

A Work Project, presented as part of the requirements for the Award of a Master's degree in
Management from the Nova School of Business and Economics.

The Creation of the Value Creation Wheel Ecosystem at Nova School of Business and
Economics: How to Industrialize Innovation, Decision-making, and Problem-solving Within
an Organization? - Challenge 2: How Can Living Expenses Be Made Accessible and
Affordable for All Students?

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Abstract:

This work project explores the implementation of the Value Creation Wheel Ecosystem at Nova School of Business and Economics to industrialize innovation, decision-making, and problem-solving within the organization. Despite prior efforts to address internal challenges using the Value Creation Wheel framework, implementation barriers persisted. This research project applies the Value Creation Wheel methodology to three key challenges: Enhancing campus accessibility, reducing living expenses for students, and optimizing alumni database management. Through stakeholder engagement, workshops, and iterative refinement the study identifies actionable solutions and a systematic framework for sustainable innovation, contributing to both academic literature and practical institutional improvement.

Keywords: Value Creation Wheel, Innovation Ecosystem, Problem-solving, Decision-making

Challenge 2 (Jessica Stoll): Challenge 2 focuses on reducing living expenses for Nova School of Business and Economics students, identified as a top priority during stakeholder sessions. Through applying the Value Creation Wheel, key cost drivers such as housing, transportation, and basic goods were analysed, highlighting the impact of inflation and limited financial flexibility. Solutions were developed through workshops, research, and stakeholder collaboration, addressing issues like housing support, tuition aid, and resource sharing. After thorough evaluation, the final solution, "NovaMart," a student marketplace app, was chosen to reduce expenses for basic goods while fostering sustainability and stronger community connections.

Keywords: Student Living Expenses, Affordable Education, Accessible Education

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Table 1: Final ideas that passed the MCDA clustered into thematic blocks

Abbreviations

AI	Artificial Intelligence
API	Application Programming Interface
CPS	Creative Problem-Solving
DT	Design Thinking
GDPR	General Data Protection Regulation
KDM	Key Decision Maker
KPI	Key Performance Indicator
MCDA	Multi Criteria Decision Analysis
MVP	Minimum Viable Product
Nova SBE	Nova School of Business and Economics
NREC	Nova Real Estate Student's Club
SDGs	Sustainable Development Goals
VCF	Value Creation Funnel
VCW	Value Creation Wheel
VCW team	Value Creation Wheel team
WP team	Work project team

1 Introduction

The following section introduces the context and content of the work project, providing a detailed exploration of the motivation behind the study, the identified research gap, as well as the goals and objectives that guide the project and its intended outcomes.

1.1 Motivation for Writing the Thesis

In today's fast-paced environment, it is becoming increasingly difficult for both individuals and organizations to keep up the pace, make decisions and solve problems (Boyles 2022). One of the keyways to navigate these challenges is through innovation (Boyles 2022). The demand for innovation is accelerating across all industries, including traditional businesses and business schools, which must continuously innovate to stay competitive in the global education market (Boyles 2022). Nova School of Business and Economics (Nova SBE), one of the leading business schools in Europe, has experienced significant growth, and with that growth comes the challenge of maintaining internal agility (Aghina and De Smet 2015). Associated with this growth, many transformational challenges emerge that need to be addressed. To tackle these, it is crucial to establish a systematic approach for innovation, decision-making, and problem-solving.

In his June 19, 2024, welcome speech at the Value Creation Wheel (VCW) conference, Nova SBE's Dean, Pedro Oliveira, emphasized the critical role of innovation. He highlighted the school's dedication to fostering it through various initiatives, including collaborations with the VCW creator Luis Filipe Lages to address key internal challenges using the VCW methodology (Value Creation Wheel 2024a). It supports the internal decision-making and problem-solving process. The work project team (WP team) is dedicated to advancing the workshop initiative as a crucial step in laying the foundation for the development of a VCW Ecosystem at Nova SBE, supporting the school's "way to the top" (Nova SBE 2023a). The WP team's mission focuses

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on exploring how to industrialize innovation, decision-making, and problem-solving within an organization. As part of this effort, the WP team addressed three highly significant internal challenges.

1.2 Research Gap

Research on innovation ecosystems highlights their evolution as a widely discussed concept in both academic and business domains, emphasizing their role in fostering collaboration, driving innovation, and sustaining competitive advantages. Studies have focused on defining the components of innovation ecosystems, like actors, activities, and artifacts as well as their interrelations, including collaboration and competition (Granstrand and Holgersson 2020). While innovation ecosystems are well-studied, the VCW Ecosystem remains underexplored. A pilot project at INCM-Portuguese Mint and Official Printing Office marked its initial application but lacked systematic academic analysis (Value Creation Wheel 2017). Comprehensive research on its implementation, scalability, long-term benefits, challenges, and outcomes is still absent. This work project seeks to address this gap by contributing to develop a VCW Ecosystem at Nova SBE, systematically implementing and analyzing its application. The study aims to contribute to both managerial practice and academic literature on innovation ecosystems and provide practical insights into using the VCW methodology to industrialize innovation, decision-making, and problem-solving. The findings will inform the adaptation of the VCW Ecosystem model for broader use in various institutions and industries, paving the way for future research and practice.

1.3 Inspiration from INCM

The INCM-Portuguese Mint and Official Printing Office has reinvented itself over 700 years. To sustain innovation, it partnered with consulting firm Everis and academic expert Luis Filipe Lages to industrialize its innovation process. An innovation ecosystem with three layers was

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established. A Governance Model for managing innovation, an Innovation Framework based on Prof. Lages' VCW methodology, and a Network of Partners to enhance its impact. A pilot project tested the VCW framework by tackling the challenge of reducing costs while creating organizational value. (Value Creation Wheel 2017)

1.4 Goals and Objectives

The project goal is to explore how to industrialize innovation, decision-making, and problem-solving within an organization. To achieve this, the WP team is piloting a VCW Ecosystem at Nova SBE, applying the VCW Meta Framework (TIAGO – Tap, Induce, Analyse, Ground, Operate) (Lages et al. 2023) (see Appendix 1 for an illustration). It was used to simultaneously address three internal challenges: (1) “How to improve mass public transportation and campus accessibility?”, (2) “How can living expenses be made accessible and affordable for all students?”, and (3) “How can Nova SBE develop an efficient and sustainable system for continuously updating Nova SBE alumni databases?”. The outcomes will identify synergies and evaluate the VCW Ecosystem's potential. These insights are highly relevant not only to Nova SBE but also to other higher education institutions, as well as public and private organizations which desire to industrialize the innovation, decision-making, and problem-solving process.

2 Context and Company Background of Nova SBE

“A Nova way of being a school, based in Portugal, and open to the world.” (Nova SBE 2024h)

Nova SBE, established in 1978 as part of NOVA University Lisbon, is a leading institution recognized for its academic rigor, research focus, and internationalization in business, economics, and finance (Nova SBE 2024j). Consistently ranked among Europe's top 30 business schools, Nova SBE responded to the Bologna reform by enhancing its global competitiveness (CEMS 2024; Nova SBE 2024j). Notably, it became the first Portuguese

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business school with two Master's programs, Finance and Management, ranked in the global top 10 by the Financial Times, placing 7th and 8th respectively (Financial Times 2024a; 2024b; Nova SBE 2024f). The school is known for its collaborative and student-centered approach and has positioned itself as a leading educational institution within Europe (CEMS 2024; Nova SBE 2024p). Dean Pedro Oliveira attributes this success to the school's unwavering commitment to academic excellence and innovation (Nova SBE 2024f).

Since 2018 Nova SBE has been situated in Carcavelos, Cascais (located 16 kilometers from Lisbon), offering a unique coastal setting (Nova SBE 2024b; 2024p). Its international community includes approximately 21,000 alumni in over 60 countries and 3,000 students from more than 70 nations (Nova SBE 2024e; CEMS 2024). Its commitment to fostering a diverse, global community is key to maintaining strong ties with the business world (Nova SBE 2024p). International students make up 53% of the student body and 65% of the Master's cohort, highlighting its global appeal (Nova SBE 2024k; 2024p).

Nova SBE stands out with the prestigious "Triple Crown" (Nova SBE 2024p) accreditation from EQUIS, AMBA, and AACSB, a distinction held by less than 1% of business schools globally (Nova SBE 2024p). The school's mission, "to be a community dedicated to the development of talent and knowledge that impacts the world," (Nova SBE 2024j) is manifested in every aspect of the Nova experience. This commitment is demonstrated in initiatives, such as an extensive, international alumni network or the innovation ecosystem that foster continuous development and engagement within the global business community (Nova SBE 2024e; 2024a).

The opening quote underscores how Nova SBE, a leading Portuguese university, has evolved into a top European business school, embracing progress through innovation.

3 Analysis of Nova SBE's Internal and External Environment

A comprehensive assessment of Nova SBE's strategic position was conducted through PESTEL, SWOT, and TOWS analyses, complemented by an evaluation of its commitment to the SDGs. These frameworks connect internal strengths with external pressures, predicting challenges and resistance, which ensures evidence-based, adaptable recommendations for VCW projects (Carruthers 2009).

Nova SBE operates in a dynamic environment influenced by political strategies like Portugal 2030, economic goals for R&D investment, and social opportunities from Lisbon's startup ecosystem, which together enhance its funding and partnerships (Ferreira Gomes 2024; Portugal 2030 2024; 'Global Innovation Index' 2024; Foundation for Science and Technology 2024). Additionally, technological advances in Artificial Intelligence (AI) and blockchain, alongside sustainability initiatives and tax incentives, position Nova SBE to leverage emerging trends effectively (KPMG LLP 2023; Treat and Klein 2024). A detailed analysis of the PESTEL framework is provided in Appendix 2.

A SWOT analysis of Nova SBE highlights strengths such as its Triple Crown accreditation, international focus, modern campus, and strong research output, alongside weaknesses such as reliance on international student mobility, a relatively smaller alumni network, high tuition fees for Master's programs compared to average business schools (though significantly lower than top European institutions), and limited global brand visibility (Nova SBE 2024p; 2024e; 2024l; 2023b). Opportunities in sustainability and Lisbon's startup ecosystem contrast with threats such as intense competition and financial dependency, with further details provided in Appendix 3 (Nova SBE 2023b; 2024n; Unicorn Factory Lisboa 2024; Financial Times, n.d.; 2023; Ferreira Gomes 2024).

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The TOWS matrix identifies strategic pathways for Nova SBE to “leverage strengths, address weaknesses, seize opportunities, and mitigate threats” (Wehrich 1982, p 55), emphasizing alignment with the UN Sustainable Development Goals and Portugal's 2030 Agenda to attract students, form partnerships, and enhance its global reputation (Portugal 2030 2024; Nova SBE 2024n; Nova SBE 2024c). Strategies include increasing visibility through international events, digital programs and reducing financial vulnerabilities by diversifying revenue streams and expanding scholarships, with further details provided in Appendix 3 (Ferreira Gomes 2024; Nova SBE 2024l; 2024b; 2023b).

Nova SBE's strong commitment to sustainability, aligned with its mission and institutional values, is a key differentiator, highlighted by its integration of the SDGs into academic programs and practices, including 100% SDG-related content in new courses since 2022 (Nova SBE 2022). Initiatives like the Estoril Conference further showcase this dedication, inspiring the Nova community to contribute to global sustainability efforts and amplifying the impact of projects like this work in alignment with the 2030 Agenda (Nova SBE 2024g). Nova SBE's strategic position integrates sustainability, innovation, and partnerships, enabling it to navigate challenges and reinforce its role as a globally competitive, socially responsible institution.

4 Theories and Schools of Thought Supporting the VCW

To gain a deeper understanding of the VCW concept, which is essential for implementing the VCW Ecosystem, a comprehensive literature review was conducted, focusing on the key theories that underpin its framework.

4.1 Stakeholder Theory

Stakeholder Theory, introduced by Freeman in 1984, represents a shift in strategic management by asserting that businesses are accountable not only to shareholders but to a broader group of stakeholders who influence or are affected by the organization's objectives (Freeman and

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McVea 2001; Freeman 2010). Stakeholders include employees, customers, suppliers, and communities, all of whom play a critical role in the firm's ecosystem (Freeman and McVea 2001; Freeman 2010).

The theory highlights the importance of actively managing these relationships to balance diverse interests, fostering trust, and promoting shared goals (Freeman and McVea 2001). Unlike traditional approaches focused solely on the customers or on maximizing shareholder value, Stakeholder Theory emphasizes that long-term success and sustainable competitive advantage arise from addressing the needs of all stakeholders, especially in times of change (Freeman and McVea 2001; Lages et al. 2020).

4.2 Problem-solving

Everyone encounters problems daily, from minor challenges like finding lost keys to significant questions about life's meaning. Martinez (1998) defines problem-solving as, "the process of moving forward toward a goal when the path to that goal is uncertain" (605). Organizations today face increasingly complex challenges, prompting the development of problem-solving frameworks that combine structure and agility, leveraging collective intelligence, co-creation, and partnerships (Lages 2016). Examples include Design Thinking (DT), Creative Problem-Solving (CPS), and Lean (Lages et al. 2020).

DT, developed by David Kelley of IDEO and Stanford's d.school, focuses on human-centered design through creative methods like storytelling, prototyping, and experimentation (Brown 2010; Carlgren, Elmquist, and Rauth 2014; Carlgren, Elmquist, and Rauth 2016; Lages et al. 2020). It emphasizes user needs and uses a structured yet flexible process, Inspiration, Ideation, and Implementation, to refine solutions based on feedback (Brown 2010; Liedtka 2015; Lages et al. 2020). Despite its utility, DT's academic use is limited by its vague theoretical foundation (Johansson-Sköldberg, Woodilla, and Çetinkaya 2013; Liedtka 2015). CPS, rooted in Alex

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Osborn's 1950s research on brainstorming, enhances creative thinking by embedding solutions into actionable plans with stakeholder involvement (Isaksen and Treffinger 2004; Lages et al. 2020; Puccio 1999). It evolved from a linear model to a flexible, cyclical process and is widely applied to innovation, collaboration, and organizational challenges (Lages et al. 2020). Lean, originating in manufacturing, aims to optimize efficiency and eliminate waste while maximizing stakeholder value (Alvarez 2015; Pullan, Bhasi, and Madhu 2013). Nowadays it extends to organizational processes, emphasizing experimentation, iterative design, and customer feedback to foster agility and faster development cycles (Blank 2013; Lages et al. 2020).

4.3 Value, Value Creation, Value Capture and Co-Creation Theory

Value is generally defined as something that is "worth spending money on" (Cambridge University Press & Assessment 2024) and more specifically the trade-off between benefits and sacrifice or the perceived benefit customers derive from their experiences with a company, its products, or services (Grönroos and Voima 2013, 134).

Value creation is subjective and varies by individual. It depends on the relative value perceived by a target user or buyer, whether an individual, organization, or society (Lepak, Smith, and Taylor 2007). A target's perception of value hinges on their subjective evaluation of an outcome's novelty and appropriateness. Greater perceived novelty and appropriateness increase the potential for value use and exchange (Lepak, Smith, and Taylor 2007). Value again can be created by an individual, an organization or a society (Lepak, Smith, and Taylor 2007). The source of value creation differs from that of value retention. Two approaches are key to long-term value capture. First, firms may share products or services with stakeholders, including competitors, especially when price competition reduces perceived value. Second, applying "isolating mechanisms" (Lepak, Smith, and Taylor 2007) helps firms retain value by protecting it from competitors and minimizing value loss (Lepak, Smith, and Taylor 2007).

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Traditionally, companies created value internally, bundling resources and know-how to protect it from competition. However, with market complexities, emerging technologies, and increased competition, value creation has shifted to co-creation (Prahalad and Ramaswamy 2004). Consumers, companies, communities, and professionals now collaborate to define and create value, engaging through communication channels, social media, open innovation, or digital platforms (Prahalad and Ramaswamy 2004). Co-creation, as described by Ramaswamy (2011), expands mutual value through shared processes (195). An example is Nike's co-design initiative, allowing consumers to design their own shoes, unlocking new value sources (Ramaswamy 2008).

4.4 Innovation

Despite extensive research on the topic, there is no universally accepted definition of innovation (Kogabayev and Maziliauskas 2017). According to Kogabayev and Maziliauskas, some author describes innovation as the creation of a new idea and its implementation into a product, process, or service. The implementation leads to economic growth, higher employment rates, and profits for innovative businesses (Kogabayev and Maziliauskas 2017). When an invention is combined with successful commercialization, the result is innovation (Lages 2024). Different types of innovation can include new technologies, business models, processes, or positions in the market (Lages 2024). The three perennial issues of innovation are institutionalizing vs. de-institutionalizing innovation, technology-driven vs. market-driven innovation, and the balance between incremental improvements and radical changes (Tzeng 2009). Innovation opportunities can arise from four key areas within a company or industry. Those are unexpected occurrences, incongruities, process needs, and industry or market changes (Drucker 2002). Additionally, three external sources of opportunity include demographic changes, shifts in perception, and advancements in new knowledge (Drucker 2002). The economist Peter Drucker

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highlights the need for leadership to prioritize innovation: “If an innovation does not aim at leadership from the beginning, it is unlikely to be innovative enough“ (Drucker 2002, 8).

4.5 Decision-making

Decision-making is the intentional process of assessing various options and selecting the one that best aligns with achieving specific goals (Morelli, Casagrande, and Forte 2021). This process is shaped by an individual’s abilities, values, preferences, and beliefs, aiming to identify the most effective solution (Morelli, Casagrande, and Forte 2021). John von Neumann’s and Oskar Morgenstern’s game theory (1945) developed foundational work in the field of decision-making. This theory suggests that individuals make decisions to maximize personal benefit, a core principle of classical rationality. The model assumes that decision-makers are fully rational (Von Neumann and Morgenstern 1945). In contrast, Herbert A. Simon introduced the concept of bounded rationality. He states that decision-makers face limitations in terms of computational capabilities (Simon 1997). Due to this instead of seeking the optimal solution, decision-makers aim for a satisfactory one, known as “satisficing” (Simon 1997, 5). On the other hand, behavioural decision-making, significantly influenced by Kahneman and Tversky, offers an alternative perspective to rational theories. Their work offers a more refined understanding of how cognitive biases and heuristics impact the decision process (Tversky and Kahneman 1974). It sheds light on the ways people make choices, especially when faced with risk and uncertainty, highlighting the non-rational factors that often drive decisions (Kahneman and Tversky 1979). In *Thinking, Fast and Slow*, Daniel Kahneman describes System 1 as fast, automatic, and intuitive thinking, while System 2 is slow, deliberate, and analytical, with both systems shaping how we process information and make decisions (Kahneman 2011). However, decision-making is not just a theoretical concept but a daily practice crucial for individuals and organizations. For organizations, optimizing major decisions is vital for long-term success in a competitive market (Nelson 2023).

4.6 Linking Theoretical Foundations to the VCW

The theories supporting the VCW offer a robust foundation for its role as a framework to address organizational challenges and foster innovation. Stakeholder Theory underscores the importance of engaging diverse stakeholders and balancing their interests, aligning with the VCW's collaborative focus. Problem-solving methodologies, such as DT, CPS, and Lean, demonstrate structured approaches to address challenges, which the VCW enhances by acting as a meta-framework that integrates these tools (Lages et al. 2020). Value creation theories, particularly the concept of co-creation, emphasize the shared generation of value, a principle deeply embedded in the VCW. Decision-making frameworks add another layer, highlighting the VCW's ability to guide rational, informed choices through its structured breakdown of complex issues. Together, these theories illuminate the VCW's versatility and effectiveness.

5 Understanding the VCW

The VCW, developed by Luis Filipe Lages, is the product of 29 years of research and refinement. Since its inception in 1995 and its early active application at the beginning of the Millennium, it has been tailored to address the complexities of 21st-century business environments (Lages 2016; Lages et al. 2023). Unlike rigid frameworks that lead to linear decision-making, the VCW offers a flexible, adaptive approach to innovation and problem-solving, incorporating diverse perspectives and non-linear thinking (Lages 2016). Influenced by Darwinist principles, the VCW combines traditional and dynamic frameworks into a circular, interactive model, balancing flexibility with structure (Lages 2016). As Lages (2016) states, “we must think not only ‘within the box’ and ‘outside the box’ but also ‘with no boxes’.”

(1). Lages continues to enhance the tool, leveraging his extensive consultancy expertise and ongoing research highly supported by companies and executive education inputs.

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The VCW addresses challenges identified by Key Decision Makers (KDMs) who have the 4Ms (Manpower, Minute, Money and Motivation) (Lages et al. 2023). It engages internal and external stakeholders through a five-phase framework: Defining challenges, identifying ideas and filters, assessing these ideas, and refining them into tangible value (Lages et al. 2023; Lages, Fonseca, and Toh 2024). This methodology fosters innovation, decision-making, and problem-solving (Lages et al. 2023; Lages, Fonseca, and Toh 2024). Both the KDMs and their challenges can be highly diverse. KDMs are ranging from CEOs to individuals navigating daily challenges, actively contribute essential resources (4Ms) and play a central role in the problem-solving process (Lages, Fonseca, and Toh 2024; Value Creation Wheel 2024d; 2024d). The VCW is adaptable to diverse fields, including aerospace, finance, healthcare, public administration, technology, and tourism (Lages 2016; Lages, Fonseca, and Toh 2024). It is implemented by individuals, startups, NGOs, SMEs, and Fortune 500 companies (Lages 2016; Lages, Fonseca, and Toh 2024). Challenges often stem from a lack of internal support, complexity, or limited perspectives (Lages, Fonseca, and Toh 2024). By engaging KDMs and emphasizing efficiency, the VCW facilitates effective decision-making with reduced efforts and resources, delivering solutions that create value for stakeholders (Lages, Fonseca, and Toh 2024).

The VCW consists of two main components, resulting in four frameworks tailored to users' needs: The DIANA Framework, which underpins the VCW Sprint, VCW Journey, and VCW Method, and the TIAGO Framework (Lages et al. 2023; Lages, Fonseca, and Toh 2024; Lages, Dias, and Reis-Marques 2025) (see Appendix 4 for an illustrative image). The VCW Funnel serves as an additional component, demonstrating the VCW in practice (Value Creation Wheel 2024b) (see chapter 7 for a comprehensive description of the VCW Funnel). The selection of the most suitable VCW framework depends on factors like resources (4Ms), challenge complexity, team size, and diversity (Lages, Dias, and Reis-Marques 2025). The DIANA

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Framework, focusing on “converting practice into theory,” (Lages 2016,2) supports the VCW phases: Define, Increase, Assess, Narrow, and Act (Lages et al. 2023). It is ideal for specific challenges with limited resources (Lages et al. 2023). In contrast, the TIAGO Framework emphasizes practical application, described as “converting theory into practice,” (Lages 2016, 2) with five phases: Tap, Induce, Analyse, Ground, and Operate (Lages 2016). TIAGO is highly adaptable and customizable for diverse challenges (Lages 2016, 2). Due to its high degree of complexity, customization, and co-creation sophistication, it requires more human resources, budget, and time to be implemented (Lages, Fonseca, and Toh 2024; Lages, Dias, and Reis-Marques 2025). See Appendix 6 for an illustrative image of the VCW frameworks.

The VCW Meta Framework, based on TIAGO, is the most complex and resource-intensive approach, suited for comprehensive challenges involving numerous stakeholders (Lages, Dias, and Reis-Marques 2025, 12). It integrates the 15Is of Innovation and adapts flexibly to each unique case, functioning as a “chameleon framework” (Lages 2016, 2-3; Lages, Fonseca, and Toh 2024, 24). Both DIANA and TIAGO frameworks are dynamic and circular, enabling responsive problem-solving and complementing existing tools across various fields (Lages 2016, 2-3).

The core elements of each of the five TIAGO phases are as follows: The first phase, **Tap** (3Is: Ignition, Idea, Intelligence), **focuses on “Discovering Value”** by defining the problem or challenge (Lages 2016; Lages, Dias, and Reis-Marques 2025). This phase involves a thorough diagnostic to uncover root causes, contextual nuances, and relevant trends, culminating in a well-defined vision, clear goals, and a precise research question (Lages 2016; Lages, Dias, and Reis-Marques 2025). The process duration varies based on complexity, from minutes to years (Lages 2016; Lages, Dias, and Reis-Marques 2025). Key outcomes include setting a baseline, establishing KPIs, and aligning progress measures with desired outcomes (Lages et al. 2023). The second phase, **Induce** (3Is: Imagination, Intuition, Intellect), **focuses on “Creating Value”**

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by generating two key components: Ideas (potential solutions) and filters (criteria for prioritization) (Lages 2016; Lages, Dias, and Reis-Marques 2025; Lages, Fonseca, and Paulino 2018). Teams collaborate with internal and external stakeholders to produce a wide range of ideas and filters, treating them separately to ensure creativity and avoid premature elimination (Lages 2016). Creative methods such as brainwriting, brainstorming, crowdsourcing, networking, and open innovation might be employed, alongside techniques like market-pull and tech-push exercises (Lages 2016). Filters, often developed by stakeholders not involved in idea generation, serve to refine and evaluate ideas based on acceptance / rejection criteria (Lages 2016). In phase three, **Analyse – focuses on “Validating Value”** (3Is: Interpretation, Insight, Integration). KDMs prioritize and rank the ideas and filters from phase two, evaluating them from most to least important (Lages 2016; Lages, Dias, and Reis-Marques 2025). Factors such as organizational hierarchy, control systems, and the number of stakeholders involved influence this evaluation (Lages 2016). The **POKER method** (Keep, Review, Multiply, or Kill), developed by Lages and Hartmann (2015), streamlines the process, focusing on refining filters and solutions to ensure only the most viable options move forward (Lages 2015; 2016; Luis Filipe Lages, Fonseca, and Paulino 2018; Value Creation Wheel 2024c) (see Appendix 7 for an illustrative image). The fourth phase, **Narrow – focuses on “Capturing Value”** (3Is: Inspiration, Illumination, Incubation). It involves building the Value Creation Funnel using the ideas and ranked filters from the previous phase to identify solutions with the highest potential (Lages 2016; Lages, Dias, and Reis-Marques 2025). Flexibility and openness are key as the team incorporates KDMs’ insights (Lages 2016). After narrowing down the list of ideas, the team develops detailed concepts and prototypes for the final solutions, preparing them for implementation (Lages 2016). The final phase, **Operate – focuses on “Consolidating Value”** (3Is: Impression, Introduction, Implementation). A business model is developed and, if viable, implemented, monitored, and controlled (Lages 2016; Lages, Dias, and Reis-Marques 2025).

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The board evaluates the solution by reviewing the 4Ms and business model, deciding to “Go,” “No-Go,” or “Check.” (Lages 2016; Lages et al. 2023). A “Check” decision requires revisiting earlier TIAGO phases for refinement (Lages 2016; Lages et al. 2023). KPIs set during the Tap phase are also reviewed, and stakeholders may be engaged to create roadmaps or oversee implementation (Lages 2016; Lages et al. 2023).

6 The VCW Ecosystem

Just as natural ecosystems like prairies, rainforests, and oceans consist of diverse species that interact, adapt, and evolve, human-created systems such as innovation ecosystems mirror this complexity, with various stakeholders interconnecting and evolving, driving growth and interdependence (Zhe et al. 2024). An innovation ecosystem can be described as an evolving set of actors, activities, and artifacts, as well as the institutions and relations, including complementary and substitute relations, that are important for the innovative performance of an actor or a population of actors (Granstrand and Holgersson 2020). An innovation ecosystem can be established on a smaller scale, such as within a company (Singapore Management University 2018) or on a larger, global scale (MIT 2021). An example for an innovation ecosystem within the European Union is the European Institute of Innovation and Technology (EIT). It is a large-scale innovation ecosystem that connects businesses, universities, and research institutions across Europe to address societal challenges through cross-border collaboration and support for startups (EIT 2024). Regardless of the scale, what is always needed is a density of resources, talents, infrastructure, and demand.

Innovation ecosystems have been implemented in various organizations and business schools. A noticeable trend among European business schools is their strong emphasis on innovation and entrepreneurship through various impactful initiatives. For example, HEC Paris Innovation & Entrepreneurship Institute fosters a leading European ecosystem for innovation and corporate

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transformation, offering three centres that support entrepreneurial ideas at every stage of development to drive lasting positive impact in business and society (HEC Paris 2024b). However, similarly to the Innovation Ecosystem at Nova SBE, internal and external problem-solving and decision-making is not their primary focus. In contrast, UC Berkeley fosters stakeholder engagement through partnerships, connecting alumni, faculty, and staff, guiding alumni in innovation-focused research, building philanthropic and corporate ties, and strengthening its network creatively ('UC Berkeley Innovators' 2024). The framework of UC Berkeley's innovation ecosystem stands out due to its decentralized structure, which proves to be highly effective by empowering various academic units with autonomy. This approach fosters dynamic collaboration and innovation across different departments, leveraging the unique talents and expertise within the institution (Cohen 2016).

Nova SBE established an innovation ecosystem which is focusing on being a "meeting point to forge partnerships with a shared vision, blending generations, industries, cultures, and perspectives to breed new business models, products, and solutions" (Nova SBE 2024a). They focus on enhancing executive education at Nova SBE and managing partnerships with external partners. Nova SBE is a key innovator for Portugal (Lopes 2024). This is why, alongside external efforts, internal challenges and innovation processes must be systematically and efficiently managed to maintain agility despite recent growth and remain competitive with other business schools. The VCW Ecosystem serves to be this systemized process which continuously generates innovation (Value Creation Wheel 2017). The VCW Ecosystem has already been successfully implemented outside Nova SBE at INCM-the Portuguese Mint, showcasing its potential to foster innovation, make decisions, and solve challenges. At Nova SBE, internal stakeholders have emphasized the need to enhance internal problem-solving and decision-making. This need was highlighted through active participation in VCW workshops and insights from interviews with previous KDMs involved in three VCW student projects (see

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Appendix 8). The KDMs observed that, as in many organizations, excellent ideas from the VCW process often fail in implementation. A key issue was poor communication among students, staff, and faculty. This highlights the need for a structured approach like the VCW to ensure ideas are effectively implemented and integrated. Therefore, the VCW Ecosystem project was launched to address challenges at Nova SBE. The goal is to industrialize decision-making and problem-solving at Nova SBE, ensuring that innovation is better structured and more visible. The existing innovation ecosystem like all the other internal and external stakeholders are important assets in the implementation process of the VCW Ecosystem. To make the VCW Ecosystem efficient and applicable it is built on three fundamental layers: The Governance Model, the Innovation Framework and the Network of Partners (see Appendix 9), similar to the project at INCM (Value Creation Wheel 2017).

The Governance Model establishes the main responsibilities for each of the components of the VCW Ecosystem (Value Creation Wheel 2017). The Governance Model consists of three separate but interconnected units. The board challenges, selects filters, prioritizes, decides, and implements. They primarily launch the challenges, although other stakeholders can also initiate them. The VCW team challenges, dynamizes, explores, and supports. Lastly, the departments and organic units suggest ideas and filters. They are also responsible for conceptualizing and prototyping the solutions for their specific challenges (Value Creation Wheel 2017). This structure provides clarity and accountability within the ecosystem. The underlying components of the Governance Model are resource allocation, standardized processes, and technology. Efficient distribution of financial, human, and physical resources is crucial for implementing the ecosystem. Streamlined operations require standardized processes and training to effectively use the VCW Ecosystem. Technology must support innovation, ensuring the tools align with the governance structure. (Lages et al. 2023)

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The Innovation Framework is based on Luis Filipe Lages' VCW methodology for innovation, decision-making, and problem-solving (Value Creation Wheel 2017). It is a comprehensive framework designed to tackle innovation, collaboration, and change management challenges. The strength of the VCW lies in its adaptability and ability to capture insights from both internal and external stakeholders, which is particularly valuable in addressing the complexities of collaborative partnerships (Lages, Dias, and Reis-Marques 2025). Given that the framework was developed by a professor at Nova SBE, there is a heightened level of familiarity among staff and students, which facilitates comprehension, encourages engagement, and supports its seamless integration into institutional decision-making and problem-solving processes.

The Network of Partners is essential for enhancing the potential of the VCW methodology for innovation, decision-making, and problem-solving within the VCW Ecosystem (Value Creation Wheel 2017). The diversity of partnerships is crucial, encompassing a variety of internal but also external partners to bring different perspectives and resources to the table. The sustainability of these partnerships is vital, with a focus on long-term collaboration to create enduring, impactful connections .

7 Procedure and Methodology of the VCW Ecosystem Project

The VCW Ecosystem Project began with an exploratory phase focused on identifying Nova SBE's existing challenges. This stage involved the active participation of KDMs and numerous internal and external stakeholders, providing a diverse range of perspectives. During this diagnostic phase, over 80 potential challenges were identified. Subsequently, discussions were held with the Dean and the President of the Scientific Council to prioritize these challenges and identify the appropriate KDMs for each.

Once the priority challenges and KDMs were defined, the next phase, which centered on gathering potential solutions through idea and filter generation workshops, began. Conducted

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in June 2024 and September 2024, these workshops brought together various internal and external stakeholders, including staff and students, to solve real challenges while generating ideas and filters across multiple funnels. The workshop utilized the VCW Funnel, a stage-gate and agile methodology designed to energize and unify the co-creation team around a common objective and solution, enhancing engagement and motivation (Value Creation Wheel 2024b; Lages, Fonseca, and Toh 2024; Lages, Dias, and Reis-Marques 2025). The VCW Funnel begins by defining the Diagnostic, Challenge, Leaders / Key Decision Makers, Key Stakeholders, and the Scientific Team supervising the VCW Funnel (e.g., VCW Lab @ Nova SBE team). Ideas and filters are generated through methods such as brainwriting, brainstorming, and AI. Filters are then ranked from “must-have” to “nice to have”. Solutions pass through filters, followed by the development of the “4Ms” (Manpower, Minute, Money, Motivation), culminating in a concise pitch (summarizing the challenge, solution, and resource needs (4Ms)). VCW Funnels typically last two hours but can vary based on context from 90 minutes to 4 hours (e.g., number of people, number of challenges, number of VCW facilitators, presence of KDMs) (Value Creation Wheel 2024b).

During the workshops in June 2024 and September 2024 over 300 participants contributed, working together in teams of four to six people resulting in over 50 funnels. In October, additional workshops in the same format were held exclusively with Nova SBE Master’s students to gather more ideas and filters specifically for the three challenges addressed by the master thesis work project team. The WP team together with Luis Filipe Lages conducted four sessions in the mandatory “Marketing Management” class and two sessions in the elective “Decision Making”. During these sessions 235 students contributed to over 279 ideas and 254 filters (see Appendix 10). Following the workshops, further meetings with the KDMs to review and evaluate the proposed ideas and filters were held. This culminated in an official review meeting attended by the Dean of Nova SBE, the President of the Scientific Council, the three

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KDMs, Luis Filipe Lages representing the VCW Lab @ Nova SBE and the VCW Methodology, and the three Master's student's authors of this work project. The purpose of this meeting was to gather feedback on the ideas and filters and confirm their prioritization by the KDMs. With approval and endorsement from the Dean, the final funnel phase, where all ideas were assessed through the established filters was initiated. After developing an implementation plan for the respective solutions, the projects concluded with the implementation phase, where the KDMs were tasked with overseeing the integration and monitoring of the selected solutions. The three challenges addressed during the VCW Ecosystem Project are:

1. How to improve mass public transportation and campus accessibility?
2. How can living expenses be made accessible and affordable for all students?
3. How can Nova SBE develop an efficient and sustainable system for continuously updating its alumni databases?

In the following the process from defining the challenge to the implementation of the solution is described for each challenge in detail. The overarching mission of solving the challenges is to solidify the implementation of the VCW Ecosystem at Nova SBE, to industrialize innovation, decision-making, and problem-solving and offer implications for other organizations. To track the success of the project, the WP team set five overarching objectives with underlying KPIs to monitor the process and measure the results at the end of the project (see Appendix 11).

8 Challenge 2: How Can Living Expenses Be Made Accessible and Affordable for All Students?

In the following section, the VCW Meta Framework (TIAGO) has been applied to address the challenge of mitigating living expenses, with the goal of identifying suitable solutions that make living costs accessible and affordable for all students.

8.1 VCW Phase 1 – Discover Value (Tap)

This challenge emerged from a session organized by the VCW Lab at Nova SBE in May 2024, as part of an initiative to establish a comprehensive VCW Ecosystem. The session involved a diverse group of stakeholders, including Luis Filipe Lages, department heads, and other key contributors. Among more than 80 challenges identified by the VCW Lab @Nova SBE, the rising cost of living was highlighted as one of the top three priorities for Nova SBE. This prioritization was later validated in a September 2024 meeting with the Dean and the President of the Scientific Council. Consequently, a clearly defined challenge emerged: "How can living expenses be made affordable and accessible for all students?". From this point, the WP team took charge and initiated the process with a comprehensive kick-off meeting involving the responsible KDM Sofia Cilia and her team on October 1, 2024 (see Appendix 29 for a full overview of the meetings with the KDM). This meeting served as a base to align on objectives, establish expectations, and outline the roadmap for the upcoming steps. While most people associate living expenses primarily with housing, we observe that the concept encompasses multiple layers. For the purposes of this work project, living expenses are defined as "the money that has to be spent on food, housing, clothing, transportation, and other essentials" (Collins 2024).

Before exploring the project details, an analysis of the context and causes of rising living expenses in the Lisbon area provided key insights into the financial challenges students face.

While Portugal is one of the most affordable Western European countries, Lisbon is its most expensive city, driven by inflation and surging housing costs (Donaldson 2024; Editorial Team 2024). Many Nova SBE students reside in Lisbon due to its proximity to the university and face numerous challenges in managing their living expenses (Donaldson 2024). One of the most pressing issues is the high cost of housing. As of 2024, the average rent for a furnished private room in a shared flat costs around 600€ (Donaldson 2024; Statista 2023). To put this into perspective, the rent for a furnished private room in Madrid, Spain is slightly lower at 560€, but the average wages in Spain are significantly higher than in Portugal, highlighting the greater financial strain (Statista 2023; Lahiri 2023). Additional burdens include transportation costs and rising prices of basic goods such as food and home supplies (Luz 2024) (see Appendix 30 for the full results of the benchmark). The main issue with home supplies is that international students must acquire items for their homes, only to sell or discard them when returning home after completing their studies. These combined costs place considerable pressure on students, particularly those from lower-income backgrounds, who are disproportionately affected by the increasing financial demands. The situation is further compounded by the limited work opportunities available to students, restricting their ability to offset these rising costs through part-time employment. Appendix 31 presents a detailed root cause analysis, highlighting the urgent need for Nova SBE to address this issue and ensure affordable, accessible education for all.

To ensure the success of a VCW project, it is crucial to integrate the **4 Ms of the VCW**: **Manpower**: The project is led by KDMs, including Dean Pedro Oliveira and the head of the Life at Nova SBE department Sofia Cilia. The entire Life at Nova SBE team, consisting of ten dedicated members, plays a pivotal role in driving this initiative forward, with significant contributions from Inês Morais. This department assists students with challenges like visas, housing, and well-being and is structured into three teams: Integration, Well-Being, and Student

Advising (Life at Nova 2021). To ensure the development of optimal solutions, Sofia Cilia (KDM) is also actively fostering collaborations with other key stakeholders, such as the Nova Real Estate Student's Club (NREC), to gather critical insights and enhance the project's outcomes. **Minute:** Biweekly meetings with Sofia Cilia (KDM) via Microsoft Teams, held from September to December, provide consistent oversight for the project (see Appendix 29 for an overview of meetings). Should the project advance to the implementation phase, continuous communication will be maintained to ensure its successful execution. **Money:** The timing of implementation must align with Nova SBE's annual budget planning. The financial feasibility of the proposed solution is closely tied to its scope. The department is dedicated to ensuring the financial viability of initiatives that align with the university's vision while providing meaningful benefits to a wide student audience. Additionally, co-funding opportunities from other departments may further facilitate and expedite implementation. **Motivation:** Managing living expenses is a shared priority for Dean Pedro Oliveira, Sofia Cilia, and the Life at Nova SBE department, fostering high motivation among all stakeholders to develop effective and sustainable solutions.

The challenge of managing living expenses is multifaceted, necessitating the involvement of a wide array of internal and external stakeholders (Brugha and Varvasovszky 2000). A **stakeholder analysis** is essential to assess each group's level of interest and power, aiding in strategic engagement and project success (Brugha and Varvasovszky 2000) (see appendix 32 for the full stakeholder analysis). Naturally, internal stakeholders like the Dean and his team, along with the relevant departments, bear the highest potential to effect change due to their direct authority and control over resources. Close behind in interest, though with slightly less power, are staff, faculty, students, student clubs, and the VCW team itself. These parties are intimately familiar with the challenges as they encounter them daily, offering valuable perspectives. Among external stakeholders, government authorities and municipalities hold the

most influence, while local businesses, service providers, and financial aid providers offer moderate support potential. Alumni, although less influential, can play a valuable role by leveraging their resources and networks to aid current students.

To effectively pursue a clear goal with this challenge, specific objectives and underlying **KPIs** were established (see Appendix 33). It is essential that the final solution is not only viable but also addresses one of the most critical aspects of this multifaceted challenge. For example, tackling issues such as the housing situation or the rising prices of basic goods is expected to benefit a wider segment of Nova SBEs community. This strategic focus ensures that the WP team's efforts are directed towards areas of greatest immediate need within the community.

8.2 VCW Phase 2 – Create Value (Induce)

Phase 2 of the VCW, which took place from late September to the end of October, marked one of the most intensive stages of the process. During this phase, the WP team's primary mission was to **generate as many ideas as possible and establish various filters** (see Appendix 35 and 36 for a full list of ideas and filters). It was crucial to involve a diverse range of internal and external stakeholders through multiple channels. The initiatives implemented during this phase included gathering primary data, conducting secondary research, and facilitating workshops, all aimed at harnessing a broad spectrum of insights and perspectives. The first pillar of the research methodology focuses on primary research. The WP team began with brainwriting, enabling members to document initial ideas independently, followed by a collaborative brainstorming session to refine and expand these ideas. Structured interviews with the KDM, her team, and two affected students further enriched the research, along with insights from the Nova Real Estate Club (NREC), which addresses housing challenges. These efforts resulted in 15 refined ideas and corresponding filters for analysis. The second pillar of our approach, centered on secondary data, generated 20 innovative ideas and nine critical filters.

This was achieved through advanced AI tools like ChatGPT and Microsoft Copilot, alongside extensive internet and literature research, including an analysis of competitors' websites to understand their strategies. The final pillar of our research strategy, a series of targeted workshops, was highly productive, yielding the largest number of ideas and filters. The WP team utilized results from two VCW funnel workshops in June 2024 and September 2024, attended by staff, faculty, students, and partners which generated two funnels, 54 new ideas, and nine filters. Additionally, six workshops within the Master's in Management program, conducted in collaboration with Luis Filipe Lages, produced 21 funnels, 83 ideas, and 63 filters. These included four Marketing class sessions with 51 students and two Decision-Making Elective workshops with 33 students (see Appendix 34 for photos). These workshops enriched our idea pool and provided students with valuable hands-on experiences, bridging theory with practical application. The WP team concluded the generation of ideas and filters when saturation had been reached. This realization came during the workshop on October 30 (Second workshop of the Decision-Making Elective), where it became evident that no new ideas or filters were emerging, indicating that creative inputs for this phase had effectively been exhausted and achieved saturation level.

8.3 VCW Phase 3 – Validate Value (Analyse)

In Phase 3 of the VCW, ideas and filters are clustered using the POKER method, and the filters are subsequently ranked by the KDMs. To effectively manage and prioritize the vast array of ideas generated from primary research, secondary sources, and workshops, the WP team utilized the POKER Method for categorizing the ideas. This systematic approach allowed them to sort ideas into four specific categories: "Kill," "Keep," "Multiply," and "Review" (Value Creation Wheel 2024c). Initially, from a pool of 194 ideas, the WP team applied the POKER Method to keep 134, review five, multiply two, and kill 53. These selected ideas are set to progress through the funnel in Phase 4, where they will be subject to rigorous filtering, a pivotal

element of the VCW method. This step is crucial to ensuring both the efficiency and quality of our discussions, which is not only vital for the WP team but also for KDM Sofia Cilia and her team. The next step in the process is a collaborative effort with KDMs, who assess and prioritize each filter based on its necessity. The WP team streamlined the initial 91 filters down to 69 by applying the POKER method again and mainly removing duplicates (Value Creation Wheel 2024c). From these 69 remaining filters, 17 "must-have" filters, 24 "nice-to-have," and 28 are categorized as "not necessary" were identified. Filters within the "must-have" category are ranked from 1 to 17 and the "nice-to-have" category are ranked from 1 to 24, based on their significance as determined by the KDM. The KDM prioritizes these filters while considering the broader interests of her team and the strategic goals of Nova SBE as an institution. Additionally, the WP team held a meeting with Nova SBE's Dean, Pedro Oliveira, and his team on November 4, 2024 to refine the filters further and align on the aspects most crucial to him and the institution. This structured approach ensures that only the most impactful and aligned ideas and filters advance, thus maximizing the efficiency and effectiveness of the innovation process.

8.4 VCW Phase 4 – Capture Value (Ground)

Phase 4 is split into 4a) setting up the Value Creation Funnel (VCF), supported by a MCDA matrix, where all filters are systematically applied to evaluate the ideas and 4b) elaborating detailed concepts and prototypes for the final idea(s).

4a) The WP team systematically applied the 17 must-have filters to evaluate the 134 ideas generated in the previous phase. Each idea was assessed against these filters, which were prioritized based on the rankings provided by the KDM from most to least important. The KDM emphasized criteria such as feasibility, financial viability, and broad impact on many students. This step served as a critical filtering process to reduce the extensive pool of ideas into a more

manageable and focused selection. As a result of this rigorous evaluation, 25 ideas successfully passed through the funnel. A detailed breakdown of the VCF can be found under Appendix 37. At this stage, the WP team refined their focus further by narrowing down the number of ideas by two, upon learning in a meeting on November 6, 2024 (see Appendix 29 for meeting overview) with the KDM Sofia Cilia that the NREC is already actively pursuing these ideas.

Since the 23 ideas were still too numerous to move forward effectively, the WP team employed the MCDA method (see Appendix 38 for details). In this phase, the 23 ideas were evaluated against the nice-to-have filters, with each idea receiving a score based on its alignment with these additional criteria. After scoring, the twelve highest-ranking ideas were discussed with the KDM (see Appendix 29 for meeting overview). Following this discussion, four ideas were excluded, as initiatives like incentivizing students to work while studying are already being addressed by Sofia Cilia's department. This refinement process resulted in a focused set of eight well-developed ideas for further evaluation. These remaining ideas were organized into four thematic blocks, as outlined below:

Block 1	Block 2	Block 3	Block 4
Living Expenses	Tuition Fees	Living Expenses	General
Student marketplace Milestone selling platform	Alumni tuition support program Alumni support programs Student-friendly credit conditions Flexible tuition payment plans	Pingo Doce and Nova SBE partnership	Student committees

Table 1, Ideas passing the MCDA clustered into thematic blocks

The WP team conducted initial research on all ideas within the four blocks and presented their findings to the KDM and department member Inês Morais on November 15, 2024 (see Appendix 39 for details). Following a joint discussion, the student marketplace idea (Block 1) was selected for further development, despite all ideas being considered promising.

In the workshops, participants focused on three main challenges: Housing, high tuition fees, and rising costs for basic goods. While the NREC has already advanced solutions for housing, no new actionable ideas emerged from the VCF that could support them. Besides that, Nova SBE already takes measures to address tuition fee related issues. Proposed solutions, such as alumni-funded tuition fees, also face significant financial barriers, making them impractical in the short term. The workshops, KDM input, and survey results revealed that the student marketplace idea has a high potential to reduce the cost for basic goods, which is a vital part of living expenses, and is therefore highly demanded by students. The WP team conducted a survey to confirm the demand for such an app among students and to gain deeper insights into their preferences for features and specific needs (see Appendix 42 for details of the survey). The results showed that 83% of the survey participants expressed interest, indicating they would actively use a student marketplace to buy and sell items.

In general, students already can buy and sell second-hand products, primarily through social media platforms such as WhatsApp groups. This approach has limitations such as that students often have to join multiple groups, which is time-consuming and disorganized. The survey revealed that, in its current state, many students encountered significant challenges in finding suitable buyers and sellers (see Appendix 42 for detailed survey results). While other marketplace platforms such as Vinted, Micolet, OLX, CustoJusto, and Wallapop are used in Portugal, they are not specifically tailored to the unique needs of students or localized campus communities (see Appendix 40 for a more detailed breakdown of the competition). The interactions are often transactional and lack the deeper engagement needed to build a supportive and collaborative student network. Many students, as highlighted in interviews that the WP team conducted, feel overwhelmed by existing Portuguese marketplaces and struggle to find buyers for items they wish to sell. For instance, a member of the WP team unsuccessfully tried to sell a bike through WhatsApp groups and ultimately gave it away as her departure date

approached. An internal platform tailored to Nova SBE students would provide a centralized hub where users with shared needs can effortlessly connect, with the primary location of exchanges conveniently centered at the Nova SBE campus.

4b) During the research, the WP team identified several student-focused marketplaces across Europe that provide valuable insights for developing their own student marketplace. For example, Lende, a platform based in Spain, allows students to buy or borrow items from others within the same student residence, fostering a hyper-localized exchange system (LENDE 2024b; 2024a). Another example is Hazaar, a UK-based student marketplace dedicated to trading second-hand items (Hazaar 2024a). Hazaar actively partners with numerous universities, such as London School of Economics and Political Science (LSE), building communities centered around the principles of a circular economy (Hazaar 2024b; 2024a). These platforms demonstrate successful models of student engagement, sustainability, and localized trading while most importantly reducing the financial burden for basic goods (see Appendix 41 for a more detailed breakdown of Lende and Hazaar).

Recognizing the absence of a student marketplace in Lisbon or Portugal in general that specifically caters to student needs and inspired by successful examples like Lende and Hazaar, the WP team proposes to create a dedicated platform for Nova SBE. This student marketplace will serve as a central hub where students can buy, sell, lend and borrow items among their peers, promoting accessibility, affordability, and sustainability. For instance, items like vacuum cleaners, sports equipment such as padel rackets, pans, and clothes racks are commonly needed by students but are typically used only for the short period of their studies. This makes them ideal for resale to other students. The mobile app should feature a simple and intuitive user interface, ensuring ease of use for all students and allowing them to conveniently access the

marketplace anytime, anywhere. The name "NovaMart" combines the school's name, "Nova," with "Mart," signifying a marketplace.

The following section outlines the envisioned design and functionality of the student marketplace NovaMart. It details implementation options, highlights core features, and presents a prototype to illustrate both its visual and functional aspects.

The primary marketplace should be a mobile app, as most students prioritize easy access via their phones. An interview with the KDM Sofia Cilia on October 25, 2024 revealed that many measures, like Nova SBE's carpooling app, are overlooked by students due to lack of awareness or inconvenient formats (see Appendix 29 for meeting overview). Therefore, the WP team prioritizes aligning with students' preferences. The survey results revealed that students place particular importance on factors such as easy access to items, straightforward handling, and seamless communication (see Appendix 42 for detailed survey results). The WP team has developed three implementation options for the mobile app, each requiring different levels of resources, which can be aligned with Nova SBE's available possibilities and support for the project (see Appendix 43 for a detailed breakdown of the implementation options). The first option consists of **hiring a freelancer** to design and develop the student marketplace app. This approach involves defining the project scope, key features, and budget, followed by selecting a freelancer with relevant experience and strong reviews, sourced from platforms like upwork (Upwork® Global Inc. 2024). The freelancer would be responsible for both the app's design and development, ensuring a tailored solution. The second option involves partnering with **CampusGroups**, an all-inclusive platform with an established system that can seamlessly integrate a student marketplace into existing systems. This solution is highly adaptable and allows for future expansion to include additional features. For instance, IE University leverages CampusGroups as an alumni event app, enabling alumni to network, conduct business, and

socialize. The third option is leveraging **internal capabilities**, such as the IT department, professors, or students with relevant expertise. This could also involve organizing a Hackathon to develop at least parts of the app collaboratively, fostering innovation and engagement within the university community. The WP team recommends pursuing the project with a hybrid approach, combining the engagement of a freelancer with the utilization of internal capabilities. Solely relying on internal resources poses the risk of overwhelming the involved parties, potentially affecting the project's success. For this reason, the WP team proposes developing the app in collaboration with a freelancer while utilizing internal resources for ongoing maintenance and support. While CampusGroups is a well-established platform offering numerous features and seamless integration with Nova SBE's existing systems, it comes with a relatively high cost. To create a successful app for the student marketplace, the following features should be included: The student marketplace will include core features such as straightforward item listing with photos, descriptions, and prices, advanced search and filter options, user accounts for buyers and sellers, secure direct messaging, and campus-specific pickup / drop-off points. Many survey participants expressed that they would highly value the introduction of on-campus collection points (see Appendix 42 for detailed survey results). Additional features could be: On-campus storage facilities to address the challenge of students arriving and leaving at different times, a dedicated section for student residences, a review and rating system to build trust, or a sustainability tracker (e.g., items reused, CO₂ saved) for added convenience. The WP team developed a prototype showcasing the potential design of the NovaMart app for the student marketplace (see Appendix 44). The primary focus was on creating a clean, modern, and student-friendly interface to ensure ease of use and broad appeal. The WP team also developed a prototype for a campus-specific pickup and drop-off point. For further details, including a description and the corresponding banner design, refer to Appendix 44. The WP team envisions the NovaMart app as an intuitive and efficient platform tailored to

the needs of the Nova SBE community. The proposed **customer journey** begins with a simple onboarding process using university credentials, granting users access to a user-friendly interface. Here, they can easily browse or search for items, view detailed listings, and create their own posts. The app facilitates direct communication between buyers and sellers, enabling seamless negotiations and arrangements for pick-ups at designated campus drop-off points, eliminating the need for shipping. Post-transaction features like optional feedback ensure a smooth and reliable user experience, fostering sustainability and convenience within the Nova SBE ecosystem. A detailed description can be found in Appendix 45. For the **go-to-market strategy** of the student marketplace concept, the WP team recommends launching a Minimum Viable Product (MVP) centered on core features. This approach allows for an efficient assessment of user interest and usability while minimizing initial development costs. This MVP would include a basic app allowing users to list items and communicate with buyers via direct messaging. To further streamline the initial implementation, a payment gateway would not be included. Instead, students would be encouraged to exchange items on campus, leveraging its safe and trustworthy environment. Should the concept demonstrate sustained interest and demand among students, the app could be expanded over time with additional features to enhance functionality and user experience.

8.5 VCW Phase 5 – Consolidate Value (Operate)

With all these options and ideas outlined, the next steps involve handing over responsibilities to the individuals or teams taking ownership of the project, initiating the development of the website and app, and engaging the target audience through clear and effective communication. These steps will ensure a smooth transition, set the foundation for a successful launch, and generate awareness and interest among the intended users.

Through **the business model canvas**, the WP team identified the core focus of the NovaMart idea, outlined the key steps for implementation, and established priorities to ensure its successful development and integration. The main customer segment for NovaMart includes all Nova SBE students, undergraduates, postgraduates, and exchange students, with alumni and faculty members as secondary groups. The goal is to create value for these audiences by providing a single platform where students can buy, sell, or exchange goods, helping them reduce their living expenses effectively. A key focus is fostering a sense of community among students, staff, and faculty while tailoring the platform to the specific needs of Nova SBE. The primary platform will be the NovaMart app, supported by promotion through the Nova SBE website, social media, on-campus campaigns, and a dedicated NovaMart website. The initial focus is on growth rather than revenue, but over time, strategies like transaction fees, in-app advertising, and sponsorships with local businesses or brands could be implemented to ensure sustainability. To achieve this, the right team, technological infrastructure, and a budget for development and maintenance are required. The immediate priorities are obtaining approval for implementation and initiating app development, which will require support from Nova SBE administration and skilled app developers. A detailed overview can be found in Appendix 46.

The idea of creating a student marketplace through the implementation of the NovaMart app further requires careful **consideration of the 4Ms**. In terms of team (Manpower), the Life at Nova SBE department will take the lead. The WP team recommends collaborating with students in this endeavour, as one of the ideas that successfully passed the MCDA matrix evaluation was the suggestion that student committees could support the Life at Nova SBE department. A department member proposed partnering with the student union, emphasizing their existing collaborative relationship and the potential to leverage this partnership for greater impact. This presents an excellent opportunity to introduce and implement this initiative. Regarding time (Minute), the project is demanding, with the app development alone requiring approximately

five to six months, which would push the go-live date toward the end of 2025 (see Appendix 47 for a detailed timeline) (Nagar 2023). From a financial perspective (Money), the budget will depend on the features included, but partnering with other departments or student clubs could make it more feasible to allocate the necessary funds in the next fiscal year. Despite these challenges, the Motivation of the involved parties remains high, given the broad opportunities this initiative offers.

Evaluating the KPIs established by the WP team at the beginning reveals that most of the project-related KPIs, specifically those focused on understanding the problem, designing viable ideas, and fostering collaboration, have been successfully achieved (see Appendix 33 for the evaluated KPIs). The WP team was particularly delighted to note that KDM Sofia Cilia rated her satisfaction with the overall project outcome thus far as a perfect five out of five. However, KPIs directly tied to implementation will need to be evaluated at a later stage by the Life at Nova SBE department or potentially the VCW Ecosystem team, as the project will continue to be completed the coming months. Regarding the student survey, the WP team set an ambitious target for engagement. Despite extensive efforts to disseminate the survey widely, the WP team was unable to reach the anticipated number of participants.

In conclusion, this section provides final reflections and explores the broader implications of the NovaMart concept. The student marketplace, embodied by the NovaMart app, offers a practical response to rising living costs while fostering stronger community connections and promoting a circular economy. This aligns closely with Nova SBE's vision for sustainable development. The concept's key strength lies in its scalability and adaptability. The mobile app can launch as a MVP with basic features and be enhanced over time with additional functionalities. Unlike larger-scale initiatives, NovaMart represents a realistic, student-driven solution that effectively addresses the challenges of increasing living expenses while simultaneously strengthening the Nova SBE community.

9 Outcomes

The following section presents a detailed analysis of the outcomes of this work project, highlights identified synergies, and explores how the findings can inform future research and be applied effectively in other institutional contexts.

9.1 Consolidation of Outcomes and Synergies Across the Three Challenges

The mobility, living expenses, and alumni challenge are distinct in nature, yet the WP team observed several overarching **trends across all three challenges**. First, sustainability emerged as a key priority for both the school and the KDMs, not only in the environmental sense but also in the form of finding long-lasting solutions. Second, communication with students was highlighted as an essential yet underutilized resource. Many stakeholders mentioned that they rarely interact with students, despite greatly valuing their input, perspectives, and insights. As outlined in the value creation concept, this leads to better outcomes and valuable learning opportunities. Third, KDMs consistently encouraged the WP team to propose digitalization ideas, emphasizing solutions that integrate seamlessly into existing systems rather than relying on entirely new technologies, which aligns with Nova SBE's mission of making a sustainable impact. Finally, all measures are ultimately aimed at enhancing Nova SBE's reputation and increasing its appeal to prospective students, driving the school closer to its ambition of becoming a top-tier institution under the motto: "On Our Way to the Top." (Nova SBE 2023a).

Throughout the research, the WP team observed **significant similarities between challenges, ideas, and solutions** within the organization, uncovering interconnected opportunities to address issues strategically. For instance, while addressing the living expenses challenge, the WP team recognized its multifaceted nature and broke it down into various aspects, including a transport and mobility part. Ideas such as promoting carpooling, improving public transportation efficiency, and implementing campus shuttles emerged as top solutions. Interestingly, these ideas also feature among the final solutions for the mobility challenge. By

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leveraging this overlap, resources can be optimized, leading to more efficient and sustainable processes. Similarly, the alumni challenge, though seemingly unrelated to the others at first glance, revealed shared methodologies and connections. The alumni challenge serves as an overarching baseline for the other two challenges, as alumni play a crucial role as stakeholders in both the living expenses and mobility challenges. For example, alumni insights are critical for initiatives such as the alumni tuition support program or the campus shuttle, where their experiences and opinions help shape viable solutions. Alumni also directly contribute to the success of these challenges. A notable example is the prioritization of alumni during Nova SBE's fundraising efforts for the new campus, highlighting their essential role in the school's growth and development (Meeting with Madalena 21.11.2024). Besides that, the WP team utilized the Hackathon concept, originally proposed within the alumni challenge, to develop at least parts of the programming components for all three final solutions. This demonstrates the potential for leveraging creative ideas from one area to create impactful solutions in others. These findings highlight the deep interconnectedness of the three challenges, offering complementary insights and emphasizing the importance of strategic thinking in addressing organizational challenges holistically.

Certain **commonly applicable filters**, with generalized importance and usability, were used across all three challenges. During our meeting with Dean Pedro Oliveira, the WP team discussed the most crucial filters for evaluating solutions, and he highlighted cost, cost-benefit analysis, resources, and sustainability as key priorities. These filters are likely reflective of the challenges faced by many organizations, which must operate within constraints, not only financially but also in terms of available FTEs and other resources. This underscores the importance of the resource-based view of the organization and developing practical, resource-efficient solutions. On the topic of cost, Dean Pedro Oliveira emphasized: "Keeping in mind that cost is a challenge will help us in the end with the implementation, if the cost is too high,

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we might not be able to accommodate it in the end.” (Meeting 04.11.24). This statement illustrates that cost considerations are vital filters by many KDMs and lead to the feasibility of implementing most projects. The SWOT analysis highlights Nova SBE’s reliance on tuition fees and government funding, suggesting less financial flexibility than other organizations. The cost-benefit analysis further underscores the importance of aligning budgets with the scope of solutions. For example for the living expenses challenge, building social student dorms demands a significantly higher budget compared to implementing a food waste agreement with Pingo Doce and campus restaurants. Tailored budgeting is essential to ensure projects are viable and proportionate to their scale. Regarding resources, Dean Pedro Oliveira stressed the need to align proposed solutions with the limited resources available to ensure they remain practical and feasible. This includes not just financial resources but also human and operational capacity. Sustainability is a critical priority, as Nova SBE is deeply committed to the Paris Agreement and the 17 United Nations Sustainable Development Goals (SDGs) (Nova SBE 2021). To recognize the SDGs critical role in fostering a sustainable future, proposed solutions must align with these expectations, focusing on long-term impact and fostering sustainable success. The emphasis is on creating solutions that are not only effective but also enduring. Beyond these primary filters, the WP team, through its research and analysis of the project funnels, identified additional filters that are broadly applicable across challenges and organizations. These include reach of the solution (number of people impacted), implementation time (feasibility within a reasonable timeframe), alignment with Nova SBE’s vision (reflecting strategic goals), maintenance (long-term sustainability and support), (technological) feasibility (realistic execution with available resources), and scalability (ability to grow and adapt to future needs). These filters provide a comprehensive framework for evaluating and prioritizing solutions, ensuring they are impactful, feasible, and aligned with Nova SBE’s vision for sustainable and strategic development.

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Throughout the VCW process, the **WP team learned many lessons**. For instance, the importance of effective communication and structured collaboration. In-person meetings proved significantly more efficient than email exchanges, helping to prevent misunderstandings and streamline decision-making. Fixed meeting schedules with clear agendas were crucial, as was being specific about next steps, expectations, and deadlines for KDMs. Persistent follow-ups ensured progress and accountability. This is particularly important, as developing collaborative capabilities is a fundamental requirement for an ecosystem to function effectively. The role of the KDM emerged as critical. A successful project requires a KDM who possesses both the authority to make decisions and the availability to engage actively at all stages, particularly during critical phases and final implementation steps. Supporting KDMs with detailed explanations of processes, especially for complex tasks like ranking the filters and helping to guide the ideas through the VCF and MCDA, was essential to their effective participation. The WP team also recognized the importance of carefully formulating and adhering to the defined challenge. For example, when addressing the mobility challenge, some compelling ideas emerged but required refocusing to align with the core objective. Flexibility was vital as well. While the framework provided structure, projects often took unpredictable turns. Stakeholder unavailability, infeasible ideas, or the need to revisit earlier stages, such as in the alumni challenge, required adaptability. Collaboration with multiple internal and external stakeholders enriched the process by providing diverse insights, while creative methods like brainwriting generated innovative ideas. Listening to the three decades of VCW expertise and feedback of Luis Filipe Lages and KDMs further strengthened the project. Finally, the most important lesson was that the success of any project relies heavily on strong communication and a well-coordinated, functioning team. A unified and collaborative approach, fully aligned with the VCW methodology, proved to be the foundation for achieving impactful outcomes.

9.2 Analysis of the VCW Ecosystem Project and Implications for the Future

To demonstrate the need, value and feasibility of the VCW Ecosystem the WP team analysed previous student-led VCW projects through interviews with the project KDMs (see Appendix 8). Susana Lopes, Chief Librarian at Nova SBE, emphasized the importance of long-lasting support for effective implementation, highlighting her preference for engagement and feedback-driven collaboration with students. Vanda Verissimo highlighted a gap in project implementation due to a transition lapse. This issue, identified during VCW monitoring, has been resolved with Rogério Marchante assuming responsibility. Susana Santos praised the phased approach for its clarity and ease of use, demonstrating the value of the VCW methodology. All KDMs from this work project were highly engaged, appreciated stakeholders and Master students' input, and valued the outcomes of the three challenges, reflecting a shared enthusiasm for ongoing collaboration with the VCW team. Similarly, students in workshops showed significant interest in solving the challenges, showcasing the feasibility of the VCW Ecosystem and the value of including "customers" in the ecosystem to co-create and achieve better outcomes.

The VCW Ecosystem is essential for capitalizing on the abundance of numerous challenges and creative ideas at Nova SBE, by providing the structure necessary for industrializing the innovation, decision making, and problem-solving process. The VCW and the VCW Ecosystem foster open innovation, address resource constraints (human, financial and temporal), and resolve inconsistencies in stakeholder alignment and communication. By improving collaboration and establishing clear processes and responsibilities, the VCW Ecosystem ensures that implementation is actionable. Adopting the VCW Ecosystem aligns with Nova SBE's strategy and long-term goals, such as sustainability and digital transformation, positioning the institution as an European leader in innovation (Nova SBE 2024i). It helps Nova SBE to create a competitive edge among universities, improves stakeholder satisfaction, and reinforces its

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reputation for excellence. To summarize, the VCW Ecosystem fulfils two primary needs: improving communication and collaboration between departments, students, professors, partners and other internal and external stakeholders, and establishing structured processes to ensure effective industrialization and implementation of innovative solutions.

The VCW Ecosystem is structured as a centralized model, with individual departments granted autonomy to address their specific challenges in a decentralized manner, similar to Berkeley's approach. By embedding the VCW Ecosystem within the Dean's purview, the initiative ensures strategic oversight, institutional buy-in, and long-term success. Statements from KDMs, such as Sofia Cilia, underscore the importance of centralized authority to drive the process (Dean meeting 04.11.2024). This proves the point made by Peter Drucker emphasising the need for leadership to prioritize innovation (Drucker 2002).

The 4 Ms, money, Manpower, Minute and Motivation are hurdles to overcome. Therefore, the WP team suggests implementing a **Governance Model** that is aligned with the available resources. The VCW Ecosystem is anchored by strong leadership, starting with **the Board** that consists of the Dean and the President of the Scientific Council, who are already aware of the 80+ challenges faced by Nova SBE. They play a pivotal role in launching these challenges without requiring additional resources. Beyond this, other stakeholders can also propose and initiate challenges, broadening the scope and impact of the ecosystem. This is especially the case for the **Departments and Organic Units** that support the process with their expertise. They act as the KDMs for respective challenges and need to have the 4 Ms. At the core of the VCW Ecosystem is a dedicated **VCW team** led by Luis Filipe Lages, supported by a growing number of employees and students that support the KDMs. Master's students act as consultants on courses, theses, or projects, gaining experience while enhancing job opportunities at the school. As Luis Filipe Lages explained in the alignment meeting on November 04, 2024 "The power of building the VCW Ecosystem lies precisely in engaging students to identify problems

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and develop solutions because these challenges are directly relevant to them”. This approach ensures creating value by maximizing existing resources and minimizing costs.

The VCW framework proofed itself as a powerful and versatile tool, designed to foster co-creation, innovation, decision making, and problem solving. By integrating stakeholder insights, it engages KDMs to deliver practical, actionable solutions (Luis Filipe Lages 2016). All KDMs involved in the project were familiar with the tool and found it easy to work with, demonstrating its accessibility and effectiveness. Especially Phase 2, the generation of ideas and filters, was highly appreciated. To scale the VCW Ecosystem, the VCW Lab at Nova SBE will launch a Certification in January 2025, training over 150 participants from diverse industries to use the VCW methodology.

As an improvement area for the VCW, the WP team identified the difficulty KDMs face in ranking numerous filters during Phase 4 (VCF and MCDA). To address this, the team conducted a structured analysis of the filters, using criteria such as how frequently each was mentioned in workshops to create a shortlist, which KDMs found helpful for simplifying decisions. To further tackle this aspect in future projects, the WP team proposes several solutions. The VCW team can preselect filters and use AI to cluster and reduce their number, streamlining the process. Additionally, during brainstorming sessions, filters can be classified as “must-have” or “nice-to-have” from the outset, making revisions easier for the KDMs. A library of frequently used filters, supported by both software solutions already developed by the VCW team, might become critical to provide quick and consistent references, showcasing the VCW framework’s adaptability and commitment to improvement.

The dynamic **Network of Partners** is built on internal stakeholders such as students, staff, and faculty, whose motivation to address internal challenges was activated through workshops and this work project. External partners, including UberTransit, public transport providers, other

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universities and CampusGround were engaged during the project. The network has potential for further expansion since market complexities, emerging technologies and increased competition, shifted value creation to co-creation. Consumers, companies, communities, and professionals now collaborate to define and create value, engaging through communication channels, social media, open innovation, or digital platforms (Prahalad and Ramaswamy 2004).

Industrializing innovation, decision-making, and problem-solving within Nova SBE requires a **structured approach for implementation**. The WP team identified solutions for successful implementation which differ in their degree of complexity and resources needed. A key strategy is to engage teams interested in solving internal challenges, whether by forming diverse new groups or involving existing student clubs, through targeted advertising and LinkedIn outreach. Offering incentives for voluntary student participation and hosting regular VCW Funnels, VCW Sprints and VCW Open Innovation Workshops with diverse stakeholders will foster active involvement. Additionally, promoting the VCW course and allowing students to tackle internal challenges will further boost engagement and hands-on learning. On a medium complexity level, creating a webpage where challenges, ideas, and filters can be posted and shared would encourage transparency and collaboration. For long-term scalability, more advanced initiatives like the engagement of the board are necessary. Enhancing the VCW software solution to support project work could streamline operations but would require additional funding. Successful implementation will depend on the integration of technology, targeted training, and fostering motivation through increased awareness and organizational alignment. Ultimately, the most important step is turning ideas into action, therefore a kick-off event for the VCW Ecosystem, to be held during the VCW Journey Certification Workshop in January 2025 serves as a valuable catalyst and marketing tool to raise awareness.

The success of the VCW Ecosystem relies on strong support from the Dean, President of Scientific Council, KDMs, organizational visibility, and clear accountability with dedicated

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project leaders. An obstacle commonly discussed in the literature is the resistance to change within organizations, which can significantly hinder the adoption of new processes or systems. “This resistance is the outcome of change recipients’ cognitive and reactions towards change” (Wah Khaw et al. 2022, 19137). To address this challenge, it is essential to have strong leadership support (Wunker 2024). A **change of mindset** is crucial not only for implementing the VCW Ecosystem but also for addressing each individual challenge, as emphasized by Luís Veiga Martins. To support this, the WP team has consolidated the outcomes and insights from the VCW Ecosystem Project into Kotter’s 8 Steps for Leading Change, with specific measures assigned to each step (Kotter 2024).

Create a Sense of Urgency: By implementing the VCW at the Dean’s level and addressing unfulfilled challenges alongside ambitious goals, the VCW Ecosystem highlights the immediate need for action. **Build a Guiding Coalition:** The Governance Model ensures leadership alignment and collaborative oversight. **Form a Strategic Vision:** The VCW Ecosystem fosters exchange among internal and external stakeholders, solving challenges together as a united community striving for innovativeness and excellence. **Enlist a Volunteer Army:** The VCW team mobilizes stakeholders like students, staff and professors to lead and support. Certified and trained people will become multipliers of the VCW methodology. **Enable Action by Removing Barriers:** Breaking silos and creating a structured process through the VCW methodology ensures no idea is lost. **Generate Short-Term Wins:** Workshops and student projects act as tangible starting points to showcase early success. **Sustain Acceleration:** Building on initial wins, the scale of the projects increases. They integrate technological solutions and enhance professionalism. **Institute Change:** The VCW Ecosystem initiates new behaviours into the organization’s culture, linking them to lasting success until they become second nature (Kotter 2024).

9.3 Analysed Project Objectives and KPIs

The assessment of Nova SBE's VCW Ecosystem project highlights strengths and areas for improvement. KPIs established at the outset measure progress in teamwork, decision-making, and reputation (see Appendix 11 for objectives, KPIs, and their status). Short-term goals, crucial for laying a strong foundation, have been largely achieved. Teamwork and stakeholder satisfaction scored five out of five, reflecting improved communication, collaboration, and alignment with expectations. Timely stakeholder meetings and biweekly feedback sessions ensured consistent progress. Medium- and long-term KPIs, such as interdepartmental ties, leadership communication, and reputation, remain unmeasured pending full implementation of the VCW Ecosystem (see Appendix 11). While early results are strong, sustained focus on stakeholder engagement and collaboration and co-creation is essential to fully realize the ecosystem's potential for innovation and institutional growth. The VCW Certification will help to achieve this medium- and long-term goals.

9.4 Future Directions on Scaling the VCW Ecosystem

The work project explores how Nova SBE can industrialize innovation, decision-making, and problem-solving within its organization by implementing the VCW Ecosystem. By addressing three internal challenges using the VCW methodology, the project demonstrates how the structured ecosystem approach integrates governance, a robust network of partners, and a dynamic VCW team as well as organizational units to drive actionable solutions.

The project underscores the critical role of motivation and an innovative mindset in implementing the structure organization-wide. Motivation and innovation are deeply embedded in Nova SBE's culture, however like in any organization, challenges are inevitable. This became evident early in the project, as the initial brainstorming session produced a comprehensive list of issues to address. However, as Sofia Cilia emphasized during the final

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alignment meeting on December 9th, “the solutions are within the community”. The VCW Ecosystem provides a structured approach to uncovering the solutions to address these challenges. Until now, student insights and involvement in the process have been underutilized, presenting an opportunity for greater engagement moving forward. The WP team enriched the problem solving by applying a meta-framework, incorporating various tools and methodologies across the VCW phases. This approach ensured engagement of internal and external stakeholders. These partnerships leverage existing infrastructures, create collaborative capabilities, and creating mutual value. The findings affirm that a well-structured and standardized ecosystem like the VCW Ecosystem not only resolves immediate challenges but also fosters long-term organizational innovation, collaboration, decision-making, and problem solving.

The WP team explored the potential to industrialize the VCW Ecosystem at Nova SBE, laying the foundation for further research, implementation, and scaling of this system for innovation, decision-making, and problem-solving. Nevertheless, the team identified specific limitations that need to be addressed for broader applicability. While the methodology proved effective at Nova SBE, their adaptability and scalability in other contexts needs to be tackled in a structured way. The VCW Ecosystem’s implementation demands significant resources, financial, temporal, and expertise, that may not be universally available. Currently, the project primarily focuses on internal challenges involving only Nova SBE Master students in the project and the workshops, leaving its integration into a broader ecosystem unexplored. This aspect requires further development as the VCW Ecosystem is rolled out. Tailoring solutions to Nova SBEs specific internal context restricts their adaptability to different environments or institutional changes. Moreover, an initial adoption in other industries and institutions requires VCW consultants, workshops and VCW Certifications introducing the methodology and the tool, adding another layer of dependency during the introductory phase.

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To scale the VCW Ecosystem beyond Nova SBE requires transitioning from a tool-centric to a holistic ecosystem approach, supported by dedicated resources and well-defined strategies for successful scalability. Training materials such as workshop videos, detailed guides, the VCW Certification, and digital platforms can facilitate adoption without direct involvement from the VCW team or its founder, Luis Fillipe Lages. Understanding and addressing the unique challenges of other institutions and industries is crucial. For instance, universities often face resource limitations, while corporates may have financial capacity but lack human resources for implementation. Further research must explore these differences to adapt the VCW Ecosystem effectively for diverse contexts. Therefore, a key research question emerges from this expansion: How does the application of the VCW Ecosystem differ across universities and corporates, and what specific resources or strategies are needed to ensure its success in these varied environments? While the framework works effectively within Nova SBE, scaling it to broader contexts requires industrialization across countries and industries, emphasizing standardization across the globe. Standardizing and automating the VCW Ecosystem can address its current limitations and serve as first suggestions to make it adaptable on a global scale. As discussed before, digital platforms, customizable templates, Certification, and comprehensive standardized implementation guides are essential for scalability. Furthermore, participation in summits, conferences, and collaborative projects can also elevate the VCW Ecosystem's global recognition and foster its adoption across industries. The continuation of connections with all the schools at Nova University of Lisbon, various Portuguese Universities and leading institutions across different countries (e.g., MIT, Babson College, City University of Hong Kong, Vienna University) keeps enhancing its credibility in global academic and business circles. The continuation of partnerships with Fortune 500 and integrating into larger innovation hubs and networks provides additional opportunities to leverage resources and expertise. Lisbon, as a leading European innovation hub, offers fertile ground for collaboration

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through entities like Unicorn Factory Lisboa (2024) and Web Summit (2024), where the VCW was on the grand stage. These platforms connect the VCW Lab @ Nova SBE with startups, entrepreneurs, and transformative ideas, aligning the VCW Ecosystem with cutting-edge trends and challenges. Such partnerships expand the Ecosystem's network and relevance while positioning it as a benchmark for innovation excellence. By actively participating in these networks, the VCW Ecosystem can bridge academia and industry, addressing complex global challenges and enhancing its scalability and reputation.

Emerging technological trends indicated in the Gartner Hype Cycle 2024, such as spatial computing and digital twins, further enhance the framework's potential (Gartner Inc. 2024). For instance, immersive AR and VR technologies can transform VCW workshops, enabling interactive problem-solving and multidimensional data exploration (Gartner Inc. and Resnick 2024). By integrating these technologies, the VCW Ecosystem can align with the demands of modern, creativity-driven organizations.

While these advancements present exciting opportunities, they also require careful implementation and analysis. Longitudinal studies will be critical to assess the long-term efficacy, while comparative research will help evaluate the Ecosystems adaptability in different contexts. As the VCW Ecosystem evolves, it must remain attuned to technological and organizational trends to sustain its relevance and impact.

10 Conclusion

Reflecting on the project, Nova SBE's Dean emphasizes the value of involving students into the project and problem solving, a practice that underscores the importance of following the customer journey and listening deeply to customers. This approach ensures the creation of mutual value and yields solutions tailored to real needs. The VCW Ecosystem's success at Nova SBE serves as a model for innovation, decision-making, and problem-solving that integrates

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diverse perspectives and adapts to complex challenges. Its future lies in scaling its impact, standardizing its application, and embracing emerging technologies to become a globally recognized system for fostering innovation, decision-making, and problem solving.

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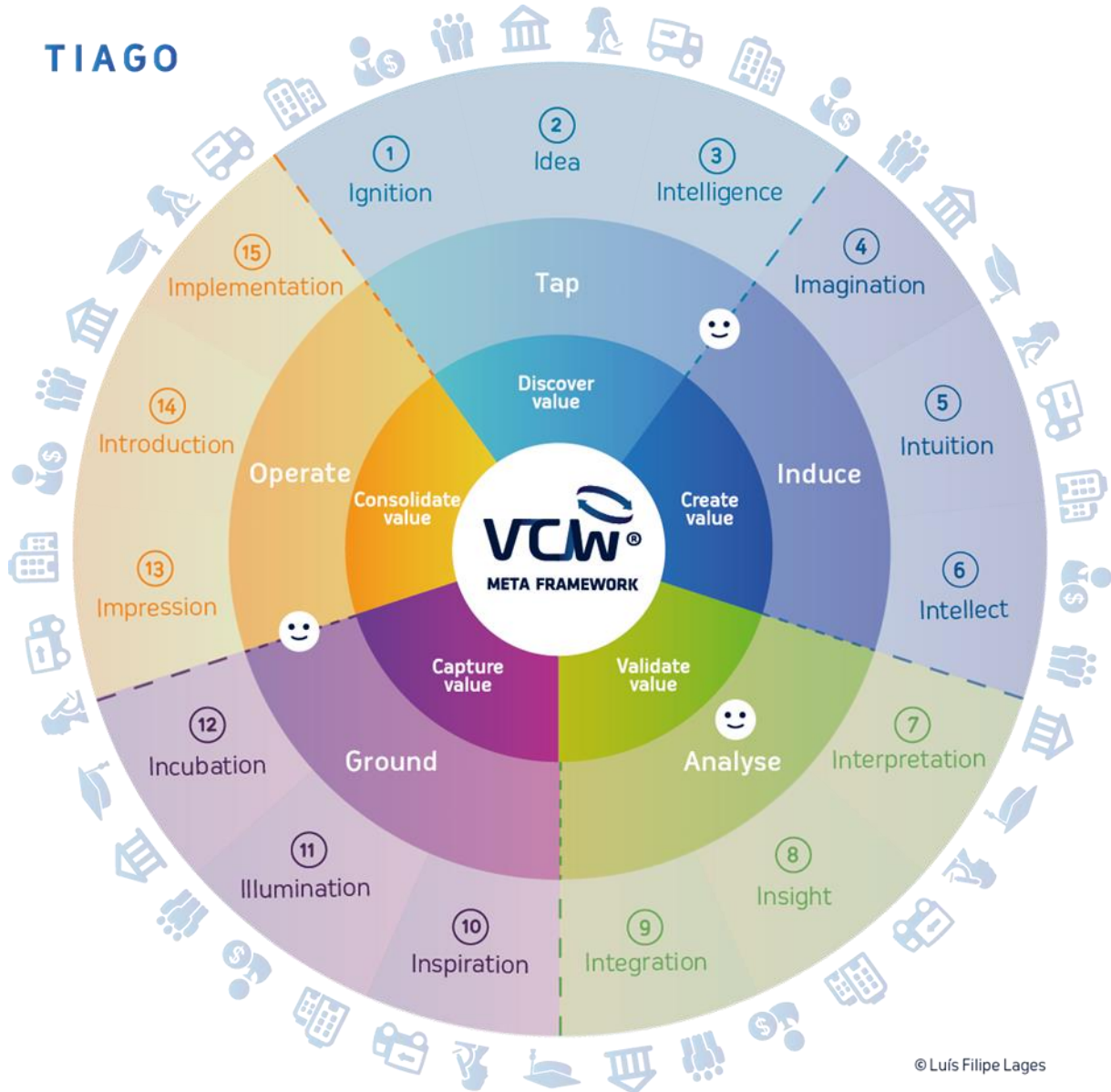
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Group part

Appendix

A – Group part

Appendix 1: VCW Meta Framework (TIAGO)



Source: Value Creation Wheel, 2024d

Appendix 2: PESTEL analysis

Political	Economical	Social
1. Portuguese government funding and policies significantly influence Nova SBE's budget, shaping its	1. Portugal's ranking in the Global Innovation Index 2024 ranks only 20 th among the 39 economies in Europe	1. Nova SBE has a strong network of partners (e.g., alumni, industry) that are key assets in creating an

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<p>ability to implement internal innovations and process improvements (Ferreira Gomes 2024).</p>	<p>indicates room for improvement, motivating Nova SBE to be a leader in innovation ('Global Innovation Index' 2024).</p>	<p>VCW Ecosystem (Nova SBE 2024p).</p>
<p>2. The Portugal 2030 strategy emphasizes innovation, competitiveness, and energy transition, encouraging organizational changes that align with government priorities for sustainable development (Portugal 2030 2024).</p>	<p>2. R&D investment program foresees reaching 3% of GDP by 2030: The national R&D investment goal of reaching 3% of GDP by 2030 provides significant funding opportunities for research and development. Nova SBE can tap into this increased funding to drive innovation initiatives, attract talent, and collaborate with industries, thereby strengthening its role as a hub for innovation within the broader national strategy (Foundation for Science and Technology 2024).</p>	<p>2. Portugal is home to a thriving entrepreneurial ecosystem, supported by progressive policies that attract significant international investment. The country's startup landscape is highly dynamic, with innovative ventures emerging across diverse sectors, including Fintech, Tourism, Renewable Energy, and Agri-tech. This robust growth positions Portugal as a leading hub for innovation and entrepreneurship in Europe (Financial Times, n.d.).</p>
<p>3. As member of the EU, Portugal can make use of the EU's research and innovation programs, also Nova SBE as a public university benefit (European Union 2024).</p>	<p>3. Lisbon, close to Nova SBE, is an emerging as a European hub for startups, attracting tech companies and investors. The proximity to this growing entrepreneurial scene could enhance the VCW Ecosystem at Nova SBE (Financial Times, n.d.).</p>	<p>3. Portugal is facing an aging population and talent shortage, therefore Nova SBE has to attract national and international students (The Portugal News 2022).</p>
	<p>4. Portugal has a growing pool of highly educated young professionals. Nova SBE's ecosystem could benefit from the availability of a skilled workforce and the problem of brain drain (talented individuals leaving the country) it tackled by</p>	

	the Prime Minister in 2024 (Financial Times 2024c).	
Technological	Ecological	Legal
1. The Lisbon region, where Nova SBE is located, is growing into a tech hub with numerous startups and technology companies. Collaborating with this ecosystem can foster innovation (Euronews 2023).	1. Portugal incorporates the 2030 Agenda into its national strategies, plans and policies around the ‘5ps’ (people, planet, prosperity, peace, partnership). It identifies its priorities for SDG action with an environmental dimension as climate change (SDG 13) and life below water (SDG 14). Green innovative solutions are welcome (European Environment Agency 2020).	1. Data Protection Laws (GDPR): As part of the EU, Portugal enforces strict data protection regulations under the General Data Protection Regulation (GDPR). This could affect how Nova SBE and its innovation ecosystem handle data in research and development (Intersoft Consulting 2024).
2. Technologies like AI, blockchain, and data science are gaining traction in Portugal. Nova SBE’s innovation ecosystem could leverage these trends to create cutting-edge solutions (World Economic Forum 2024).	2. The university’s commitment to environmental responsibility and its impact on internal decisions (Nova SBE 2024n).	2. In 2023 Portugal introduced a new tax and legal regimes for startups and scaleups which encourages innovation (KPMG LLP 2023).
3. NOVA FCT strengthened its links with industry by signing a cooperation protocol with NOS, one of Portugal’s most prestigious telecommunications companies. Nova SBE has the possibility to be part of partnerships with the other Nova schools and industry partners (Nova FCT 2024).	3. As environmental concerns grow globally, there’s increasing pressure on institutions to integrate sustainability into their strategies. Nova SBE’s VCW Ecosystem could emphasize green tech, sustainable business practices, and environmental responsibility to align with these trends (Anitha 2024).	3. Nova SBE’s VCW Ecosystem has to adhere to the university’s guidelines.

Source: Created by WP team

Appendix 3: SWOT and TOWS analysis

Strengths	Weaknesses
Nova SBE has an ambition to grow and improve as a university with a focus on “the development and co-creation of innovative projects and top talent“ (Nova SBE 2024j).	A significant portion (53%) of the students is international which makes Nova dependent on international students and vulnerable to global events that can disrupt student mobility such as visa regulations, and health crises like COVID-19 (Nova SBE 2024p).
The school achieved rankings and accreditations like the Triple Crown (AACSB, EQUIS, and AMBA) and is ranked among the top 10 business schools worldwide (Nova SBE 2024m).	Due to being a young school and only be founded in 1978, Nova SBE has still a small alumni network size with 20.000 members in the Alumni Club. Therefore, Nova’s scale and influence globally may be less extensive than older, established institutions in the U.S. and U.K (Nova SBE 2024e).
Another strength is the international focus of teaching as all courses are taught in English, the school offers exchange programs and 50% of master students find jobs abroad (Nova SBE 2024p).	Due to high tuition fees for students, the access is limited to many. This may hinder diversity in socioeconomic representation (Nova SBE 2024l).
The modern campus, Nova’s facilities and services enhances students learning and the overall experience – “The Nova Way of Life” (Nova SBE 2024h).	Nova is competing with Europe’s best business schools and globally with other renowned institutions. Attracting and retaining top-tier faculty members is challenging, as well as getting the attention of talented students (Financial Times 2023).
Strong cooperate partnerships in Portugal and international with huge companies and institutions represent another strength of Nova and provides companies with “collaboration opportunities, from on and off-campus events to online activities or work projects” (Nova SBE 2024c).	The limited global brand recognition outside Europe especially compared to elite business schools in US and UK is another weakness. Despite the business school ranking Nova does not appear in university rankings for business studies outside Europe. Besides, students are mainly coming from Portugal, Germany and Italy and almost no students are coming from USA to study at Nova (Nova SBE 2023b).
Nova’s strong focus on research and innovation lead to 591 publications in the last 5 years (Nova SBE 2024p).	
Opportunities	Threats
With an increase of around 25% in the number of applications compared to the previous year 2022 and an increasing number	Increasing competition with other established business schools often leads to competing for

Group part

of incoming students, more revenue can be generated, and Nova’s reputation improves (Nova SBE 2023b).	the same pool of students and faculty (Financial Times 2023).
The rising interest and importance in sustainability and social responsibility among students, applicants and staff could be further enhanced by positioning Nova SBE as a leader in sustainable business research and practices (follow ESG’s and established the impact model, community engagement projects) (Nova SBE 2024n).	Economic instabilities and political uncertainties could decrease the number of incoming international students which affects revenue and reputation of Nova.
Another opportunity could be using the increasing publicity and brand recognition to expand in new markets outside Europe and emerging markets. Nova SBE could thereby broaden its influence, increase student intake, increase revenues, and create new research collaborations in these rapidly developing economies (Financial Times 2023).	A dependency on tuition fees and funding as revenue stream could threaten the financial stability of the school (Ferreira Gomes 2024).
Lisbon has been awarded as the European Capital of Innovation by the European Union with the launch of the Unicorn Factory and has been ranked top 10 of European’s leading startup hubs by the Financial Times. This represents an opportunity for Nova SBE to attract students and faculty interested in entrepreneurship and innovation, and could collaborate with local tech firms and startups (Unicorn Factory Lisboa 2024; Financial Times, n.d.).	

Source: Created by WP team

Strengths / Opportunities How can the strength be used to take advantage of the opportunities? What actions do we need to take to make use of the strengths?	Strengths / Threats How can these strengths reduce or remove these threats? What do we need to do to remove or reduce these threats?
Foster leadership in sustainability, research, and innovation by staying at the forefront of sustainability trends, which brings significant value to both students and faculty. Additionally, Nova has a strong	Strengthen and further grow the international alumni connections to improve networking and job placement, especially outside Europe (Nova SBE 2024e).

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<p>foundation in this field, demonstrated by its commitment to the UN Sustainable Development Goals (SDGs) and its established impact model. This foundation also attracts students and partnerships that share these values (Portugal 2030 2024; Nova SBE 2024n).</p>	
<p>Strengthen connections with companies in emerging economies outside Europe to tap into new markets and further expand Nova’s global reputation (Nova SBE 2024m).</p>	<p>Diversify the revenue streams to reduce the dependency on tuition fees and government fundings. This can be done through further corporate partnerships, grants, and sponsored research to improve Nova’s financial resilience (Ferreira Gomes 2024).</p>
<p>Use Nova’s modern campus, attractive offerings and unique learning experience as well as the increasing awareness and brand reputation to further attract international students also beyond Europe (Nova SBE 2024h). Additionally, use this strength to further tap into the opportunity of establishing corporate collaborations (Nova SBE 2024c).</p>	<p>Nova can offer more scholarships to attract diverse students from different socioeconomic backgrounds and mitigate the impact of high tuition fees (Nova SBE 2024i).</p>
<p>Moreover, this strength can be used to leverage the opportunity of Lisbon being among the top 10 startup hubs in Europe by collaborating with tech firms, startups and talented people to Nova’s innovation practices, research activities and learning experience (Financial Times, n.d.).</p>	
<p>Weaknesses / Opportunities Do these weaknesses prevent or risk these opportunities? Should we address the weaknesses? What actions do we need to take to remove the weakness?</p>	<p>Weaknesses / Threats Which relate to each other? Are there weaknesses that result in threats? Which elements should be addressed?</p>
<p>Enhance the global presence by partnering with international firms, offer the campus facilities as a place for events and conferences and establish digital programs accessible worldwide. Use Lisbon’s image as a global startup hub to raise awareness for Nova as a school (Nova SBE 2023b).</p>	<p>Nova’s limited brand recognition outside Europe can be severe when competing with other well established business schools. Nova needs to invest in competitive salaries and professional development to attract and retain top faculty members and resist competition (Financial Times 2023).</p>

Source: Created by WP team

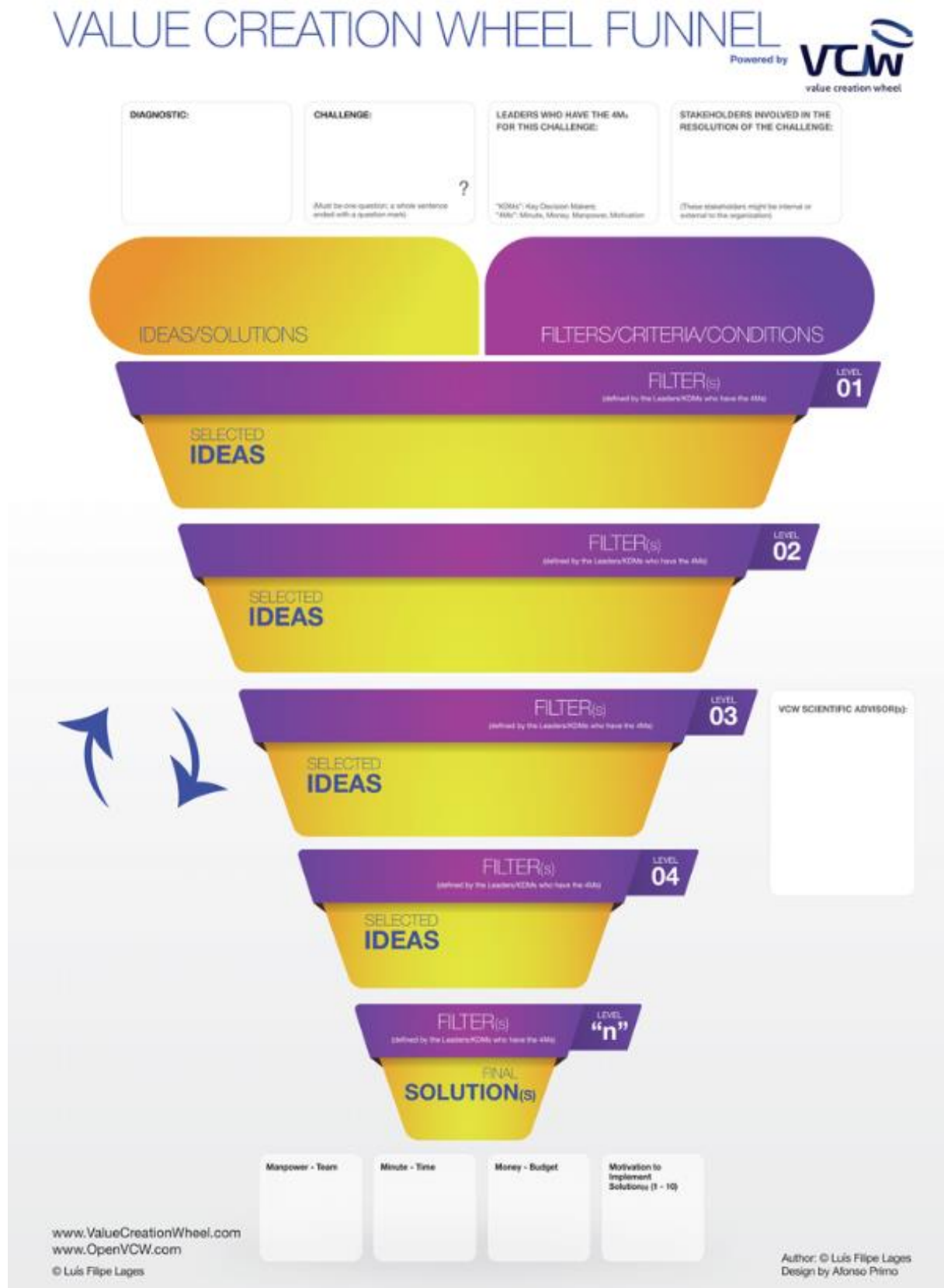
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Appendix 4: The VCW framework



Source: Lages, 2024

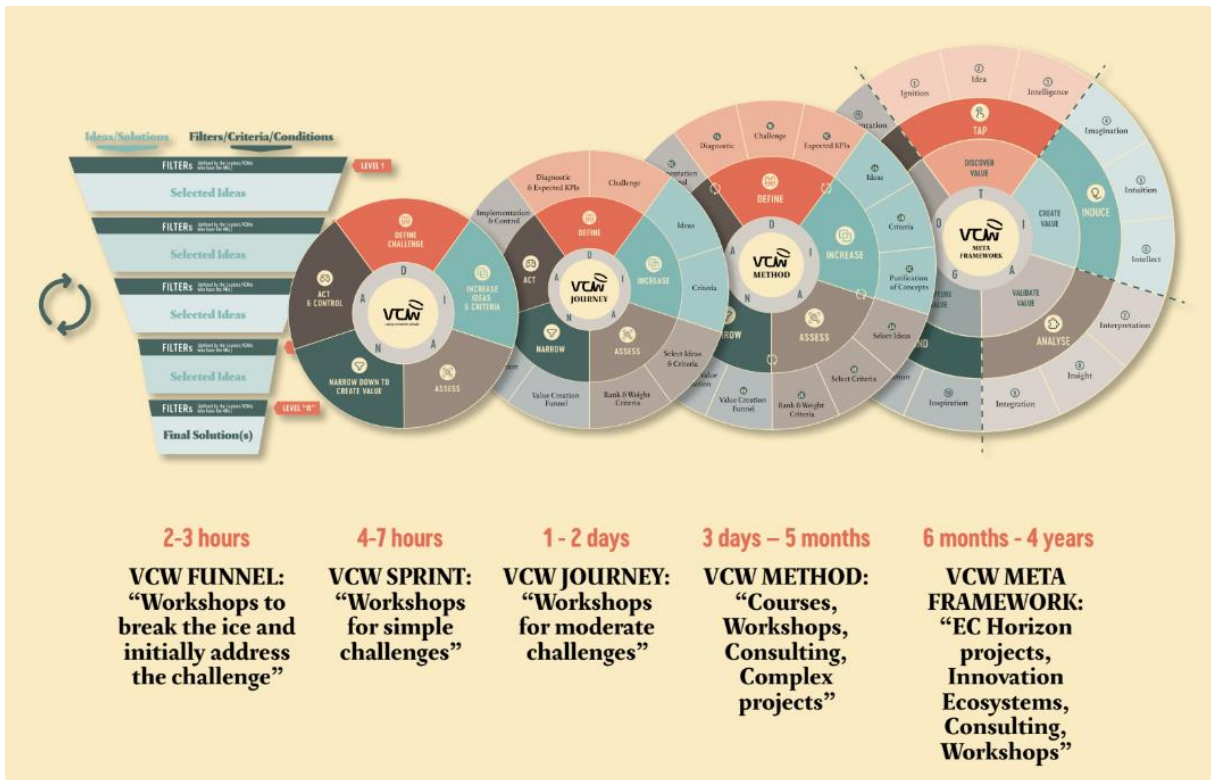
Appendix 5: The VCW funnel



Source: Value Creation Wheel, 2024b

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Appendix 6: The VCW funnel and the four VCW frameworks

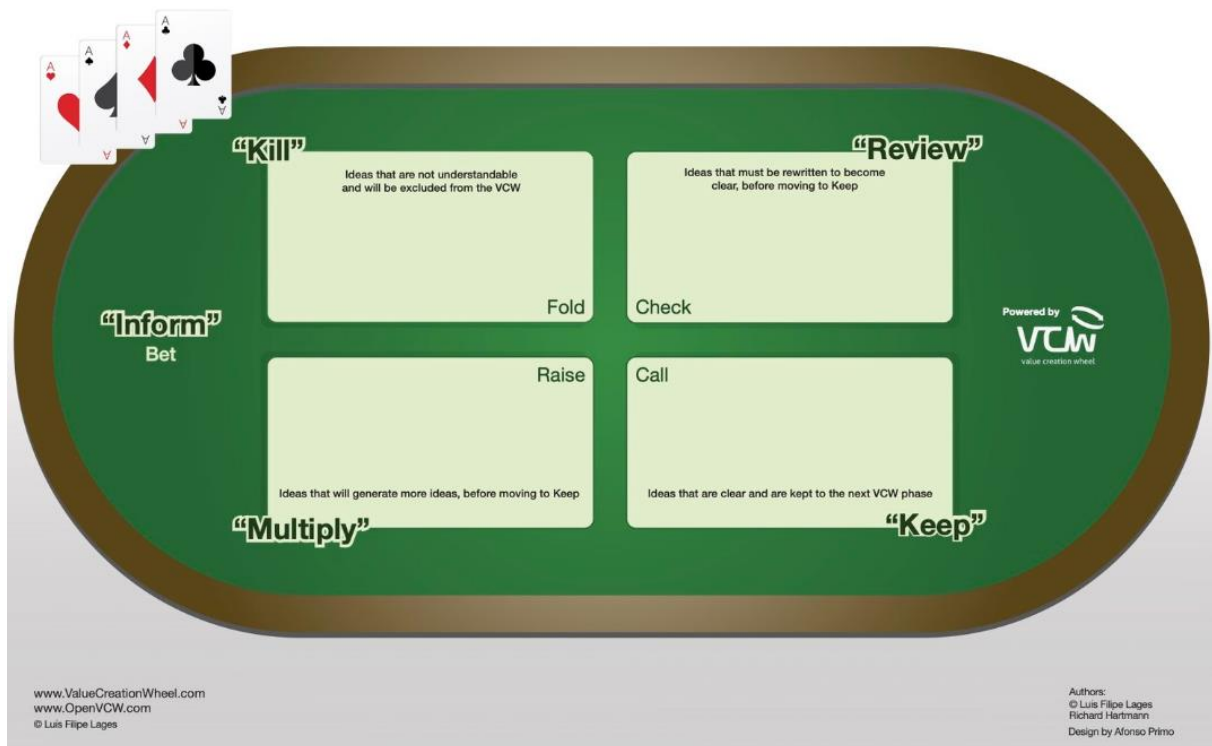


Source: Lages, 2024

Group part

Appendix 7: POKER method

POKER METHOD



Source: Value Creation Wheel, 2024c

Appendix 8: Meetings with KDMs from previous projects

Date	Participants	Topic	Project Details	Meeting Topics
17.10.2024	Susana Lopes, WP team	Insights on previous project for the library	The final solution proposed to the library team was the following: Adoption of a mobile application, incorporating the Skedda software (Value Creation Wheel 2023) (see video under the reference for more details of the project). According to Susana Lopes, the solution was not implemented because it was not deemed the right fit for their needs. Additionally, she lacked the authority to	What went good / what went bad? Did implementation take place? Is there a need for the VCW Ecosystem Insights on the project and KDM experience

Group part

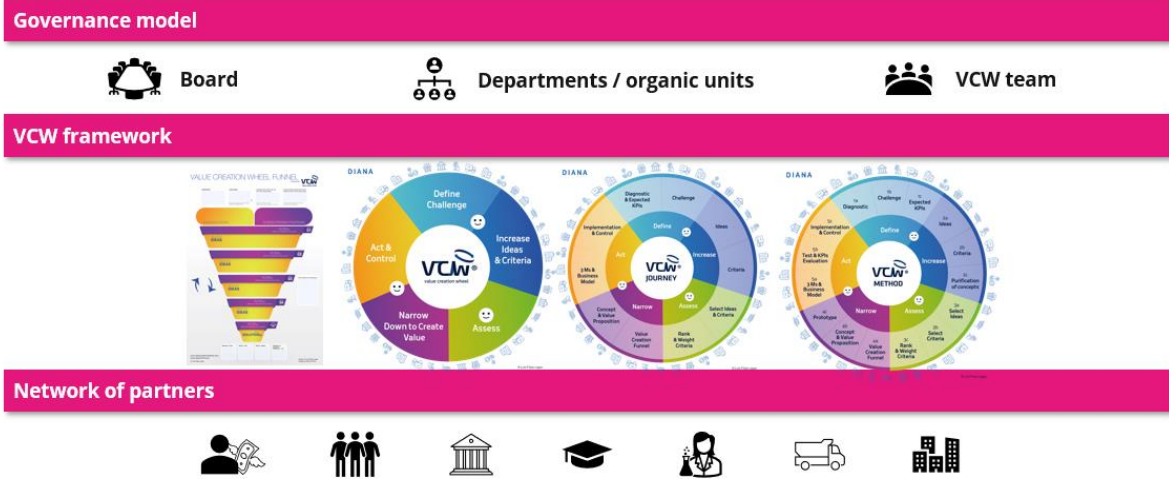
			<p>proceed independently, as she reports to higher-level KDMs who were not actively engaged in the process. Susana Lopes also explained that there is a lack in communication with students (to understand their needs) and across the departments (to understand and support each other).</p>	
28.10.24	Vanda Verissimo, WP team	Insights on previous project for the procurement department	<p>Custom-designed dashboard solution which combines different supplier management components to ensure comprehensive supplier evaluation and two-way communication.</p>	<p>What went good / what went bad? Did implementation take place? Is there a need for the VCW Ecosystem Insights on the project and KDM experience</p>
13.11.24	Susanna Santos, WP Team	Insights on previous project for the sustainability department	<p>The final solution was about providing incoming students reusable products such as reusable coffee cups and lunchboxes in their welcome bag to make a commitment to sustainability. Susanna as the KDM reported that she was satisfied with the project and using the VCW methodology, and many student projects are implemented in the department. For more details on this project see the video (Value Creation Wheel 2024d).</p>	<p>What went good / what went bad? Did implementation take place? Is there a need for the VCW Ecosystem Insights on the project and KDM experience</p>

Source: Created by WP team

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Appendix 9: VCW Ecosystem

The VCW Ecosystem at Nova SBE



Source: Created by WP team

Appendix 10: Photo from workshop held in October



Appendix 11: Evaluated KPI's

Objective / KPI	Measure	Timeframe	Evaluation
1. Successful Project work on VCW Ecosystem			
Teamwork and internal collaboration on thesis will be evaluated as a 5 out of 5.	Scale from 1-5	short-term	Reached 5 on a scale from 1 to 5.
Implementation of VCW innovation ecosystem: At the end of master thesis work project a decision whether to proceed with the ecosystem or not can be made.	Decision made?	Medium-term	Successful pilot projects show that Nova should proceed with ecosystem – decision made.
The proposed VCW Ecosystem is actually implemented one year after the thesis submission.	Implemented?	Long-term	Not fulfilled yet, needs to be measured again after ecosystem implementation.
The following questions can be answered at the end of the master thesis work project: How to industrialize innovation, decision making, and problem-solving inside an organization?	Question answered?	Short-term	Question answered.
Ensure solutions of challenges are implemented 1 year after WP team submitted thesis.	Implementation after project end successful?	Medium-term	Can first be measured in 1 year from now.
Initial research, theoretical background and literature review is completed within six weeks.	Yes or no	short-term	Done in 6 weeks.
Initial meetings are held with KDMs and challenge is defined within the first six weeks.	Yes or no	short-term	Done in 6 weeks.
2. Enhance Communication and Collaboration at Nova SBE			
Improve exchange between internal stakeholders by at least two new social connections per department.	Number of social connections to other stakeholders	medium-term	Not fulfilled yet, needs to be measured again after ecosystem implementation.
Make the KDMs familiar with the successful application of the VCW framework.	KDM and WP team perception	short-term	KDM's were actively involved and are now familiar with VCW.
Increase communication between departments and with leadership team.	KDM perception	medium-term	Not fulfilled yet, needs to be measured again after ecosystem implementation.

3. Data Collection and Analysis for Decision-Making			
Collecting sufficient quantitative and qualitative data for analyses until point of saturation is reached.	Saturation of ideas and filters achieved	short-term	Saturation was achieved.
Having a biweekly exchange with supervising professor and KDM's to implement feedback.	Did meetings take place biweekly? Yes or no	short-term	Biweekly meetings were held with both KDM's and supervisor.
4. KDM Satisfaction			
Satisfaction of all stakeholders involved in the work project will be evaluated as 5 out of 5.	Scale from 1-5 by KDMs	short-term	Stakeholders were satisfied with the work project and gave a 5 out of 5.
KDM personal perceived satisfaction with project work and team will be evaluated 5 out of 5.	Scale from 1-5 by KDMs	short-term	KDM's were satisfied with collaboration with work project team and gave a 5 out of 5.
5. Enhance Nova SBE's Reputation, Quality of Life and Operational Efficiency			
Efforts made support Nova SBE on the way to the top.	KDM, Dean and Defense Jury impression	short-term	Can be measured only upon receiving feedback in thesis defense.
Solution is suitable for the whole organization.	Perception of Jury & feedback KDM	short-term	Can be measured only upon receiving feedback in thesis defense.
Increase Nova SBEs reputation.	Dean, KDM perception	medium-term / long-term	Not fulfilled yet, needs to be measured again after solution- and ecosystem implementation.
Increase time and cost efficiency of the innovation and problem-solving process.	Dean, KDM perception	medium-term / long-term	Not fulfilled yet, needs to be measured again after ecosystem implementation.
Increasing quality of life for students and staff at Nova SBE.	Survey	medium-term / long-term	Not fulfilled yet, needs to be measured again after ecosystem implementation.

Source: Created by WP team

C – Living Expenses Challenge

Appendix Challenge 2

Appendix 29: KDM meetings

Date	Participants	Topic & description
October 1, 2024 (12:00-12:45)	Sofia Cilia, Carolina Champalimaud, Inês Morais, and Beatriz Barbosa	Getting to know each other and getting more insights into to challenges.
October 25, 2024 (17:00-18:00)	Sofia Cilia	Review the challenge in detail, followed by an examination of the list of ideas and filters.
November 6, 2024 (15:30-16:15)	Sofia Cilia	Review of the ideas that passed the must-have filters.
November 15, 2024 (10:00-11:00)	Sofia Cilia and Inês Morais	Presentation of the research findings for the final four idea clusters, followed by a decision on the most promising idea to pursue further.
November 9, 2024 (10:00-10:30)	Sofia Cilia, Inês Morais, and Pamela Maria Golowkin	Clarification of final questions, evaluation of KPIs, and brief discussion of final solution and prototype.

Appendix Phase 1:

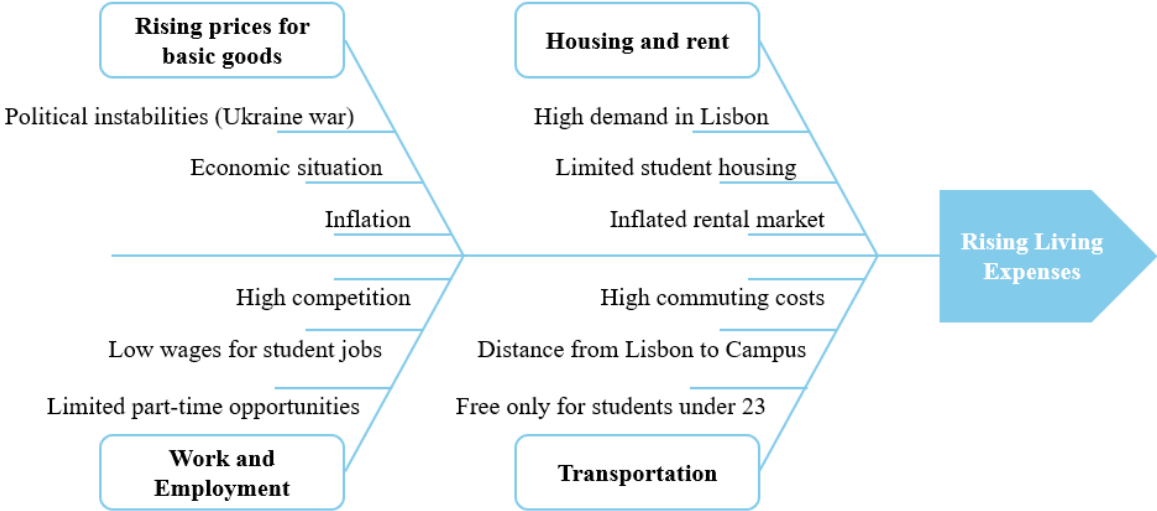
Appendix 30: Benchmark of living expenses across comparable universities

University (Country)	Cost of Living
Nova SBE (Carcavelos, Portugal)	<i>Housing:</i> A furnished private room in a shared flat costs around 600€ (Statista 2023). <i>Average annual wage:</i> 26,737.9€ (Lahiri 2023). <i>Transportation:</i> 35/40€ per month (Nova SBE 2024d). <i>Prices of basic goods:</i> E.g. groceries 150€ per month (Nova SBE 2024d).
Bocconi University (Milan, Italy)	<i>Housing:</i> A furnished private room in a shared flat costs around 760€ (Statista 2023). <i>Average annual wage:</i> 44,546.06€ (Lahiri 2023). <i>Transportation:</i> 22€ (< 27 years) & 39€ (> 27 years) (Università Bocconi 2024). <i>Prices of basic goods:</i> E.g. groceries 150 to 200€ per month (Sofia 2024).

<p>IE University (Madrid, Spain)</p>	<p><i>Housing:</i> A furnished private room in a shared flat costs around 560€ (Statista 2023). <i>Average annual wage:</i> 36,840.03€ (Lahiri 2023). <i>Transportation:</i> 20€ (< 26 years) & 55€ (> 26 years) (Student Services 2020). <i>Prices of basic goods:</i> E.g. groceries 200 to 350€ per month (Student Services 2020).</p>
<p>Athens University of Economics and Business (Athens, Greece)</p>	<p><i>Housing:</i> A furnished private room in a shared flat costs around 427€ (‘Student Housing, Rooms and Apartments for Rent in Athens’ 2024). <i>Average annual wage:</i> 24,371.27€ (Lahiri 2023). <i>Transportation:</i> 30€ per month (Athens Tourist Information 2024). <i>Prices of basic goods:</i> E.g. groceries 130 € per month (Amanda 2023).</p>

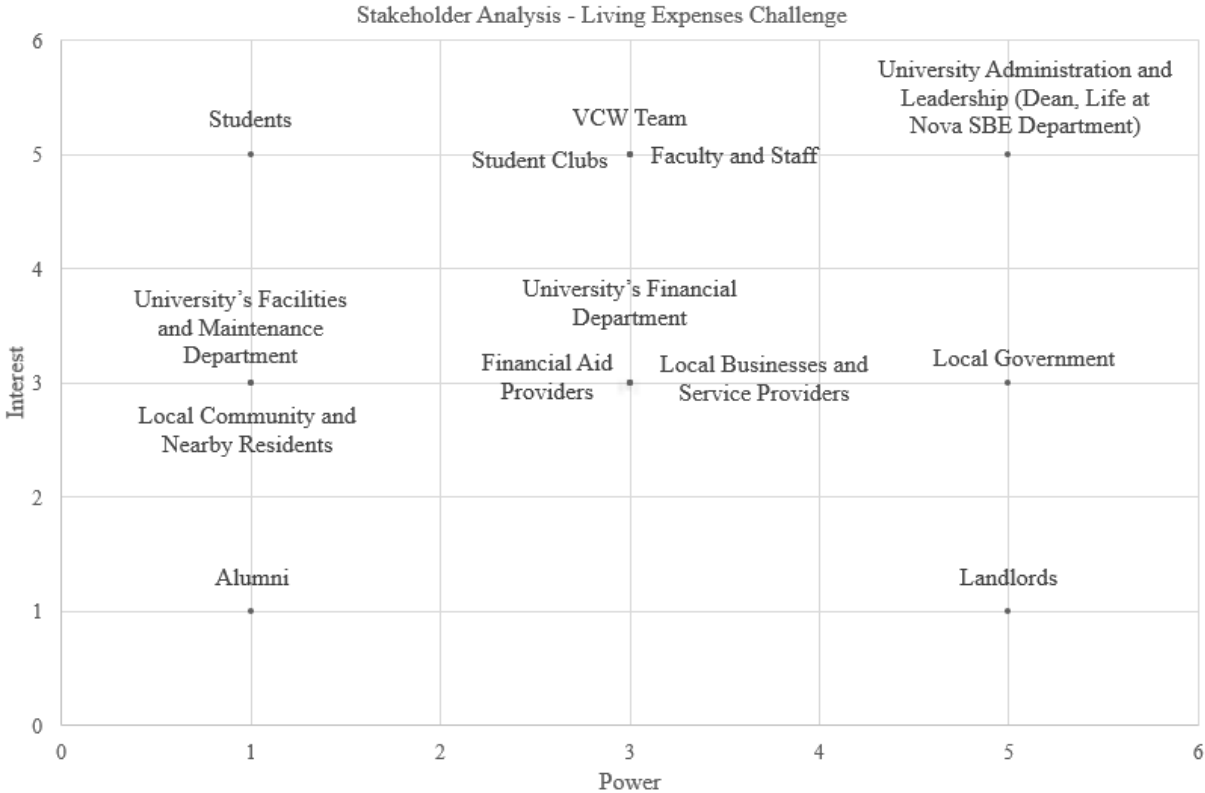
Source: Created by WP team

Appendix 31: Fishbone diagram



Source: Created by WP team

Appendix 32: Stakeholder analysis



Source: Created by WP team

Further explanations for the external stakeholders:

Government	Local businesses, service providers, and financial aid providers
The government has considerable interest and significant power. Support from the Portuguese government or the municipalities of Lisbon or Cascais could be pivotal, depending on the specific initiative.	Have moderate interest and power.
University’s administrative departments (Marketing, Finance, Legal, and Compliance)	Surrounding community
Are less powerful but should not be overlooked.	Are less powerful but should not be overlooked.
Alumni	Landlords
Alumni, having once faced similar challenges, might possess the resources or networks to significantly aid current students.	Landlords hold considerable power but generally lack the incentive to reduce living costs for students, as their primary aim is to maximize income in line with market trends.

Appendix 33: KPIs

Objective / KPI	Measure	Timeframe	Assessment (Phase 5)
1. Ensure effective team dynamics and continuous alignment.			
Conduct biweekly meetings for constant feedback and alignment with the KDM and her team.	Track meeting frequency compliance.	Short-term	Achieved, meetings were tracked in an Excel sheet.
Implement the 4-eyes principle to cross-check every step of the process, reflecting high quality and relevance, and work together effectively through elevated communication.	Track 4-eyes principle compliance and survey the satisfaction of the stakeholders.	Short-term	Achieved, every step was discussed within the WP group and with the KDM.
2. Develop a comprehensive understanding of student needs and institutional capabilities.			
Gain insights on students' pain points and needs through three measures.	Track number of engagements conducted.	Short-term	Achieved, the WP team conducted workshops, interviews, and a survey.
Conduct interviews with at least five employees of the department to understand existing initiatives and supports.	Track coverage of key topics.	Short-term	Achieved, the WP team talked to six employees of the department.
Confirm the metrics of Nova SBE with the dean and his team by a specified week (week 45).	Confirm deadline compliance.	Short-term	Achieved, the meeting took place on November, 4 th .
Gain insights on the students perspective through a survey with the minimum number of participants lying at 100 students.	Survey completion rate.	Short-term	Not achieved, as responsiveness was low.
3. Increase the affordability of living expenses for students at Nova SBE.			
Track the year-over-year decrease in average living expenses.	Track the percentage change.	Medium-term	Not achieved, as this can only be assessed after the final idea has been implemented.

Measure the increase in the use of financial aids.	Track the percentage change.	Medium-term	Not achieved, as this can only be assessed after the final idea has been implemented.
4. Enhance the accessibility of living expenses for students at Nova SBE.			
Track the increase in awareness and utilization of available financial resources and support.	Conduct survey with students.	Medium-term	Not achieved, as this can only be assessed after the final idea has been implemented.
Measure the number of partnerships formed with local businesses to offer discounts or subsidized services to the Nova SBE community.	Track the percentage change.	Medium-term	Not achieved, as this can only be assessed after the final idea has been implemented.
Assess improvements in the ease of access to affordable living expenses.	Test for reach of measure (% of students using the final idea).	Long-term	Not achieved, as this can only be assessed after the final idea has been implemented.
5. Design and propose viable solutions to address identified challenge.			
Create a solution that addresses the most significant issue identified.	Conduct survey to verify.	Short-term	Achieved, verified through KDM and survey.
Generate a minimum of three final ideas to be presented to the KDM and her team by the end of a specified week.	Propose until calendar week 46.	Short-term	Achieved, verified through KDM and survey.
Establish at least five partnerships during the project with entities like student clubs, student representatives, or courses at Nova SBE.	Was this achieved?	Short-term	Not achieved, as this can only be assessed after the final idea has been implemented.
6. Implement and evaluate long-term solutions for sustainable impact.			
Increase student satisfaction scores regarding affordability.	Conduct survey to verify.	Medium-term	Not achieved, as this can only be assessed after the final idea has been implemented.
Propose a solution, prototype, and implementation plan by a specified week that is viable for	Propose until calendar week 48.	Short-term	Achieved, WP team delivered this on time.

actual implementation by Nova SBE.			
Achieve satisfaction among all project stakeholders with the overall final outcome.	Scale from 1-5.	Medium-term	Achieved, the KDM rated the collaboration with a score of 5, expressing great satisfaction with the inclusion of the students’ perspectives. They particularly appreciated that the proposed idea not only has significant potential for implementation but is also well-prepared and ready to be handed over for further development.
7. Improve Nova SBE’s global reach and positioning.			
Increase in the number of international partnerships and collaborations.	Count of new international partnerships formed annually.	Medium-term	Not achieved, as this can only be assessed after the final idea has been implemented.
Expansion in the diversity of the student body and faculty through international recruitment.	Track the percentage change of international students and faculty.	Medium-term	Not achieved, as this can only be assessed after the final idea has been implemented.
Ensure financial accessibility and support for international students from low-income countries.	Track percentage of international students from low-income countries.	Medium-term	Not achieved, as this can only be assessed after the final idea has been implemented.
8. Optimize the stakeholder life cycle.			
Measure the annual increase in satisfaction levels among all stakeholders (students, faculty, staff, partners).	Conduct surveys focused on their	Medium-term	Not achieved, as this can only be assessed after the final idea has been implemented.

	experience at Nova SBE.		
Track improvements in the retention rates of students, faculty, and key partners, indicating a more positive life-cycle experience.	Track the percentage change.	Medium-term	Not achieved, as this can only be assessed after the final idea has been implemented.
Monitor the decrease in complaints and issues reported by stakeholders each semester.	Track number of incidents.	Medium-term	Not achieved, as this can only be assessed after the final idea has been implemented.

Source: Created by WP team

Appendix Phase 2:

Appendix 34: VCW workshop in the marketing class



Appendix 35: List of ideas generated in Phase 2 after removing duplicates

1. Transport and Mobility Infrastructure	
Make Navegante Card for free or give a discount for all students not only under 23.	Partnerships with Uber and Bolt.
Bicycle Sharing Programs: Schools can promote affordable bike-sharing programs or provide on-campus bike storage to encourage low-cost, sustainable transportation.	Centralize “ride sharing”.
Improved transport network (+ bike lanes).	Make the public transportation system more efficient.
Bicycle infrastructure.	Bus / Metro subscription provided by the government.
Carpooling apps.	Increase public transportation efficiency so that students can live where housing cost is low and still don’t waste time.
Improve transport network.	Transport from center of Lisbon to Nova → shuttles.
Encourage and promote carpooling among students to reduce transportation costs.	Student discount for parking near Nova.
Free transportation for all Nova students (not only NIF).	All transportation should be free in Municipio with student card.
2. Housing and Rent	
Milestone selling platform.	Have more rooms available.
Nova SBE has owns / rents apartments for students in urgent situations (got scammed, etc.).	Ensure quality of living through saver contracts.
Create a website with flats that are proved to exist.	More affordable housing on campus.
Housing sharing program: Connect students with local host families to offer living there.	More housing to keep students / internationals out of the real estate market in Lisbon.
Pay students for peer tutoring.	Fixed percentage of housing for local renters.
Expand the scope of the BeNova scholarships.	Restrict short-term rentals such as Airbnb.

Food bank in the municipality of Cascais exclusively for students.	Co-living.
Having students cook for each other.	More support in finding a flat by Nova.
EU Fund, Municipality Funds, Companies' Funds.	Renovate buildings owned by the government and rent them to students at reasonable prices.
Restore houses in Cascais.	Build new dorms exclusive to Nova students.
Have a 16h canteen open for all meals.	Renovate old buildings.
Card for discounts in restaurants for students- "Robin Hood" food cards (same card; while some students pay full price others have discount).	Maximum rent for students.
Accommodation with elderly people who need company.	Rent price limits when offering for students.
Nova should offer more student accommodation at a lower price.	Cascais municipality could offer subventions / subsidy Cascais municipality could offer subventions / subsidy.
Intra-student platforms for apartments.	Introduce a university helping point for housing to overcome language barriers.
Incentives for landlords who offer student housing.	Have a website where students rate houses they have lived in.
3. Financial Assistance and Affordability	
Tuition freeze.	Decrease tuition fees.
Special credit conditions for students.	Scholarship for best GPA students.
European scholarships with tax incentives.	More accessible scholarships.
Financial literacy programs + online tools to track expenses.	Create a program where tuition fees are paid by alumni, those alumni got also paid their student fees before.
Private investment in construction.	Create a work-study program to offset costs.
Subsidies.	Government support for students (like Denmark model).
Flexible Loan Programs: Offering low-interest or interest-free loans that are more accessible for students, with repayment plans adjusted according to post-graduation income.	Energy Cooperative: Start a student-led initiative for a green energy cooperative that could lower energy bills through collective bargaining and the use of renewable sources.

Financial Literacy Education: Universities and governments should provide mandatory or accessible financial literacy courses to help students make informed decisions about budgeting, saving, and managing loans.	Needs-Based Grants: Increase availability and accessibility of grants that are based on financial need, especially those that cover not only tuition but also living expenses.
Facilitate more flexible tuition payment plans that align with students' financial inflows, such as aligning payment schedules with when students receive financial aid or earnings from part-time jobs.	Nova can try to get more donations to support students → scholarships.
Reduce costs for students with financial troubles.	One equal monthly / weekly / annual fee for all students that includes living and housing expenses on campus.
Decrease light and gas bills.	Subscription for gym etc. for free.
One equal monthly / weekly / annual fee for all students that includes living and housing expenses on campus.	Limit the amount of expats buying property.
Sport scholarships.	
4. Work and Employment	
Offering working student / part-time positions at Nova.	Create part-time job opportunities within the university and / or in collaboration with the municipalities of Cascais and Oeiras.
Flexible Remote Work Opportunities: Partner with businesses to create part-time or remote work opportunities for students to earn an income while balancing academic responsibilities.	In partnership with companies associated with the school, offer paid internships during the summer and / or Christmas holidays to students.
Volunteer hours in exchange for vouchers.	Develop a Self-Work Program at Nova SBE.
Collaborative Partnership with CM Cascais & CM Oeiras for Student Part-Time Employment.	Giving incentives to students to work while studying.
Create budgeting classes for students to incentivize smart spending.	Use bargaining power as a university to negotiate student discounts.
5. Food and Essentials	
Have small market where expired food which is still good is offered for free or little price.	Pingo Doce and Nova – special promotions (food waste agreements).

Aldi or Lidl next / close to Nova.	Create a meal card.
Establish a student-led club that buys food and other necessities in bulk and sells them to students at a near cost. This could also extend to textbooks and other school supplies.	To have more affordable restaurants so people can have dinner / lunch out and not need to always eat supermarket food.
Social cafeterias.	Anti food waste distribution.
Better / cheaper food at Nova.	Promote supermarkets and useful stores to create an ecosystem.
Partnerships of Nova with supermarkets.	Increase offering at canteen.
Partnerships of Nova with restaurants.	Engage using the app to good 2 go.
Food collaborations – especially in Lisbon city, as many students live there.	Restaurants with students’ meal prep using local markets’ discounts.
Lower grocery prices.	Cooking classes for cost-effective meals / meal prep.
Meal plan.	Government allowances for food items.
Cameus food subsidies.	Places where students can buy second-hand goods.
Offer free meals at Nova.	
6. Technology and Services	
Devices lend to students by Nova SBE.	Offer online lectures that allow students to stay at home.
Digital Tool for managing costs: Expense-Tracking Apps: Encourage the use of apps and digital tools that help students budget their living expenses and find discounts on essential goods and services.	Service packages for students (Communications, water, electricity).
7. Healthcare	
Offer yearly free check-ups at Nova’s doc.	Free access to public healthcare (SNS).
Offer discount on student’s health insurance by partnering with a certain health insurance in exchange for marketing places.	Gym and Recreation Subsidies: Offering affordable or free access to campus gyms and recreation centers to promote student well-being without added costs.
Expand and strengthen the mental health and wellness services available to students.	Easy and affordable access to health care on campus (health insurance).

Online doctor.	Health insurance partnerships.
8. Social Programs and Policy	
Offer more and more accessible scholarship programs.	Lobbying for policy exchange.
Do not cut tuition fee aid for the fellowship for excellence.	Social programs.
Shared Resource Centers: Set up centers where students can borrow appliances and tools for short-term use, reducing the need to purchase expensive items.	Rent Control for Student Accommodations: Governments can implement rent control measures for housing that caters to students to prevent sudden spikes in rent prices.
Affordable Childcare: For students with children, provide affordable or subsidized childcare services on or near campus.	Dean needs to talk to the government.
Public-Private Partnership.	Apply student discounts for cultural sites.
Free entry to museums and monuments.	Young support old initiative.
Big feira da ladra (social marketplace).	Social dorms for all based on social criteria.
Cheaper student-run sport initiatives.	Increase minimum wage.
Good grades – get reward.	Don't pay taxes when living in student residences.
Create student committees.	
9. Community and Support Networks	
Hire more volunteer workers (for example retired but fit people) at Novas services to offer food services at a cheaper price without losing quality.	Peer Support and Sharing Economies: Promoting peer-to-peer networks where students can share resources like textbooks, furniture, or even meals to reduce individual costs.
Alumni Support Programs: Universities can develop alumni networks that provide financial aid, mentorship, or temporary housing for students in need.	Mutual Aid Initiatives: Encouraging students to form or participate in mutual aid groups that pool resources to help each other through financial difficulties.
Community support networks.	Work-study programs.
Financial literacy programs.	Nova could work together with Pingo to offer cheaper products for students.

Partnerships of Nova with clothing stores.	Self-serving community idea: Community work is essential to earn necessities, not money.
Student marketplace where students can buy stuff from each other.	

Source: Created by WP team

Appendix 36: List of filters generated in Phase 2 after removing duplicates

Must-have filters (17 filters)

Feasibility
Cost vs. Benefits
Resources (human and economic)
Legal factor
Measurability
Impact on huge portion of students
Strategic alignment with Nova SBE's vision
Technical feasibility
Engagement of internal and external stakeholders
Sufficient infrastructure (physical)
Risk
Fair distribution
Sustainability – environmental aspect
Barriers for access
Administrative complexity
How adaptable are the ideas for growth
Regulatory hurdles

Nice-to-have filters (24 filters)

Possible use / adoption of students
Can we convince stakeholders?
External Funding needed?
Technological infrastructure
Sustainability – is it affordable in the long term
Student's preferences
Power / control
Increases Nova SBEs image

Possible partnerships
Time to implement
Ensures equality
Scalability
Is the change harming other aspects?
Governmental structures
Can it generate revenue on its own?
Safety
Accessibility
Number of students addressed by solution
Quick wins
Awareness
Benefit for university? Would it increase the number of students?
Target audience needed
Closeness to Uni
Do we have the knowledge?

Not necessary filters (28 filters)

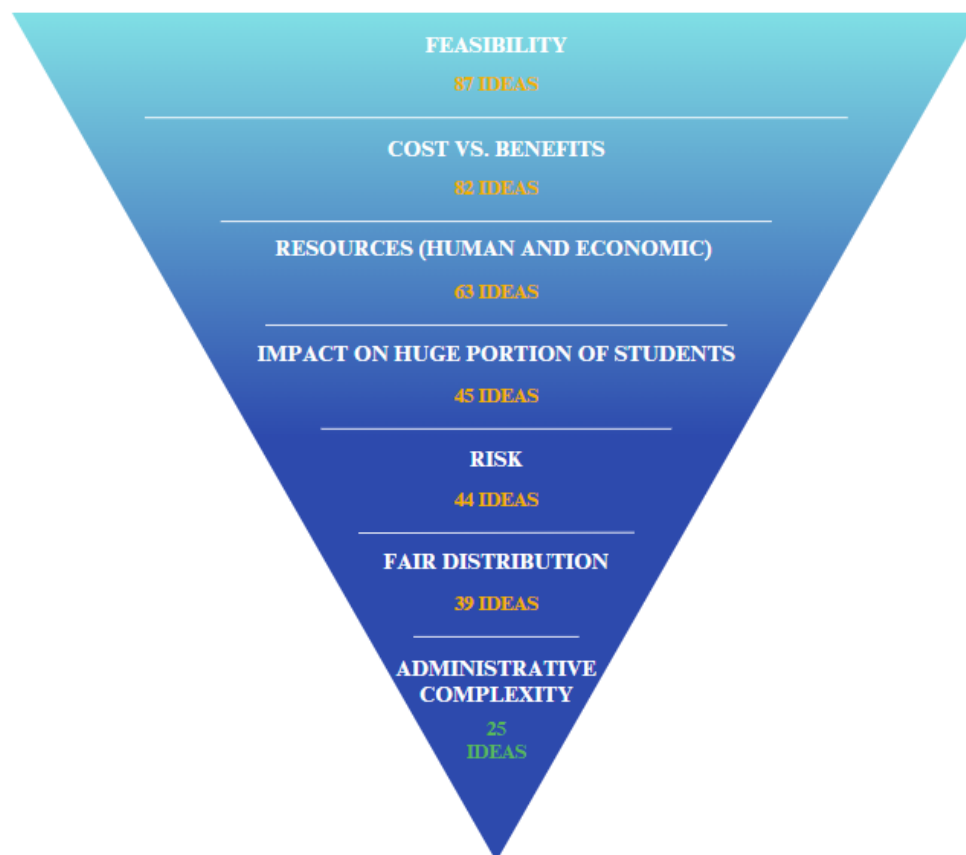
Viability
Competence of Nova SBE
Adaptability
Possibility of Evaluation
Space availability
Population range
How much does it really / directly reduce the cost for students?
Increasing reputation
Time to build partnerships
Planning
Social inequalities, only benefit some
Cultural fit
Stakeholder involvement
Is it helpful?
Demand / cost benefit
Means tested
Complexity of idea
Does it depend on another entity?
Is it expandable to the rest of the country?
Social aspect – conditions of students
Does not introduce bias in the market
Urgency of the problem

Augment with local resources
Efficiency
How hard is it to adapt to the change?
Excludes government
Image of Nova abroad
Good students?

Source: Created by WP team

Appendix Phase 4:

Appendix 37: Value Creation Wheel Funnel for the living expenses challenge



Source: Created by WP team with canvas.com

Appendix 38: MCDA

A) The first half of nice-to-have filters used for the MCDA

Nice-to-have filters from rank 1-24	Adoption of students	Can we convince stakeholders?	External funding needed?	Technological infrastructure	Sustainability	Student's preferences	Power / control	Increases Nova SBEs image	Possible partnerships	Time to implement	Ensures equality	Scalability	Is the change harming other aspects?
Promote carpooling among students	0	1	1	1	1	0	1	1	1	1	1	1	1
Centralize "ride sharing"	0	1	0	0	1	0	1	1	1	0	1	1	1
Milestone selling platform	1	1	1	0	1	1	1	1	1	0	1	1	1
Connect students with local host families	1	1	0	0	1	1	1	1	1	0	1	1	1
Intra-student platforms for apartments	1	1	0	0	1	1	1	1	1	0	1	1	1
More support in finding a flat by Nova	1	1	0	0	1	1	1	1	1	0	1	1	1
Tuition fees are paid by alumni	1	1	0	1	1	1	1	1	1	1	1	1	1
More flexible tuition payment plans	1	1	0	1	1	1	1	1	1	1	1	1	1

Special credit conditions for students	1	1	1	1	1	1	1	1	1	0	1	1	1
Student marketplace	1	1	1	0	1	1	1	1	1	0	1	1	1
Use bargaining power as a university to negotiate student discounts	1	1	1	1	1	1	1	1	1	1	1	1	1
Student part-time employment (CM Cascais & Oeiras)	1	1	1	1	1	1	1	1	1	0	1	0	1
Giving incentives to students to work while studying	1	1	1	1	1	1	1	1	1	1	1	1	1
Create budgeting classes for students	1	1	1	1	1	1	1	1	1	1	1	1	1
Promote supermarkets and useful stores	1	1	1	1	1	1	1	1	1	0	1	1	1
Increase offering at canteen	1	1	0	1	1	1	1	1	1	0	1	0	1
Engage using the app too good to go	1	1	1	0	1	1	0	1	1	1	1	1	1
Pingo Doce and Nova SBE (food waste agreement)	1	1	1	0	1	1	1	1	1	0	1	1	1

Partnerships for student health insurance	0	1	1	1	1	0	1	1	1	0	1	1	1
Young support old initiative	1	1	1	0	1	1	1	1	1	0	1	1	1
Create student committees	1	1	1	1	1	1	1	1	1	1	1	1	1
Community support networks	1	1	1	0	1	1	1	1	1	1	1	1	1
Alumni networks – support programs	1	1	1	1	1	1	1	1	1	1	1	1	1

A) The second half of nice-to-have filters used for the MCDA

Nice-to-have filters from rank 1-24	Govern-mental structures	Can it generate revenue?	Safety	Accessi-bility	Stu-dents addressed by solu-tion	Quick wins	Aware-ness	Benefit for uni-versity ?	Target au-dience needed	Close-ness to univer-sity	Do we have the know-ledge?	Out-come
Promote carpooling among students	1	1	1	1	1	1	0	0	1	1	1	20
Centralize “ride sharing”	1	1	1	1	1	0	0	0	1	1	1	16

Milestone selling platform	1	1	1	1	1	0	1	1	1	1	1	21
Connect students with local host families	1	1	1	1	1	0	1	1	1	1	1	20
Intra-student platforms for apartments	1	1	1	1	1	0	1	1	1	1	1	20
More support in finding a flat by Nova	1	0	1	1	1	0	1	1	1	1	1	19
Tuition fees are paid by alumni	1	0	1	1	1	1	1	1	1	1	1	22
More flexible tuition payment plans	1	0	1	1	1	1	1	1	1	1	1	22
Special credit conditions for students	1	1	1	1	1	0	1	1	1	1	1	22
Student marketplace	1	1	1	1	1	0	1	1	1	1	1	21
Use bargaining power as a university to negotiate student discounts	1	0	1	1	1	1	1	1	1	1	1	23
Student part-time employment (CM Cascais & Oeiras)	1	0	1	1	0	0	1	1	1	1	1	20
Giving incentives to students to work while studying	1	0	1	1	0	1	1	1	1	1	1	22
Create budgeting classes for students	1	0	1	1	1	1	1	0	1	1	1	22

Promote supermarkets and useful stores	1	0	1	1	1	0	1	0	1	1	1	20
Increase offering at canteen	1	0	1	1	1	0	1	1	1	1	1	19
Engage using the app too good to go	1	0	1	1	1	1	1	0	1	1	1	20
Pingo Doce and Nova SBE (food waste agreement)	1	1	1	1	1	1	1	1	1	1	1	22
Partnerships for student health insurance	1	0	1	1	1	0	1	0	1	1	1	18
Young support old initiative	1	0	1	1	1	0	1	0	1	1	1	19
Create student committees	1	0	1	1	1	1	1	1	1	1	1	23
Community support networks	1	0	1	1	1	1	1	1	1	1	1	22
Alumni networks – support programs	1	0	1	1	1	1	1	1	1	1	1	23

Source: Created by WP team

Appendix 39: Research on the ideas that had the highest ranking in the MCDA

	Idea and Overview:	Research and Brainstorming:
Block 1	Student marketplace: A platform for students to buy and sell items directly from each other.	Student marketplaces already exist in other countries, with one notable example being Hazaar, which has successfully implemented a concept tailored to the needs of students (Hazaar 2024a).
	Milestone Selling Platform: A platform for students to exchange or sell home goods, such as kitchenware, bathroom essentials, and bedding. Ideal for students in Milestone housing, who often purchase items for short-term use.	This idea could seamlessly integrate into the student marketplace, providing a structured framework that encourages and incentivizes students to reuse items. By fostering a more organized and purposeful exchange system, the platform would promote sustainability while making it easier for students to find and repurpose articles in good condition.
Block 2	Alumni Tuition Support Program: A program where alumni, whose tuition was previously covered by similar support, fund current students' tuition fees.	The Reverse Generation Contract is a model developed in 1995 by the StudierendenGesellschaft Witten/Herdecke at Witten/Herdecke University for charging tuition fees, which at the same time enables access to studies without social access restrictions (Universität Witten/Herdecke 2024).
	Alumni Support Programs: Universities can establish networks where alumni offer financial aid, mentorship, or temporary housing to support students in need.	Many universities and business schools already offer scholarships and financial aid programs partially funded by alumni, as well as mentorship and career support networks facilitated through alumni associations. However, this concept could be further personalized. Nova SBE could take this a step further by creating a dedicated platform that directly connects students and alumni. This platform would allow students to seek tailored advice, mentorship, or support, while alumni could offer guidance, financial assistance, or even temporary housing on a more personal level.
	Student-Friendly Credit Conditions: Provide low-interest or interest-free loans with flexible repayment plans tailored to post-graduation income levels, making them more accessible for students.	Creating an overview and establishing partnerships with credit institutions both in Portugal and in the origin countries of international students could greatly enhance educational accessibility and financial support for these students. Examples: <ol style="list-style-type: none"> 1. Portugal: ActivoBank Education Loan (ActivoBank 2020). 2. Germany: KfW Student Loan (KfW 2024)

	Flexible Tuition Payment Plans: Offer payment schedules aligned with students' financial inflows, such as timing payments to coincide with financial aid disbursements or earnings from part-time jobs.	Additional ideas: Identify key timings: For example, if a significant number of students receive financial aid in September and January, set the tuition payment deadlines to late in those months. Multiple instalments: It reduces the financial burden per payment and increases manageability. Clear Communication: Provide clear, accessible information about payment plan options.
Block 3	Pingo Doce and Nova Partnership: A collaboration offering special promotions through a food waste agreement, benefiting both students and sustainability efforts.	Developing an internal app at Nova SBE that mirrors the functionality of "Too Good To Go" or forming a partnership with the app could greatly benefit the university community by promoting sustainability and reducing food waste on campus (Too Good To Go ApS, n.d.).
Block 4	Student Committees: Establish student-led committees to support and enhance initiatives, fostering collaboration, engagement, and a sense of ownership within the student community.	From this project, the WP team has learned that gaining students' perspectives provides invaluable insights for the departments. Such a committee would be mutually beneficial: The department would receive support and fresh perspectives from students, while the students would have a platform to address and work on the improvements they wish to see. For this reason, this idea should be strongly considered.

Source: Created by WP team

Appendix 40: Analysis of the competitors within in Portugal

Criteria	Target Audience	Focus	Outstanding Features
Student Market-place	Students	Focuses on categories and functionality that align with student lifestyles.	Tailored to student's needs.
Vinted	General	Vinted originally focused on second-hand clothing, but it has since expanded to include a wide range of categories, such as home goods and other essential items (Vinted 2024).	You buy directly from the seller. They have a good Feedback process. (Vinted 2024)
Micolet	General	Micolet is a second-hand clothing store specializing in premium and top-	Micolet sells clothes for their

		brand fashion, offering high-quality items at affordable prices (Micolet 2024a; 2024b).	users. Buyers have 14 days return policy, free shipping, and quality checks. (Micolet 2024a; 2024b)
OLX	General	OLX facilitates buying and selling of a wide range of goods and services. Its primary focus is to provide a platform where users can post free classified ads to trade items such as electronics, vehicles, real estate, household goods, and services. (OLX portugal 2024)	You buy from very diverse categories directly from the seller (OLX portugal 2024).
Custo-Justo	General	At CustoJusto, buyers and sellers are seamlessly connected to trade a wide variety of items, ranging from real estate and vehicles to electronics such as mobile phones, and much more (CustoJusto Portugal 2024).	It is completely free and is focusing on the Portuguese market (CustoJusto Portugal 2024).
Wallapop	General	Wallapop Portugal is a platform dedicated to facilitating the buying and selling of second-hand items, emphasizing sustainability and community engagement. Categories include: Electronics, home goods, fashion, vehicles, etc. (Wallapop 2024)	Wallapop has a strong focus on sustainability (Wallapop 2024).

Source: Created by WP team

Appendix 41: Detailed elaboration of other student marketplaces in Europe

Platform	Focus	Important features
Lende	Lende is Spain’s first student-centric marketplace, that enables students to buy, rent, and sell within their student residences. Besides that, they foster a sense of community and promote sustainability. (LENDE 2024a; 2024b)	Lende is keeping a small commission from every transaction (LENDE 2024a; 2024b).

Hazaar	Hazaar’s mission is to create a platform designed by students, for students, enabling them to trade second-hand items and embrace a more sustainable lifestyle. Based in the UK, Hazaar collaborates with leading institutions such as LSE. (Hazaar 2024a; 2024b)	Hazaar partners with universities to build student marketplace communities, providing safe on-campus exchange spaces to avoid shipping and hosting termly pop-up events for buying and selling items (Hazaar 2024a; 2024b).
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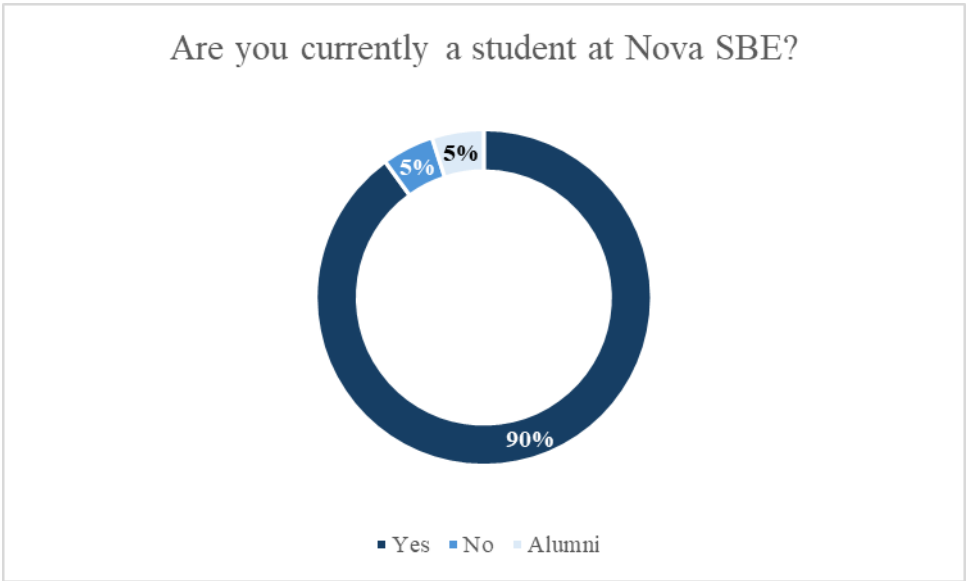
Source: Created by WP team

Appendix 42: Survey results – improving the student marketplace idea

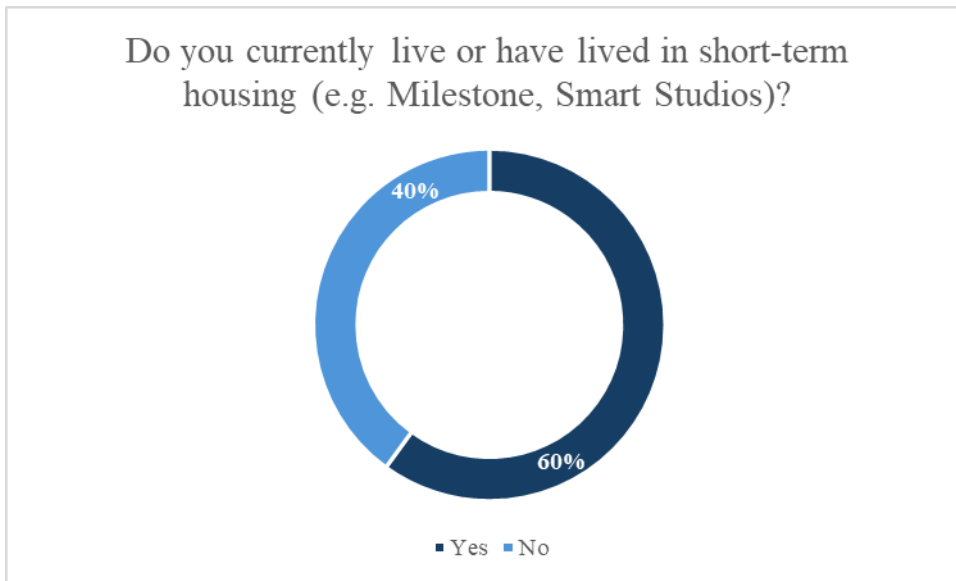
Number of participants: 40

The survey comprised 15 questions, but question 11, which invited participants to provide additional suggestions or comments, received no responses.

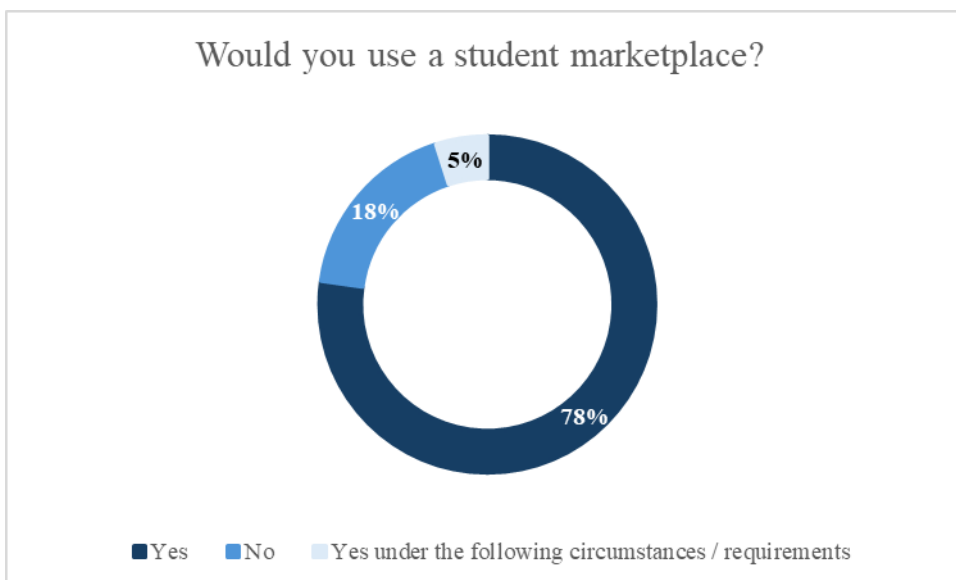
Question 1:



Question 2:



Question 3:



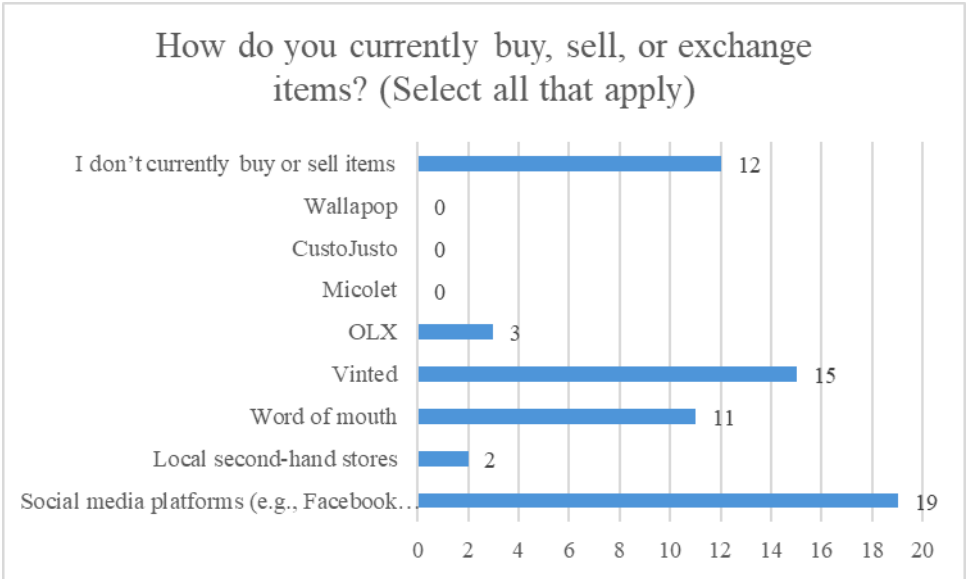
Question 4: What are those circumstances / requirements for using a student marketplace?

Reliable, and secure payment as well as nice / convincing offerings
Cheap apartments
Sustainable, convenient
Easy handling
Fair prices
Prices are cheaper than vinted or existing platforms
Easy to use, large and relevant offering, local offering (i.e. other students)
Easy communication

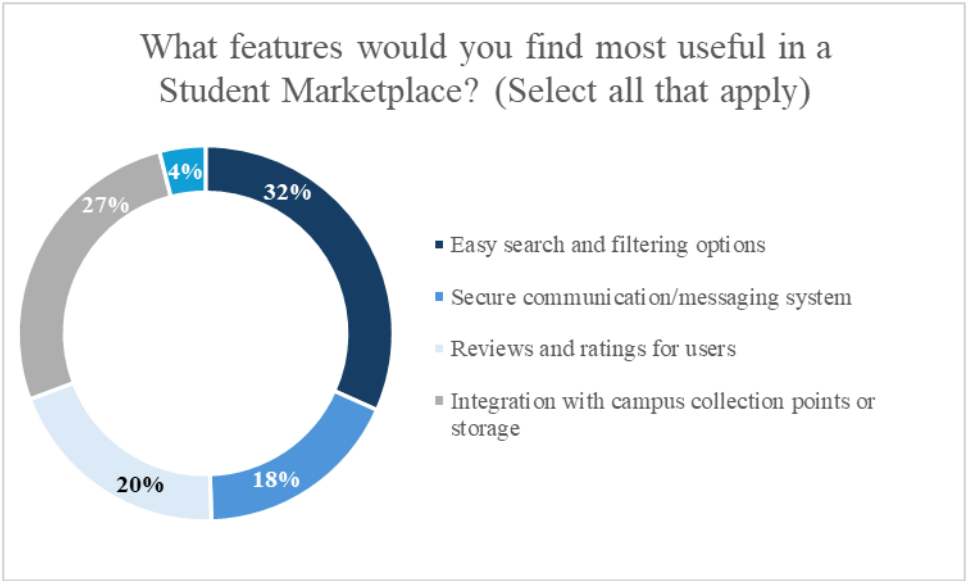
Question 5:



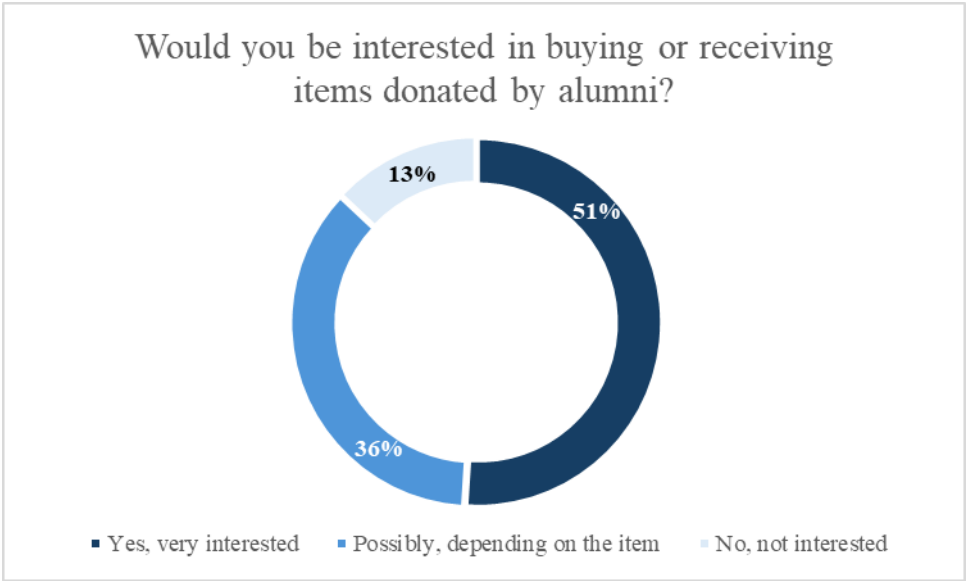
Question 6:



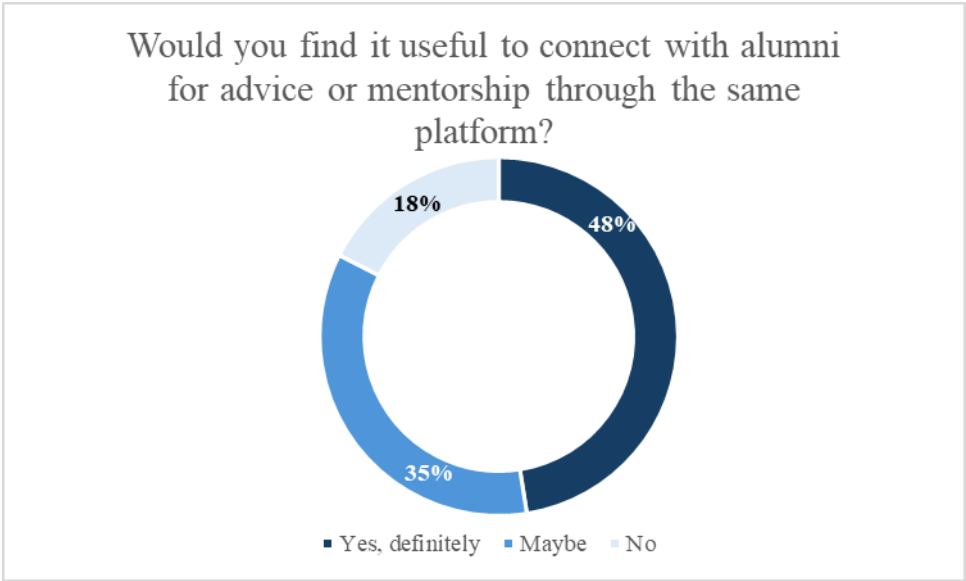
Question 7:



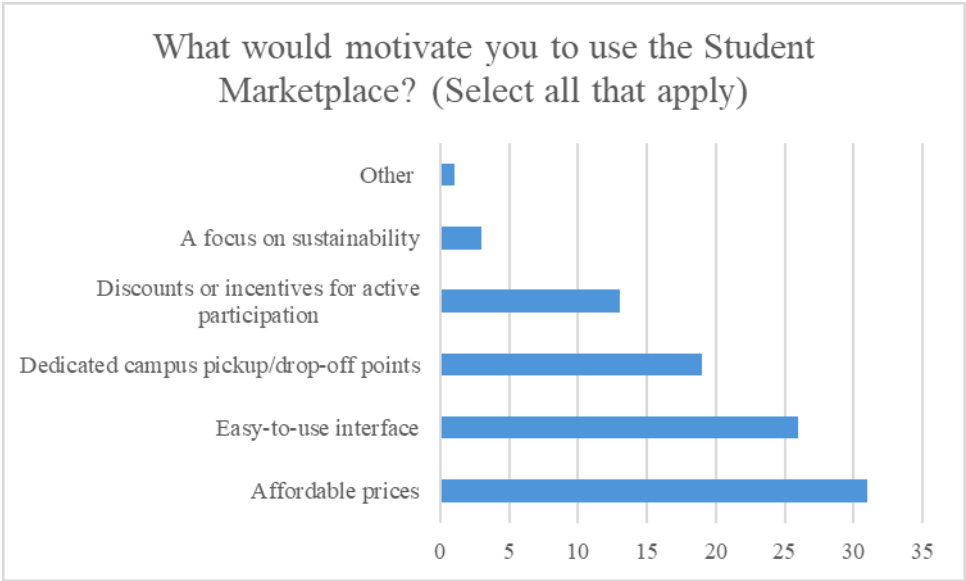
Question 8:



Question 9:

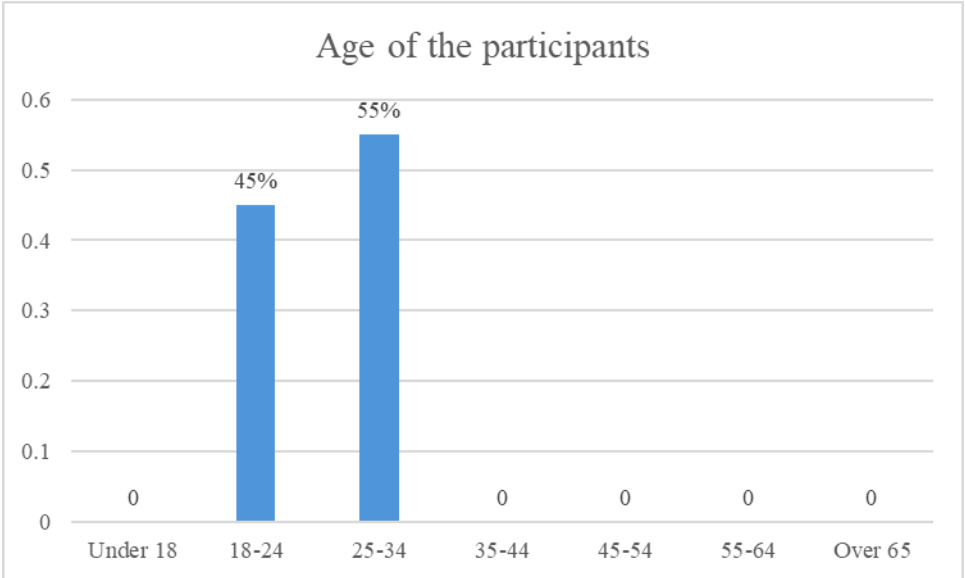


Question 10:

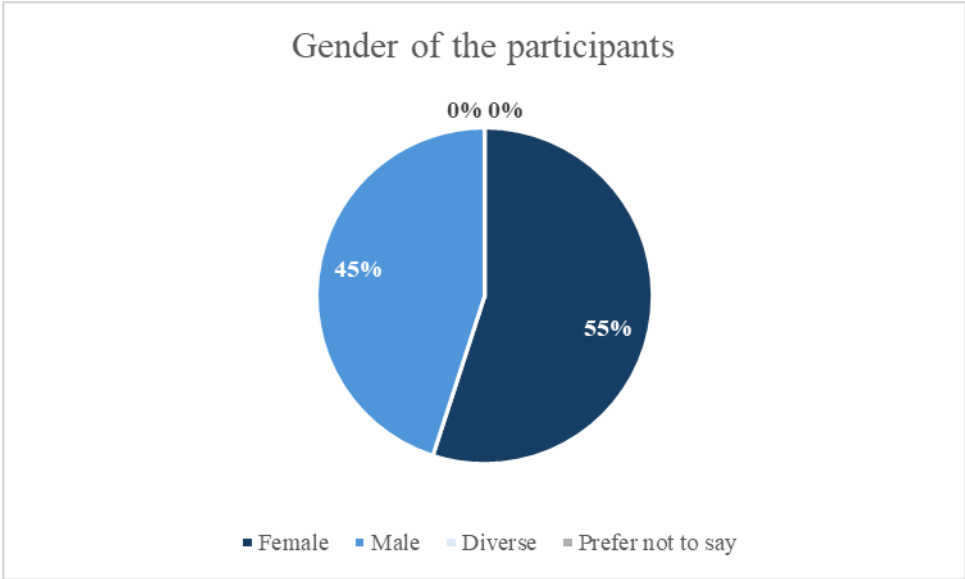


Demographics of the participants:

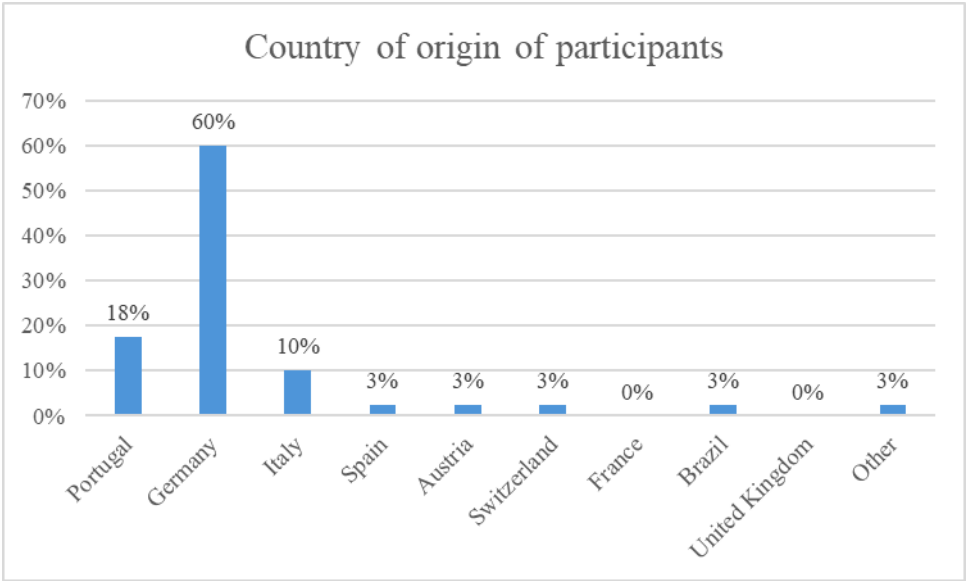
Question 12:



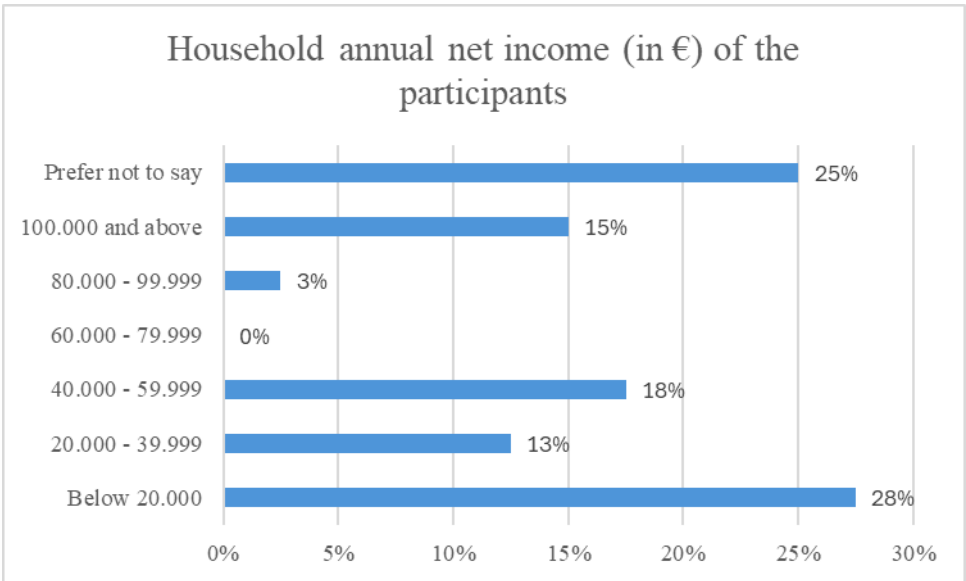
Question 13:



Question 14:



Question 15:



Appendix 43: Implementation options for student marketplace idea

Option	Procedure	Time	Resources
Engage Freelancer to develop the app	To develop the student marketplace app, one option would be to hire a freelancer from Fiverr to handle the design and development. The team will outline the project	Considering the complexity of the app, the estimated implementation duration is approximately 5-	The development of the app, when compared to platforms like Vinted, is estimated to cost between \$10,000 and \$25,000 (Nagar 2023).

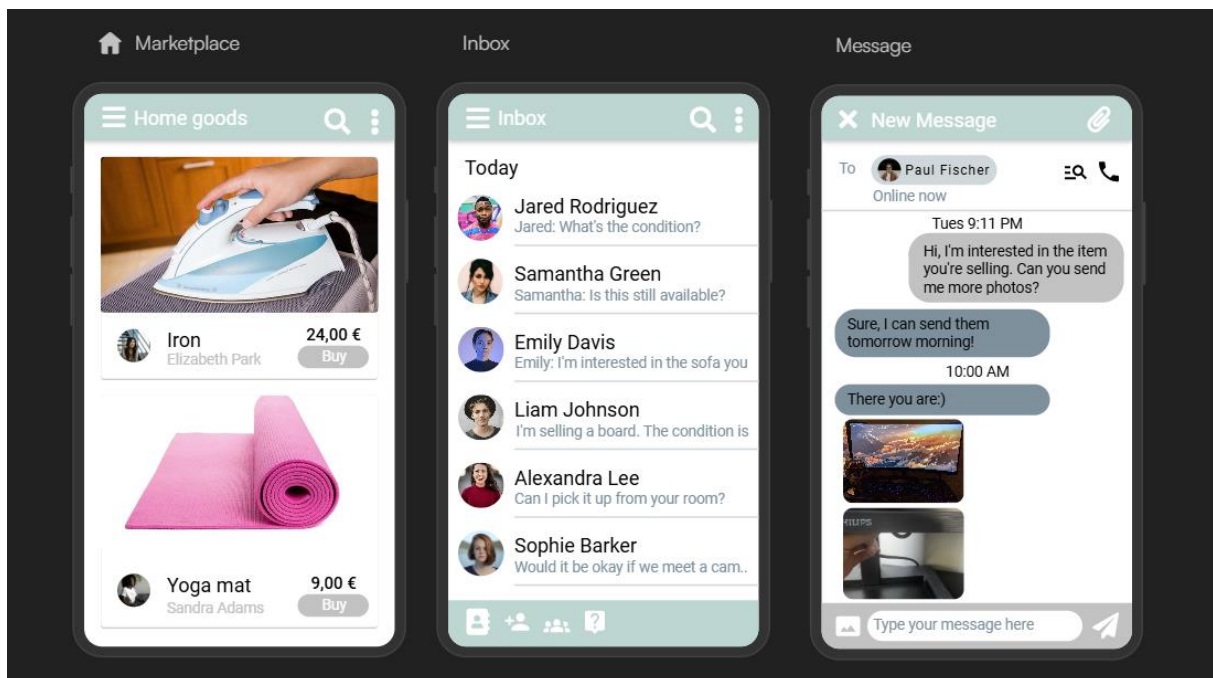
	scope, key features, and budget, then select a freelancer with relevant experience and strong reviews. They will collaborate on wireframes, ensure all features are implemented (e.g., item listings, messaging, search), and conduct user testing before launching the app on Google Play and Apple App Store.	6 months (Nagar 2023).	For a medium complexity app, we anticipate expenses to fall within the range of \$15,000 to \$20,000 (Nagar 2023).
Campus-Groups (This information is sourced from a proposal for a potential app designed for Nova SBE.)	CampusGroups is an all-inclusive platform that tailors its solutions to meet the client’s specific needs. Their team can provide a demo showcasing how the final website could look, offering a clear vision of the potential outcome. This demo would serve as a foundation for further refinement and detailed planning.	CampusGroups estimated the implementation time to be around eight to twelve weeks.	This option requires minimal involvement from Nova SBE, necessitating only a single human resource to act as the primary contact person for coordination and communication. That all inclusive concept comes with a high price for a 5-year contract: Year 1: US\$32,000.00 Year 2: US\$32,960.00 Year 3: US\$33,949.00 Year 4: US\$34,967.00 Year 5: US\$36,016.00
Invest into existing solution – Hazaar	Information was requested, but we did not get a response from the Hazaar team.		
Utilize internal capabilities such as organising a Hackathon	To organize a Hackathon, start by defining clear objectives, challenges, and target participants. Plan logistics, including the venue (on-campus or virtual), tools, and budget, and promote the event through social media	The duration of past Hackathons has typically varied between 12 and 48 hours. However, implementing this solution also	While Hackathons are highly budget-friendly, they do require dedicated human resources for successful execution. This includes organizing the event, coordinating

(This information is sourced from the Nova SBE homepage)	and university networks. During the event, provide mentorship, technical support, and resources, and conclude with project presentations judged on predefined criteria, offering prizes or recognition for outstanding ideas.	necessitates a significant amount of time for thorough preparation and detailed planning to ensure its success.	logistics, and ensuring a continuous on-site presence during the Hackathon to oversee its smooth operation.
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Source: Created by WP team

Appendix 44: Prototypes


App:



Source: Created by WP team with uizard.io

Campus pick-up / drop-off point:

This banner could be displayed as a roll-up banner at a highly visible and easily accessible location on campus. Positioned at a central meeting point, it would provide students with a dedicated space to exchange items.



NOVAMART
BUY, SELL, AND LEND WITH EASE.

Join our community and discover how to access the items being traded on NovaMart.

PICKUP & DROP-OFF POINT

Welcome to the NovaMart Meeting Point!

Here, you can conveniently exchange items you want to buy or sell with fellow students. Whether it's books, clothes, or kitchen essentials, this space is designed to make your transactions easy and accessible. Promote sustainability, save money, and connect with your campus community - all in one place!

DOWNLOAD THE APP AND GET STARTED

Erhältlich im **App Store**

GET IT ON **Google play**

BUILT BY STUDENTS, FOR STUDENTS

Source: Created by WP team with canvas.com

Appendix 45: NovaMart User Flow

4. Onboarding

- **Sign Up / Log In:** Students create an account using Nova SBE credentials.
- **Tutorial:** Quick walkthrough of app features: Buying, selling, lending, messaging, and campus pick-up / drop-off points.

<p>5. Browsing & Searching</p> <ul style="list-style-type: none"> • Home Page: Browse items or search using filters (categories, price, etc.). • Item Details: View item description, price, photos, and seller profile
<p>6. Listing Items</p> <ul style="list-style-type: none"> • Create Listing: Add item name, category, photos, price (or lending terms), and description. • Submit: Item is listed on the marketplace.
<p>7. Messaging & Transactions</p> <ul style="list-style-type: none"> • Contact Seller: Message via the app to negotiate and confirm transaction details. • Finalize: Agree on pick-up time and location (campus drop-off point).
<p>8. Exchange</p> <ul style="list-style-type: none"> • Meet-Up: Exchange items and money at campus locations.
<p>9. Post-Transaction</p> <ul style="list-style-type: none"> • Feedback: Leave optional reviews. • Manage Listings: Edit, remove, or mark items as sold / returned.

Source: Created by WP team

Appendix Phase 5:

Appendix 46: Business model canvas for NovaMart

Key Partners	Value Proposition	Customer Segments
<p>Key partnerships are the Nova SBE administration and app developers.</p> <p>Additional partners may include students or students' clubs (such as the student union), and the Nova SBE IT department, depending on the implementation approach.</p>	<p>NovaMart aims to create value for Nova SBE students, alumni, staff, and faculty by providing a single, convenient platform where users can buy, sell, or exchange goods and services with the goal of reducing their living expenses.</p> <p>Tailored specifically to Nova SBE's unique culture and needs, the platform fosters community interaction and strengthens ties among its users. With its</p>	<p>The primary customer segment includes all Nova SBE students, ranging from undergraduates to postgraduates, as well as exchange students. The app is specifically designed for students looking to buy or sell items, often driven by the temporary nature of their stay in Portugal during their studies.</p> <p>Additionally, the platform also extends to alumni, staff,</p>

	scalability and potential for further customization, NovaMart offers a cost-effective and seamless solution, not only meeting the current needs of its target audience but also laying the groundwork for future growth and integration.	and faculty members, allowing them to list items they no longer need or seek affordable options for purchases.
<p>Key Activities</p> <p>Key activities include securing implementation approval, developing and testing the NovaMart app, onboarding of users, promoting it through university channels, moderating content, and gathering feedback for continuous improvements.</p>	<p>Revenue Streams</p> <p>The primary goal of this initiative is to support students by providing a valuable resource tailored to their needs. As such, the app is designed without a direct revenue stream to ensure its focus remains on delivering value rather than monetization. However, in the future, there is potential to introduce in-app advertising and partnerships with local businesses or brands as sustainable revenue opportunities.</p>	<p>Channels</p> <p>The NovaMart app will be the primary platform, supported by promotions through its website, social media, on-campus campaigns, and the university website.</p>
<p>Key Resources</p> <p>Key resources for achieving this vision include a skilled team, robust technological infrastructure, and a dedicated budget to support the development, launch, and ongoing maintenance of the platform.</p>	<p>Cost Structure</p> <p>Key costs include app development expenses, marketing and promotional efforts, maintenance for hosting and updates, and operational costs for moderation and support.</p>	<p>Customer Relationships</p> <p>The app is designed for seamless independent use. Nonetheless, it will feature intuitive feedback channels and a dedicated user help desk to enhance user experience and foster continuous improvement.</p>

Source: Created by WP team

Appendix 47: Detailed timeline for the implementation of the NovaMart app

TASKS	Jan 2025	Feb 2025	Mar 2025	Apr 2025	Jun 2025	July 2025	Aug 2025	Sep 2025	Oct 2025	Nov 2025	Dec 2025
Planning	[Light Blue Bar]										
App Configuration			[Light Blue Bar]								
Testing & Feedback								[Dark Blue Bar]			
Marketing and Pre-Launch Prep.										[Dark Grey Bar]	
Go-Live											[Orange Star]

Source: Created by WP team