. A single focus on the innovation consultancy topic turned out to be less promising during the Covid-19 pandemic, that's why the startup pivoted to Sustainability and Consultancy. Thomas already had new ideas and plans: "*Me and Nicolas founded the 'Match' in 2020, which is a network for energy startups that is not specific to the Ruhr region, but which is also a link between the startup world and our consulting world, because we bring, for example, these startups back into contact with the corporations.*"

The company grew until 2022. In this period a broader organisational and management model was also introduced, with Nicolas a co-managing director came on board in 2021 (Nicolas had worked for SustainConsult since its foundation) and the startup moved into its own office space in another commercial building, which hosts a startup or company network. There were many other different and exciting companies. SustainConsult had the opportunity to organise the premises for an unconference, a kind of barcamp. This was the opportunity to position themselves with the topic of sustainability and innovation and related event organisation. Until now, they have organised this type of event five times in the Ruhr and four times in Switzerland.

SustainConsult started a network called "SustainabilityRuhr". The basic idea was very similar to that of a 'Gründerstammtisch', just not focusing on startups, but on sustainability. During the initial phase, they had a lot to do with the business development agency and made contacts and worked together with them. SustainConsult has a huge network of freelancers to grow the company.

SustainConsult counts 33 employees in the End of 2023, of whom 15 are consultants. As a local University of Applied Sciences offers a study programme in the field of sustainable development, a lot of internships and working students come to SustainConsult. The startup learns from the students and the other way around. The university is like a supplier of knowledge and trainees for these sustainability topics. "*That is somehow very practical*."

SustainConsult's employees and founders cooperate with other startup support infrastructure. They act as mentors if there are young founding teams or early startups in the field of energy.

4.3 Scaling-up / Consolidation

Since 2023, SustainConsult is starting to notice challenges related to company growth: "where it's just kind of: OK, we see that processes are perhaps not running quite so optimally. In case of doubt, we usually talked to each other quickly, but now we are 15 full-time people, who work in different projects, roles and rhythms, so to speak." The founder realised processes reached their limits and tried to find solutions for it. "For example, we have reduced my working hours to create space for others. And now we have a colleague, who is taking on part of my role. We hope she can approach organisational development from another perspective", Thomas desires. Expanding to other countries and areas has not worked out yet. "We have tried to expand into Switzerland, that hasn't worked out yet. The conference event is running, but apart from that the Swiss business hasn't really worked out yet."

5 Reflection and Conclusion

The startup scene in the Ruhr stimulated the foundation of SustainConsult and the founder is part of the ecosystem. He supports the ecosystem through initiating new networks and events, and he offers his mentorship. Due to the need of consultancies who support companies to get more sustainable, SustainConsult grew in the market intersecting innovation and sustainability. As a result, the company is currently growing.

Imprint

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ENGAGING ENTREPRENEURIAL ECOSYSTEMS FOR THE YOUTH

ChangeFashion: Venture Biography



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1 ID Card

Name of the startup (Pseudonym)	ChangeFashion
Which ecosystem?	Ruhr
Founding date	idea 2017, founding 2019
Sector	fashion
No of employees	5-10
(Expected) Turnover in 2023	50.000-100.000€
Male/female founder	female
Timeslots of start-up phases	
idea generation	2017-2018
incubation	2019-2021
consolidation	2022-onwards
Funding / financial support	star-up competition, sustainability bank, prizes, business angel, startup master's programme

2 Founder(s)' Background and Motivation

Michelle is a woman in her 30s who worked as an innovation manager in an automotive supplier company in 2016. She became a mother for the first time and finished her master's degree and returned to work full-time afterwards. However, in the meantime, the company was bought by a large corporation and suddenly grew from 400 to 9000 employees. The new working arrangement resulted in changes in the everyday workflow. While prior to the buying out Michelle enjoyed a lot of freedom and was involved in all the company's activities, with the new structure and hierarchy of an international corporation this kind of work was impractical and unwanted. Slowly the working environment lost its previous joy for her, and she felt the need to invest her time in something more. Furthermore, Michelle used the maternity leave to deepen her interest in sustainability. Being vegetarian since her teenage years, the topic was not completely new to her; however, the time off work and the worries about her child's future seemed like the best opportunity to educate herself in new fields. This endeavour led her to the idea of starting ChangeFashion.

3 Business Modell

ChangeFashion operates as a clothing rental service that follows a "capsule" approach. The term "capsule" is drawn from the Capsule Wardrobe movement, in which wardrobes are built around a small selection of clothing items that can be effortlessly mixed and matched. These capsules typically consist of 5-8 clothing pieces, with the exact number depending on the season and the capsule's contents. For instance, a pair of pants can be paired with more items than a dress, reducing the overall number of clothing pieces required. Customers can choose pre-assembled capsules or create their own, and clothing items can be swapped out at any time. Nevertheless, since the main motto of the company is

sustainability, there is an effort to avoid unnecessary traffic. Approximately once a month people do change an item.

The capsules are ordered via subscription. Customers have the choice between 1-, 3-, 6- or 12-month subscriptions depending on their personal needs and preferences. Most customers start with a 1- or 3- month subscription to try it out, before deciding if it is a convenient model for them. Some join only for certain seasons, for example, if one has enough winter clothes then they come back in the spring. Others come and go depending on the availability of new items. For those who like to change clothes often, an annual membership provides the best price.

Most of the clothes are provided by certified fair fashion labels. ChangeFashion buys the clothes and serves as a retailer for renting instead of buying. After the first renting the items become second-hand. Nevertheless, ChangeFashion processes them and rents them again. One item can be rented for approximately 3 years.

Michelle runs the company, acts as its spokesperson, and takes care of connections with labels, bloggers and designers, social media appearances, and the website. Three more people complete the team – a graphic designer looking after an intern as well, one person handling customer service and one more member acting as a deputy for the management helping with whatever is needed.

4 Startup development

ChangeFashion conkers the popular belief that regular people have no influence over the climate crisis themselves. "Where I buy my clothing and how much I consume, that's, of course, my day-to-day decision and I have to do it consciously". Michelle embarked on a quest to find alternative models for fashion consumption and found nothing that fully aligned with her vision. So, she decided to develop a concept. She shared her idea with friends and family, and within a few months found enough people to join the effort. "We never thought that this could be a company one day". ChangeFashion is now in its fifth year of existence and is looking forward to scaling opportunities. The following paragraphs explicate the company's story from the first idea until today.

4.1 Idea-Generation

During her maternity leave, Michelle started reading about fashion and its relation to sustainability. The initial idea was developed in collaboration with her little cousin (11 or 12 years old at the time), who despite her young age was much more read in the topic. Both decided to write a blog about fair fashion under the name ChangeFashion. Even though the collaboration never happened, Michelle became even more interested in a fair fashion and saw potential for changing everyday practices of consumption. She read studies showing that clothes are an item people buy a lot but rarely wear. People enjoy the diversity of outfits, however, do not wear one thing sustainably and clothes become a waste item very quickly. The sensible conclusion for Michelle was that ownership of clothes does not make sense. It would be much better if people could use clothes on demand and return them when they don't want to wear them anymore. This was exactly her initial idea – a subscription for clothes instead of buying them, which gives one the freedom to switch on demand by putting clothing items back on the market instead of throwing them out.

Michelle started talking to friends about her idea. They found it fun and intriguing. Even though they did not plan to start a company at the time, they started thinking about implementing the idea. Soon enough, Michelle reached out to a Facebook group focussing on empowerment with her thoughts and

asked for advice on how to proceed. One advice from the group was to reach out to the local economy development agency (LDA) offering general advice about starting a company. The agency arranged a meeting quickly; however, did not seem impressed with the idea of clothes on demand back in 2017. Nevertheless, they connected Michelle with a startup competition in a nearby city, where she could unfold the concept and develop a business plan. Michelle was impressed by how unproblematic it was to be referred from one LDA to the next when the local one did not have the fitting services.

The beginning: fall of 2017 to fall 2018

The start-up competition Michelle joined, is run by the local development agency of the next larger city and offers a six-month programme where potential founders can develop their ideas, specify a business plan, and compete for prizes. The competition is flanked by different entrepreneurship classes guiding entrepreneurs through the foundation process of a company. Michele and some friends of hers inspired by the idea took the opportunity. In the 6 months competition programme in 2017 and 2018, they crafted a business plan and took advantage of the supporting classes.

Since Michele didn't come from an entrepreneurship family, she found it very helpful to educate herself on how to start and run a company. Once on the mailing lists, she could participate in different free-ofcharge classes every day if she wanted to. This was unthinkable in the corporation she was employed, where she had to fight for every additional education opportunity since they were very costly. Michelle took advantage predominately of legal and management classes like patent law. There was also a lot of information on possible legal structures and finding the right one for the respective concept. In hindsight, Michelle views this aspect critically. She shares that the advisors – professional mentors and not entrepreneurs themselves - all leaned heavily towards recommending the formation of a GmbH (limited liability company). For example, they discouraged considering a UG (entrepreneurial company with limited liability)¹ because of the perception that it might deter potential partners due to the lack of share capital. Ironically, almost all the labels Michelle ended up collaborating with are UGs. In the case of ChangeFashion, it wouldn't have made a difference, as they needed the capital for buying clothing, and forming a GmbH or a UG seemed unimportant. However, what Michelle wasn't initially aware of and was not included in the classes was, that it's not just about the initial founding costs, which are manageable. It's the annual financial statement every GmbH in Germany must prepare, which costs around 2,500 euros per year, that most people do not consider at the beginning. In the case of ChangeFashion, this was nearly half of their first-year turnover. Looking back, Michelle wishes someone had informed her about this rather than always focusing on the liability aspect. Especially considering that they are working with clothing where there are literally no risks involved compared to food or medicine startups. Generally, the classes were missing the practice perspective of real entrepreneurs. Nevertheless, the support received through the competition was essential for the development and testing of the idea.

Crafting the business plan didn't seem immediately useful for the team but proved vital for thorough thinking during the conceptual phase. They submitted it for consideration without much expectation for approval. At that time, Michelle was expecting her second child, while having her four-week-old baby cradled in her arms when the phone call came in.

¹ In the German legal system, both GmbH (Gesellschaft mit beschränkter Haftung) and UG (Unternehmergesellschaft) are types of limited liability companies. However, a GmbH is a regular and fully-fledged limited liability company with a minimum share capital of 25,000€, while a UG is considered a "mini-GmbH" or a "small GmbH" with a lower initial share capital requirement (1€). A UG must work toward accumulating the 25,000€ minimum over time.

The voice on the other end announced, "You can pitch," and Michelle was taken aback. She agreed to the opportunity and, after hanging up, had her doubts, thinking, "*How will I manage this? Can I really do it?*" With determination, she decided to proceed, even with her baby in a carrier. The experience was both amusing and challenging, as it marked her first-ever pitch, which turned out surprisingly well.

Michelle and her friends made it to the finals, among the top 10 contenders. There were only 1st, 2nd, and 3rd places, while the others were grouped under 4th place. Michelle's team fell in 4th place receiving 2,000 euros as a reward. Additionally, a bank with a focus on sustainability recognized their efforts by awarding them a sustainability prize, rounding up the prize money to 5,000 euros.

Inspired by the success, Michelle and her friends decided to utilize the funds to launch a pilot project, aiming to gauge the concept's resonance with their audience. Michelle had previously experimented with rental concepts that were already on the market but soon realized they didn't quite align with her specific needs. Most of them offered a website where people would specify their style before being sent something. At first, Michelle found this approach appealing – the clothing items were in excellent condition and carried a fresh scent. Nevertheless, they didn't fit into her existing wardrobe. She struggled to mix and match them effectively, leading her to conclude that these services weren't the right fit for her.

Michelle began contemplating the idea of a Capsule Wardrobe. She embarked on a journey to calculate how many clothing items she would need to create 30 different outfits, keeping in mind the presence of four essential pieces – for instance, blue jeans, black jeans, a white shirt, and a black shirt. After conducting a small survey, it became evident that over 90% of people already had these four items in their wardrobes. Michelle and her friends decided to consider these as foundational pieces, and by adding a few more items to each capsule, they could easily generate 30 unique outfits. This approach required approximately 5 to 8 clothing items in each capsule, and so the capsule concept was defined.

Test phase: October 2018 to January 2019

Michelle and her friends managed to collaborate with an influencer (whom Michelle has known through her blog) who curated the first clothing capsule. She not only arranged the outfits but also took stunning photos and promoted the capsule enthusiastically. Michelle's prior experience with running a blog had already connected her with others in the field. These established connections enabled a widespread sharing of the content. As a result, their first capsule was consistently sold out immediately. They started with only 10 capsules, which may not seem like a lot, but they were in high demand across Germany. This success came as a surprise. Michelle and her friends had planned to assess the pilot projects' performance in January after launching in October. With all 10 capsules being fully booked each month, they realized that they had something promising on their hands. Consequently, they made the decision to turn their concept into a full-fledged business.

4.2 Incubation / Founding

The decision to invest their own capital and found a company was taken in the beginning of 2019. Michelle, four of her friends and her aunt (as a silent investor) jointly invested 25,000 euros to create a GmbH in February. Michelle and her four friends, all over 30 and working in their respective fields, took the startup as a side project next to their regular jobs, maternity leave etc. and formed the initial team behind ChangeFashion. Since all of them already had life experience, family and jobs doing the startup full time was not an option. They decided from the start to invest as much time and energy as they could. This added fluctuation in the team and shareholders since not everyone could combine the startup with their regular life. *"The only constant in the company is me"*. The other team members changed over the years. For Michelle, this meant working while the kids were asleep. Once the second

maternity leave was over, she needed a safe monthly income to support her family, so at this stage, she could only work on ChangeFashion in her spare time in addition to her full-time job. The other share-members come to the shareholders' meetings and pitch in when specific tasks need to be fulfilled like discussing an idea or preparing an appearance at a fair.

Consequently, the start was slow but steady. At first, they used the initial capital to add 2 to 3 more capsules to the assortment each season. Michelle kept the good connections to the start-up scene, even if she wasn't participating so actively anymore. She noticed that the connection with her fellow entrepreneurs had always been present, a sense of familiarity that persisted even when their interactions weren't frequent. It was as if they were part of a close-knit community. Occasionally, Michelle attended a founders' meetup, an initiative organized by the LDA, and this provided opportunities to mingle at various events.

As a further step, Michelle applied to a local startup incubator, which offered a substantial scholarship of around 1,500€ per month for six months. Such support would have allowed her to reduce her working hours and invest more time in ChangeFashion. However, the application was not approved for funding since she didn't do the startup full-time. The recurring sentiment she and her team encountered was "*If you truly believed in your venture, you'd go all in.*" The perspective was clear— the investors believed that someone pursuing the venture full-time could achieve significantly more in half a year. Michelle faced a dilemma—how could she possibly quit her job? The financial stability it provided was essential for her family. She found it disheartening that side businesses often appeared undervalued. But she decided to stay practical about it. With two children to care for, she couldn't simply drop everything. Besides, she understood that their endeavour was a niche, and without investors, rapid growth was unrealistic. Consequently, she knew it wasn't feasible to rely on her business alone for her livelihood. Ironically, "*a lot of the start-ups in the batch they funded don't exist anymore. We are still here!*".

Michelle considered other funding options as well. For example, there is also a state (Bundesland) scholarship for young entrepreneurs; however, it is clearly conceptualized for students or fresh graduates. The scholarship offers $1000 \in$ a month under the requirement that scholars are allowed to work only 11 hours a week. "*As a student, I could easily get by with that, but not 10 years later*", criticizes Michelle with disappointment. Furthermore, the scholarship is given only in the first year of founding. At the time it couldn't have come into question for Michelle, for 3 years since the official founding had passed. Such rules prohibited ChangeFashion from receiving any financial support in the founding phase. Here and there they have won prizes of $2000 \in$, which are helpful in the short term but don't provide midterm stability. Under Michelle's impression, most supporting infrastructures are conceptualized for students or very young entrepreneurs with little life experience. Such an experience, however, is an advantage. Michelle has over 10 years of working experience so far in different-sized companies – from small to international, which helps her understand how they work and think. Besides, she admits that she wouldn't have been able to set up a company directly after finishing her studies since she did not come from an entrepreneurial family and lacked the knowledge for it.

Furthermore, Michelle criticizes the barriers for startups presented by the German legal system. Particularly in the test phase, they found it very complicated to just pilot an idea in a low-key manner. There is no space for that in the legal system, there must be a legal form behind every endeavour, so they felt forced to find the company before they had proof of concept. A workaround was to do it as a sole proprietorship in her name. This, however, meant that she was the only one responsible for the business, including its finances and liability and not the whole team.

Despite the obstacles, Michelle reflects on the founding phase as a success story and the right way for their model. The idea was very new and niche back in 2019. It was at their disadvantage to find the

company part-time; however, a lot of companies that were found full-time and scaled fast, even with investor money, disappeared as quickly. "What is needed is resilience. Investors want quick results, but when the market is not ready, quick results are not an option". ChangeFashion took the long way with its own energy and investment and managed to survive.

4.3 Scaling-up / Consolidation

"It's like standing with one foot hanging over a cliff and the other foot on a rocket. You never know whether you'll soar upward or plummet downward in the next moment. That's how I've been feeling, not that it's incredibly precarious, but it's as if one bad news could shatter it all. There's no safety net, no cushion, not for me, not for us."

Over the first two years the company gained enough success and revenue so in 2021 Michelle made the decision to quit her steady job and devote her full time and energy to ChangeFashion. They have rented a space for a showroom and office. She admits that the scaling phase needs to be approached next and believes they're currently at a crucial juncture where everything has been prepared. The business model is well-defined, all technical aspects are in place, and the opportunity to scale is within reach. For her, this is a significant milestone, a natural progression in their journey.

Additionally, the team is considering expanding the services next year by possibly adding occasional clothing as well. Despite initial reservations considering that there are such other services already, Michelle recognized that the existing options were mainly tailored for high-end events such as red-carpet affairs, where a single dress might cost 300€ for one evening. These didn't address everyday occasions like private gatherings or small events. Michelle firmly believes there's an untapped market for such occasions. The introduction of this feature is a part of their established roadmap, though it would involve a distinct business model. The challenge lies in its integration into the existing membership structure, and there's an ongoing discussion about the best approach. Michelle views it as more of a sister portal now, renting single clothing items designed for shorter-term use. She perceives a mismatch between the concept and the current business model, which is aimed to be scaled.

For this year (2023) Michelle expects a 100,000€ turnover. To some, this might seem relatively modest, but there's a unique challenge ChangeFashion faces. They're on the verge of transitioning out of the startup phase. Traditionally, the five-year mark often signifies the point at which a business is no longer officially categorized as a startup, typically based on revenue. However, Michelle's venture is still far from outgrowing the startup label in terms of earnings.

This situation presents a hurdle because, by February 2024, the company will be five years old and become ineligible for various startup grants and support bound by the five-year mark. One crucial factor often overlooked is the fact that they initially established the business part-time. The reality is, that part-time endeavours can't achieve the same level of growth as full-time counterparts in a five-year span. This aspect frequently remains unaccounted for. In addition, Michelle's venture had to navigate two challenging years due to the COVID-19 pandemic. This was compounded by ongoing issues like the Ukraine crisis and economic downturn. These factors, in Michelle's view, have substantially impacted the company's journey, almost eating up the entire five-year timeline. The business was founded in 2019, and in 2020, the pandemic hit. Michelle believes that this period should be factored out, considering that although some businesses thrived during these challenging times, it was an exceptionally tough environment. She questions the practicality of the five-year rule and feels it puts ventures like hers at a significant disadvantage, especially those that commenced as part-time efforts.

On the bright side, they managed to acquire a business angel – a private investor and a business mentor from Michelle's personal network. Since they know and trust each other, Michelle enjoys certain

freedoms, she would not have if it was an unknown investor aiming at profits alone. For her, this is a comfortable situation; however, she also admits that it sometimes makes her insecure. "When I find myself in one of those phases where everything seems incredibly tough, and I start thinking, 'Wow, maybe I should just throw in the towel and go back to being an employee. I'd earn more money, have much easier days, and life would be simpler.' But then I realize that if I did that, I'd also be losing his money too, and that's something I just can't do." Even though Michelle is aware that the business angel knows the risks, she cannot put it to her conscious to gamble on someone else's money. Michelle also has her reservations about interacting with venture capitalists (VCs). She fears that, at some point, a VC might suggest, "Why not simply purchase cheaper clothing? That's the solution." However, this notion contradicts the very essence of her business, its DNA, and the values it upholds. Michelle is resolute in her commitment to these principles and resists compromising on them. She acknowledges the potential for higher profit margins by procuring cheaper clothing, but this is a path she's unwilling to tread. She recognizes that there are impact investors emerging in the investment landscape, who could be more aligned with her mission. Yet, she remains cautious. With each passing day, Michelle is becoming increasingly aware of the mounting challenges associated with sustaining the venture solely through their own resources. This realization has left her uncertain about the best course of action. She contemplates whether she should explore different avenues but remains in a state of deliberation.

Currently, Michelle is enrolled in another supporting structure which offers a "master's program" for startups. Starting in the fall of 2023, the support will span six months. They've been assigned two coaches, with the primary objective being business scaling. Michelle is eager to see how this program will unfold and anticipates that it will drive her business forward. If this is going to give the business some stability is, however, still uncertain. "*Although, I must admit I've grown calmer about it. It doesn't keep me up at night anymore.*" Michelle believes in the need to establish financial reserves for the business, but she also understands that the revenue must support such reserves. It's not merely about reaching a break-even point; the income must consistently surpass it to allow for saving. She believes that having a financial cushion is crucial for the business to weather unforeseen crises. Michelle also reflects on the fact that her business has been navigating through turbulent times for a considerable duration. In the fair fashion industry, news of labels filing for bankruptcy appears almost weekly.

Michelle still tries to stay tuned in the startup scene and often contemplates the idea of leveraging networking opportunities more effectively. However, the multitude of networking events available makes it quite challenging to determine which ones are the most suitable. Moreover, managing this with two children adds another layer of complexity. Michelle is mindful that her frequent absence due to networking might become an issue with her children. It's a genuine concern and a matter she finds somewhat challenging to navigate. Morning events could be easier for her to attend than evenings since the children are in daycare at the time. On the bride's side, "*There is so much happening in the region, that I can go to a different one every day if I want to. I always find it helpful, even if I just have a nice time there, it was worth it. Mostly, it pays out later in one way or another*".

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Ecosys4you – Engaging Entrepreneurial Ecosystems for the Youth (2023-2026) strives to bridge the entrepreneurial ecosystems of the Ruhr, Germany, Varna, Bulgaria and Slovenia by connecting young founders, startups, HEIs and other ecosystem actors.

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ENGAGING ENTREPRENEURIAL ECOSYSTEMS FOR THE YOUTH

PHYSEC: Venture Biography



This project has received funding from the European Union's Horizon Europe research and innovation programme under Grant Agreement No. 101100432

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Disclaimer

The document presents a story of the start-up PHYSEC GmbH prepared through desk research and interviews with the two founders. The biography has been approved for publication by the founders and can be used for further research by citing it accordingly (see below).

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1 ID Card

Name of the start-up	PHYSEC GmbH
Which ecosystem?	The Ruhr
Founding date	Idea 2013, founding 2016
Sector	Cybersecurity
No. of employees	65
Male / female founder	Two male founders
Timeslots of start-up phases	
idea generation	2013 to 2016 (Phd and commercialization of results)
incubation	2016 to 2021
consolidation	2021-onwards
Funding / financial support	BMBF-EXIST, strategic investor

2 Founder(s)' Background and Motivation

Christian, the first founder, completed his BSc and a double master's degree in electrical engineering (communications engineering) and computer science (cryptography) in a major German city and the USA before he moved to the Ruhr to conduct his PhD at a cybersecurity institute. He was introduced to his later PhD supervisor by the dean of his old university (as his PhD supervisor happened to be an alumnus of his old university), as the dean saw Christian's scientific competencies. Christian planned to become an engineer and was initially not interested in research. His professors have repeatedly shown him that he is very good at his scientific work and that he has the skills. His later PhD supervisor convinced him to participate in a research project in the Ruhr during his MSc, and following his stay in the USA, where he completed his MSc, he moved to Bochum to conduct his PhD. The results of his PhD research formed the foundation of the new venture, PHYSEC.

Heiko, the second founder, has a background in economics and conducted his PhD in business administration at the same university, where Christian did his PhD. Heiko and Christian first met at a matchmaking event for founding teams that the faculties of engineering and economics conducted to bring entrepreneurial persons with business and technical backgrounds together.

3 Business Modell

The company's key technologies bring cryptographic approaches and hardware devices together to allow the secure operation of sensors in insecure environments. The technology represents the current research frontier and was developed in a cybersecurity institute in the Ruhr. Hence, PHYSEC represents a clear deep-tech start-up. The technology is beneficial for operators of critical infrastructure in gas, water, heat, and electricity. Because of its novelty, PHYSEC has also developed more conventional

security solutions for IoT devices (that only need software) to reach business success. Currently, PHYSEC has three key business areas:

- The novel crypto hardware-software device for the secure operation of sensors in unsecured environments. This technology is offered as a product as a service.
- A (cryptographically) safe software platform to run IoT devices.
- Project development with and for partner companies.

In addition, the company participates in several third-party funded research projects. The first founder also holds a professorship at a university in the Ruhr and is engaged in university research and teaching.

4 Start-up development

The development of PHYSEC is interlinked with the research at the cybersecurity institute and represents one of several cybersecurity spin-offs from the institute. Christian's PhD supervisor is not only a leading cybersecurity professor but also founded and sold successful ventures and acts as a local business angel. He also invested in PHYSEC and other cybersecurity ventures.

4.1 Idea-Generation

Christian started his PhD at the cybersecurity institute in 2013. The technology combines cryptographic and telecommunication aspects to extend security verification from data to physical objects, such as the physical integrity of sensors. With such a combination, so the idea, it would be possible to detect if someone manipulates a sensor, for example, by opening a smart meter box to manipulate the metering. Existing theories describe how radio technology could conduct such physical object surveillance, but the approach was not applied in practice and required yet-to-be-developed specific computer chips. Christian developed a different approach and combined existing computer chips to implement an efficient system that works. Together with students, who are now employees of PHYSEC, Christian implemented a running system and tested several combinations of chips, hardware, and software. It turned out that they had created a very efficient implementation to run the surveillance task that works with existing computer chips.

"Following the first positive results of the PhD work, his PhD supervisor asked Christian to have a conversation and told him, that "as a graduate, you don't necessarily have to go to Bosch or another corporate, you can also set up your own venture", as he himself had experience in founding a company and has already done it once or twice. Following this advice, Christian started searching about start-ups and participated in several events. One event was called "fit for foundation" held by the universities' faculties of engineering and economics. One key aspect of this event was a kind of speed dating with the intention that potential founding teams could find each other. There, Christian met Heiko. Several people with economic backgrounds were interested in joining Christian's team. However, Heiko asked the most intelligent questions, and they decided to join forces. "So, we started to philosophize a bit about what we could do. We then identified the EXIST research transfer as one of the best funding options."

Over Christmas 2014, Heiko and Christian wrote the business plan and applied for EXIST. **EXIST Research Transfer** is a German start-up support programme to support university spin-offs and the commercialization of research results. The grant consists of two phases. In the first phase, the university receives the funding, and the founding team is hired and can employ other people to further develop the technology for commercialisation. If successful, the venture will formally be founded and receive the first project funding from the grant. Phase 1 can last 18 up to 36 months with up to four persons funded (plus additional costs). Phase 2 can last up to 18 months with 180 000 \in of funding¹.

"Christian and Heiko connected their entrepreneurial ambition to the application's success: We made ourselves more or less dependent on whether we got EXIST. We had said that if we didn't get it, we would try the NRW equivalent, which was less well-funded. But if both did not work, that is it. EXIST involved a competitive application process, including pitches, etc. They were eventually successful and started to work on developing PHYSEC with the funding they gained in August 2015.

Then, the commercialization of the technology started, which was a difficult process for the founders and their team. The first idea was to target the mass market of smart home products, for this purpose the team developed an adaptation of the technology for ultra-low power and low budget. However, it turned out that security was (and still is) not a pressing concern for most smart home users. More problematic, their technology was far ahead of current standards and, hence, was not compatible with regulatory requirements besides its technological superiority. As Christian put it: "*There was always an approval hook missing, and then we said, yes, if you want standard cryptography, we can do that too. We can even do it quite well, and hence, we developed the software as the first MVP [minimum viable product]*". In this way, they managed to get their first minimum viable product, the cryptographically safe software platform for IoT devices. At the same time, they continued to develop their novel technology and focused on new use cases that did not yet exist (to avoid problems with existing regulations)."

4.2 Incubation / Founding

In line with the EXIST Research Transfer programme, PHYSEC GmbH (limited company) was established in 2016. At this time, the venture had about 10 employees who worked on different research and consulting projects. However, a minimum viable product was not ready:" We already had our first customers", with whom we mainly had, let's say, consulting and familiarization projects. Developing a product takes a few years and is never finished. It's a very ongoing process. Having the first MVP also took several years. However, we could still gain experience and earn money quickly through consulting in the cybersecurity sector, which we were happy to do."

Heiko reflected on the challenge of gaining first clients: "The first challenge is to acquire the first customers; nobody wants to be the first user of such a new product. The next challenge is to have a customer you can reference because then the client naturally must reveal the topics they are working on. We had to find the right wording; we came from a university and explained to customers what we offer in far too abstract ways. It was a learning process for us to describe the problem in such a way that the customer realised that the problem was actually their problem. If you do not see the risk on the customer side, there is no willingness to pay."

Third-party funded research projects were a relevant revenue stream for the young venture at the beginning. They were successful in research application because the company's advanced technology was unique (not many other were able to do similar things). Gaining early revenues from consulting and research projects, besides the EXIST grant, allowed PHYSEC to develop its product without much external funding.

¹https://www.exist.de/EXIST/Navigation/DE/Gruendungsfoerderung/EXIST-Forschungstransfer/existforschungstransfer.html

Still, founding a limited company in Germany requires 25,000 €. Two **business angels**, the PhD supervisor and his business partner, invested in the new venture and received five percent of the company each. Besides this initial private equity funding, the company received no external investment in the founding phase. Instead, Christian and Heiko managed to build and grow the business from revenue and had sufficient income to pay their own share of third-party funded research projects and the EXIST funding.

In the beginning, the company was located in the **university's technology centre**. As Christian outlined: "The technology centre was more or less for spin-offs or companies from the university, and we had there the opportunity to grow relatively dynamically. If we needed more space, they did a really good job and managed it well; they always looked at what the start-ups needed in which phase. They kept rooms free for them instead of allocating them directly, etc. And that was really good; that's what I mean by infrastructure. To have something like that, where you can continue to grow dynamically, and you don't know beforehand how quickly you will grow, that is crucial."

Following its foundation, PHYSEC participated in several business plan **competitions** and pitches and won many of them, including the Internet AWARD, the German IT-Security Price, and the German Digital Start-up of the year award. To the founders, business plan competitions are of particular interest because you must reconsider your business model, and it is worth participating in several quality competitions over time because once on, business is also changing. Other prices are of interest for their high recognition, and you get very well-known through such competitions. Finally, the financial aspect is of interest: "There are some competitions that really have an extremely high reputation, like the German IT Security Award, which is a hundred thousand euros, or the Digitalisation Award with $60,000 \notin$ or Digital Start-up of the Year $50,000 \notin$, these are prizes where there is real money behind. Especially at the beginning also $5,000 \notin$ is a lot of money in the first year of your venture, of course". At the same time, Christian warns against unsuitable competitions and fraudulent offers: "I'd say we've taken part in 10 percent of the prizes or competitions for which we were asked for. In other words, you get many requests of all kinds. We've never done anything you have to pay money for; there's a lot of bullshit out there, that you can just completely throw into the bin."

With the combination of consulting and research projects, the establishment of the first minimum viable product that eventually attracts regular customers (reference clients) and some income from prices and competitions, the company entered a dynamic revenue-funded growth phase.

4.3 Scaling-up / Consolidation

Scaling PHYSEC gained momentum when a large **strategic investor** from the energy and water sector joined the venture. The investor was one major project partner and customer of PHYSEC and took over 20 percent of the company in 2021. As Heiko put it, *"We were not necessarily looking for new equity capital but growth organically with our growing revenue to about 40 employees. However, at some point, we had a highly standardized platform and good processes. With more capital, we were able to develop new sales channels and enter other sectors, etc."* The strategic alignment with the investor was an excellent fit to accelerate the business because it accelerated contacts with many potential clients besides the financial investment.

In January 2023, Christian and Heiko introduced a middle management. Before this, Christian oversaw technology, and Heiko managed the commercial aspects. Now, Christian is in charge of strategy, and Heiko supervises the operations. This was necessary because with a certain maturation of the products,

technological and commercial aspects belonged together much more, and the middle management team allowed splitting operations into different areas, respectively, product groups.

At the time of interviewing in November 2023, PHYSEC had 65 employees and just moved to a large office building in a new technology district in the Ruhr area. Christian reflects on the scaling process: *"All these transformation and growth steps, there are certain frictions and issues, and they still exist today. There is always something I'm worried about. I say 95% is going pretty well, but there are always a few things that aren't going so well, and when the team gets so big, you don't have such an overview of everything." The company made money with the software platform and just rolled out a new iteration of their novel crypto hardware-software device on a product-as-a-service base. Besides this, Christian is still, and has always been, active in university research. He supervises several PhD students and has just published a paper in a major journal which is very well-recognized beyond his discipline.*

5 Reflection and Conclusion

Reflecting on the challenges of setting up a deep-tech venture, Christian explained the difficulties of handling intellectual property (IP). If key technological aspects are developed at the university or research organization, which is usual for deep-tech spin-offs, the university, as the employer of the later founders, has the right to claim revenues from any patents generated. In North Rhine-Westphalia, this is managed by an external agency. The problem arises because the external agency, to Christian's perception, tends to charge fair to high claims for transferring the patent from universities to the young venture. One workaround is not to apply a patent for the technology in the first place, which implies the risk that competing teams may patent the technology. Another workaround is to publish the technology so that no one can patent it. However, this solution would disclose the competitive advantage that a young venture may have from the technology. Hence, Christian calls for more deeptech start-up-friendly IP commercialization so that start-ups can afford their patents and that contracts do not thwart the investment readiness of the new ventures.

PHYSEC used a lot of entrepreneurial support from the emerging Ruhr entrepreneurial ecosystem of its time. The "fit for foundation"-matchmaking, the business angels, the EXIST fund, the technology centre and plenty of local, national, and international competitions and pitches to gain recognition. Still, Christian would like to have more useful support at the beginning: "The most important thing is that you can talk to people who have started their own business. [...] Regardless of whether they failed or were successful. But persons who have spent four or five years trying to build a company [...], they know where the devil is in the details, and I would have liked to see a little more of that. There were a few in the ecosystem that we could ask. So that was quite good, but in retrospect, I think it would have been even better to talk a bit more to get different views and average them. Because one person says this, the other says that, the third says this and that you don't just have one opinion, where you say afterwards, he doesn't have a clue, and in the end, you realize that he does have a bit of an idea. But that still wouldn't have been the best thing for us, and it would have been good to be able to talk to two or three other entrepreneurs."

Against this background, Christian critically reflects on the many entrepreneurship support organizations currently operating in the Ruhr: "It's great to talk to some people who work in some entrepreneurship centre and try to explain to you something. That's totally sweet and all good, but it's worth a million times more to talk to people who have done [a start-up] by themselves." He also criticized the fragmented entrepreneurship support landscape: "The problem is, that every university has its own entrepreneurship brand or programme, and how many do we have in our city? And then,

every university has a three-quarter position for a semi-skilled counsellor who, without me taking it badly or personally, would really be better if bundled. If all these human resources were somehow bundled in one place and if the strengths of each individual person were strengthened, it would be better. Then, the advisor travels to the different campuses or meets teams online. But in this way, and this is also an issue, most of the founders are not out of their minds, which means that when they see how inefficient such a system is, they ask themselves how much they would like to be advised by such persons."

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