



Management of sustainability and well-being for individuals and society

Conference Proceedings

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Long Papers

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To the reader,

this volume contains the long papers of the Sinergie-SIMA 2024 Management Conference, hosted by the University of Parma on June 13th and 14th 2024.

Theory and practice in the field of management have been challenged by the emergence of sustainability and well-being as major global policy priorities. Both sustainability and well-being are complex, value-laden, and strongly interconnected; however, they tend to exist in separate realms.

Sustainability literature has recorded an evolution in the way the concept of sustainable development is understood, leading to the articulation of sustainable development as human “well-being” and “flourishing”, rather than “needs”. Nevertheless, some scholars have pointed out a lack of clarity in the conceptualization, which causes some ambiguity in terms of definition (Ronen & Kerret, 2020). Kjell (2011) observed that human needs and well-being are poorly understood, characterized, and developed by sustainability research. Along the same vein, Helne & Hirvilammi (2015) observed that the overarching goal of sustainable development (i.e., well-being) has often been narrowly interpreted, mainly in economic terms, while connections between the natural environment and human flourishing have been overlooked. More recently, O’Mahony (2022) remarked that the literature conceptualizing human well-being continues to exist largely outside sustainable development. Hence, placing well-being more clearly within the sustainability framework could be highly beneficial to sustainability.

Concurrently, the literature on well-being is almost entirely dissociated from the contributions of nature or the relationships with ecological and planetary systems (Roberts et al., 2015), and the importance of social dimensions is an emergent conclusion. Therefore, the rationale of contextual systems inherent to sustainability research (incorporating views of times, society, and biosphere) could significantly enrich well-being research, fostering a more holistic perspective on well-being and an increased awareness of the limits of individual well-being pursuits (Kjell, 2011).

In brief, though well-being has major implications for sustainable development and vice versa, the body of literature that effectively integrates sustainability and well-being remains in an embryonic stage.

The above considerations aim to act as catalysts for an interdisciplinary debate within the field of management. Enriching the conception of flourishing well-being in sustainability and the contribution of nature to well-being can produce impactful scientific research, as O’Mahony (2022) points out. Equally important is the analysis of the links between sustainability and well-being, encompassing synergies and trade-offs at the organizational level, in value chains, and in interactions with stakeholders across various industries.

The Sinergie-SIMA 2024 Management Conference welcomed contributions based on different theories, methodological approaches, and units of analysis with the potential to empower a transformation for flourishing individuals, society, and the natural world alike. More precisely, the Conference was a great occasion to discuss the research efforts of our research community within tracks related to the:

- Conference theme (Management of sustainability and well-being for individuals and society),
- SIMA thematic groups (Entrepreneurship, Innovation & Technology Management, Intelligenza manageriale nel management, International Business, Marketing, Purpose-driven Businesses, Retailing & Service Management, Small & Family Business, Strategic Communication, Strategy & Governance, Supply Chain Management, Logistics & Operations, Sustainability, and Tourism & Culture Management),
- special tracks (Examining the social and environmental relevance of sustainable digital business models: Impact on business practices and consumers, Growing resilient Italian SMEs, and Perspectives on grand challenges in international business and implications for companies),
- Management Case Studies.

The Conference call for papers gave the opportunity to submit either short and long papers. Overall, the editorial staff received 277 submissions of which 215 short papers and 62 long papers.

For the *short and long papers*, the evaluation followed the peer review process, with a double-blind review performed by, respectively, one or two referees - university lecturers and experts about the topic - selected among SIMA and the community of Sinergie members.

In detail, the referees applied the following criteria to evaluate the submissions:

- clarity of the research aims,
- accuracy of the methodological approach,
- contribution in terms of originality/innovativeness,
- theoretical and practical contribution,
- clarity of communication,
- significance of the bibliographical basis.

The *peer review* process resulted in full acceptance or rejection of the submissions. In the case of disagreement among reviewers' evaluations, the decision was taken by the Chairs of the SIMA thematic groups or conference track. Each work was then sent back to the Authors together with the referees' reports. The suggestions received by the referees were used by the Authors during the presentation of their research works at the Conference.

The evaluation process ended with the acceptance of 211 short papers and 58 long papers. This volume proposes the papers whose Authors have authorized their publication.

All the long papers published in this volume were presented and discussed during the Conference and published online on the web portal of Sinergie-SIMA Management Conference (<https://www.sijmsima.it/>).

While thanking all the Authors, Chairs, and participants, we hope that this volume will contribute to advance knowledge about the management of sustainability and well-being for individuals and society.

The Conference Chairs

Guido Cristini, Beatrice Luceri, Arabella Mocciaro Li Destri, and Marta Ugolini

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SUS²A: A framework for assessing Investment Readiness Level in Start-ups. Literature review and model description

MARCO REMONDINO¹ VERONICA MARIANNELLI² ANTONIO PERFETTI³

Abstract

Frame of the research. *The research is set within the evolving global economy, emphasizing the increasing importance of technological advancement and sustainability as key factors determining startup success. It frames the necessity for a comprehensive approach to evaluate and improve startup investment readiness by integrating strategic management, innovation, and sustainability principles.*

Purpose of the paper. *The purpose is to introduce the Strategic Unbiased Startup Sustainability Awareness (SUS²A) model as a diagnostic tool to help startups assess their investment attractiveness and identify improvement areas. This aims to facilitate targeted strategies that meet investor expectations and global sustainability goals.*

Methodology. *The methodology involves a comprehensive literature review to explain the reason why for the model, followed by a multi-dimensional approach to evaluate startups across several domains, including strategic business management, innovation management, sustainability, financial viability, market potential, and team competency. It uses specific indicators within these domains to conduct a detailed analysis of a startup's strengths and improvement areas through the SUS²A model's structured assessment framework.*

Results. *Preliminary results demonstrate the SUS²A model's effectiveness in identifying critical gaps in startups' strategies and operations. It offers a nuanced understanding of the Investment Readiness Level (IRL), enabling targeted improvements to increase investor attractiveness by balancing innovation and sustainability.*

Research limitations. *The limitations include the model's dependence on available data for evaluation and the potential necessity for customization across different startup ecosystems and sectors. Additionally, it notes the need for further experimentation to obtain conclusive results.*

Managerial implications. *The research provides significant managerial implications by offering startups a comprehensive framework to evaluate and enhance their IRL. It also presents investors with a structured method to assess startup potential beyond traditional financial metrics, aligning startup strategies with investor expectations and contributing to sustainable economic development.*

Originality of the paper. *The originality of the paper lies in the SUS²A model and its integration of strategic management, technological innovation, and sustainability in evaluating startups. This addresses a gap in existing literature and practice, presenting a scalable and comparable diagnostic tool in line with modern business trends and investor priorities.*

Key words: *Investment Readiness Level, Technological Innovation, Sustainability, Strategic Management, Diagnostic Tool, Innovation Management*

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1. Introduction

In the last twenty years, startups have played a fundamental role in driving technological innovation, economic growth, and sustainable development. The intersection of technology and sustainability has emerged as a critical area of focus, necessitating a nuanced understanding of how startups can leverage these dimensions to attract investment and ensure long-term success. This paper introduces the *Strategic Unbiased Startup Sustainability Awareness* (SUS²A) model, a novel framework designed primarily to evaluate and improve startup attractiveness to investors. The SUS²A model is grounded in the principles of strategic management, technological innovation, and sustainability, offering a comprehensive diagnostic tool that employs a scalable and comparable measurement approach. The following part outlines the context and relevance of integrating technological innovation and sustainability in startup evaluation and investment, reviews relevant literature on startup assessment and the integration of sustainability and technology in business models, and presents research questions aimed at exploring the integration of technological innovation and sustainability in startup evaluation through the SUS²A model and its implications for startup development and investor decision-making.

Technological innovation and sustainability are increasingly recognized as foundational concepts for the success and resilience of startups in the contemporary economy (Aldianto *et al.*, 2021; Salamzadeh *et al.*, 2022; Daraojimba *et al.*, 2023). This recognition is grounded in an evolving understanding of economic success, which now integrates environmental stewardship and technological advancement as critical components (Oláh *et al.*, 2020; Javaid *et al.*, 2022). This integration reflects a paradigm shift in global business practices, where the traditional metrics of financial performance are being supplemented with considerations of environmental impact and innovation capacity (Arabeche *et al.*, 2022; Vasile *et al.*, 2022; Le *et al.*, 2023).

The dynamic nature of the startup ecosystem, characterized by rapid technological advancements and shifting market demands, necessitates a comprehensive approach to innovation that is both forward-thinking and grounded in sustainable practices (Elia *et al.*, 2021; Davis, 2022; Kaggwa *et al.*, 2023). Technological innovation in this context is not merely the introduction of new products, services, or processes but entails a broader conceptualization that includes the disruption of traditional industries through sustainable and environmentally friendly methodologies (De Propriis and Bailey, 2020; Kivimaa *et al.*, 2021). Such innovation is increasingly driven by the need to address complex global challenges, including climate change, resource scarcity, and social inequality, thereby aligning economic objectives with broader societal goals (Tödtling, Trippel and Desch, 2022; Segovia-Hernández *et al.*, 2023).

Sustainability, as applied within the startup context, includes a multi-dimensional approach that seeks to balance economic growth with environmental protection and social responsibility (Suriyankietkaew, Krittayarangroj and Iamsawan, 2022; Adhikari, Shrestha and Adhikari, 2023). This approach is premised on the principle of meeting the current needs without compromising the ability of future generations to meet their own, necessitating a long-term perspective on value creation that transcends immediate financial gains (Doh, Budhwar and Wood, 2021; Grossi, Vakkuri and Sargiacomo, 2022). The broad range of issues covered by sustainability includes, but is not limited to, reducing carbon footprints, enhancing energy efficiency, promoting social equity, and ensuring economic inclusivity (Sovacool *et al.*, 2022; Hariram *et al.*, 2023).

The integration of technological innovation with sustainability strategies poses a unique set of challenges for startups, necessitating a nuanced understanding of the complex interplay between these dimensions. On one hand, this integration demands a commitment to research and development (R&D) aimed at fostering innovation that adheres to principles of sustainability (Chege and Wang, 2020; Chiarini, Belvedere and Grando, 2020). This commitment often requires startups to venture into uncharted territories, exploring new business models and operational strategies that prioritize long-term environmental and social value over immediate profitability.

On the other hand, the successful integration of sustainability and innovation requires startups to manage the complex regulatory, social, and environmental contexts in which they operate (Lüdeke-

Freund, 2020). This is critical for ensuring not only compliance with existing regulations but also the ability to anticipate and adapt to future changes in the socio-economic environment. The capacity to understand and respond to these external pressures is essential for maintaining the startup's relevance, value creation and competitiveness in an increasingly sustainability-conscious market (Ninduwezuor-Ehiobu *et al.*, 2023).

Besides, the intersection of technological innovation and sustainability in startups is not only a response to external pressures but also a strategic approach to investment attraction (Bellucci, Bini and Giunta, 2020; Lüdeke-Freund, 2020). Investors are increasingly prioritizing sustainability and innovation in their decision-making processes (Ikram *et al.*, 2021; Alkaraan *et al.*, 2023), recognizing these factors as indicators of a startup's potential for long-term success and resilience. This shift in investor priorities underlines the importance of startups aligning their strategies with sustainability and innovation principles, not only to attract investment but also to forge a path toward sustainable development.

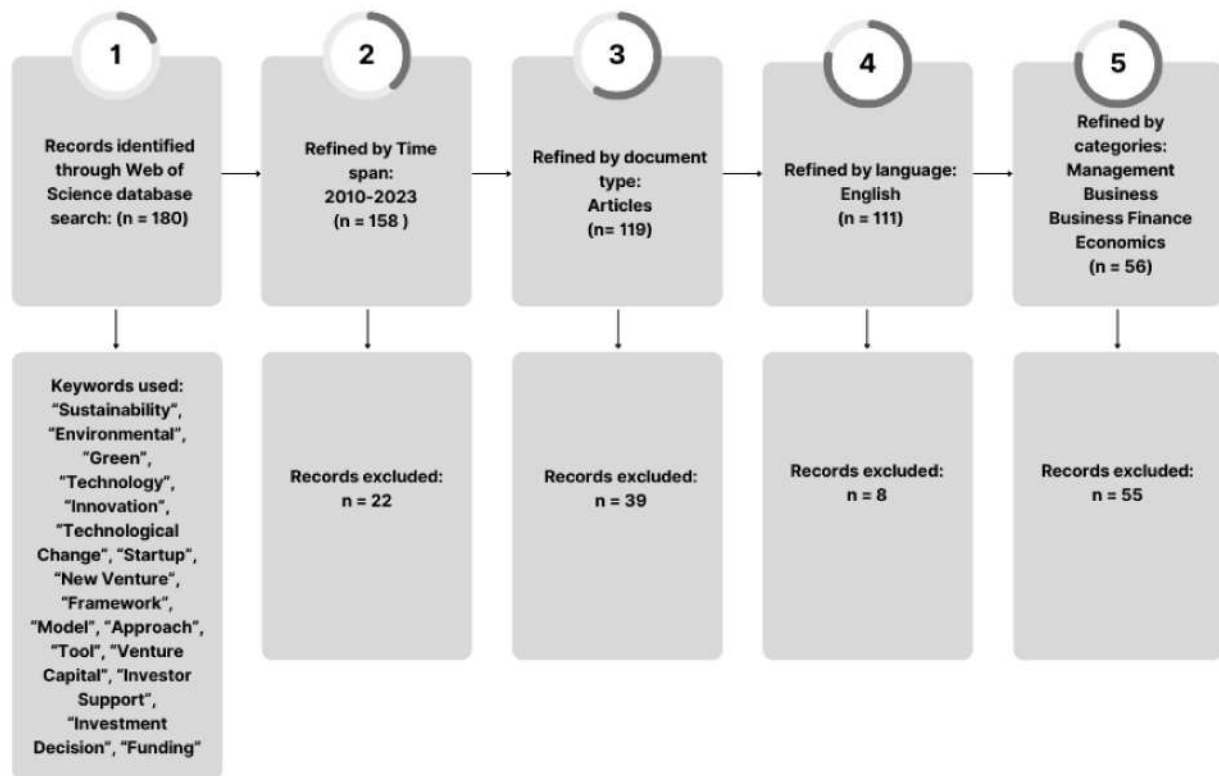
From a managerial viewpoint, the strategic integration of technological innovation and sustainability requires a comprehensive approach that balances immediate operational needs with long-term strategic goals (Tsai *et al.*, 2020), ensuring that startups are not only innovative and competitive but also sustainable and responsive to the broader societal challenges.

2. Literature Review and bibliographic analysis

The literature on startup assessment and investment readiness shows the complexity of evaluating startup potential and investor attractiveness (Granz, Henn and Lutz, 2020; Trautwein, 2021). Traditional evaluation metrics often focus on financial performance (COZGAREA *et al.*, 2023; Guo and Xing, 2023), market potential (Parzen *et al.*, 2022), and the entrepreneurial team's expertise (KRAIEM, MABROUK and Lucas, 2023). However, recent studies suggest that these metrics are increasingly being supplemented with criteria related to technological innovation and sustainability (Alänge, Steiber and Corvello, 2022; Alizada, 2023). This shift reflects a broader understanding of value creation in the startup ecosystem, where sustainable and innovative practices are seen as indicators of a startup's ability to adapt and thrive in the face of global challenges.

In order to fully explore the literature for similar proposed methods, a bibliographic analysis was carried on. In particular, this investigation involves a comprehensive analysis of a wide range of articles and publications from the Web of Science (WoS) database. As depicted in Figure 1, the present study analyzed 180 articles published from 2010 to 2023. The keywords used to retrieve the publications listed in the WoS database are Sustainability, Environmental, Green, Technology, Innovation, Technological Change, Startup, New Venture, Framework, Model, Approach, Tool, Venture Capital, Investor Support, Investment Decision, Funding. Following this step, the initial number of publications was limited to scientific articles published in English and belonging to the categories of Management, Economics, Business, and Business Finance.

Fig. 1: bibliographic search on WoS (keywords and synthetic results)



The query used in WoS reflects a targeted search for scientific literature articles addressing the themes of sustainability, technological innovation, and funding in relation to startups. This query was constructed by combining different keywords to cover a broad range of topics related to sustainability, technology, entrepreneurship, and funding.

The query is as follows:

((TS=("sustainab*" OR "environment*" OR "green"))) AND (TS=("technolog*" OR "innovat*" OR "technolog* change*")) AND (TS=("startup*" OR "new venture*" OR "start up*" OR "start-up*")) AND (TS=("framework*" OR "model*" OR "approach*" OR "tool*")) AND (TS=("investor* support*" OR "investment* decision*" OR "funding*" OR "venture* capital*"))

The specific parts of the query reflect: sustainability; technological innovation; startups/new ventures; frameworks, models, approaches, and tools; investor support and investment decisions. More specifically, the query employs a structured approach to identify scholarly articles and research papers at the intersection of environmental sustainability and entrepreneurship within the context of technological innovation. It aims to extract literature that:

- Explores the adoption of sustainable, environmental, or green technologies and innovations by startups and new ventures.
- Examines the frameworks, models, approaches, or tools deployed by these ventures to integrate sustainability into their business operations.
- Investigates the role of investor support, including venture capital and investment decisions, in facilitating or enhancing the growth and development of technology-oriented startups with a focus on sustainability.

Sustainability: specific keywords include "sustainab*" which could cover "sustainability" or "sustainable," "environment*" for environmental topics, and "green" for ecological themes.

Technological Innovation: keywords include "technolog*," "innovat*," and "technolog* change*."

Startups and New Ventures: keywords cover various expressions of "start-up," including "new venture*," "start up*," and "start-up*."

Frameworks, Models, Approaches, and Tools: this section focuses on articles that may present frameworks, models, approaches, or tools. Keywords include “framework*,” “model*,” “approach*,” and “tool*.”

Investor Support and Investment Decisions: this part refers to aspects related to investor support and investment decisions. Keywords include “investor* support*,” “investment* decision*,” “funding*,” and “venture* capital*.”

As it emerges from this search, several frameworks and models have been proposed in the literature (Pradhan *et al.*, 2017; Di Paola *et al.*, 2018; Wu *et al.*, 2019; Kostin, Fendel and Wild, 2022; van Rijnsoever, 2022) to assess startup readiness for investment, with varying degrees of emphasis on sustainability and technology. For instance, the Lean Startup methodology (Rutitis and Volkova, 2021; Rahmani *et al.*, 2023; Vlies, 2023) emphasizes rapid prototyping and customer feedback loops to drive innovation, but it does not explicitly address sustainability. Conversely, the Triple Bottom Line (TBL) framework (Loviscek, 2020; Ozturkoglu, Sari and Saygili, 2021; Singh and Srivastava, 2022) focuses on evaluating a company’s performance in three dimensions: social, environmental, and financial, encouraging businesses to pursue sustainability goals. However, there is a gap in the literature regarding frameworks that holistically integrate technological innovation and sustainability into startup evaluation and investment decision-making processes.

Sustainable business models often require startups to manage complex trade-offs between short-term profitability and long-term environmental and social goals. At the same time, leveraging technological innovation for sustainability presents opportunities for startups to differentiate themselves in crowded markets and address pressing global challenges. The literature highlights several success stories of startups that have successfully integrated sustainability and technology (Nyadu-Addo and Mensah, 2017; Zeng, 2018; Baaziz, 2019; Conway and Hemphill, 2019), but systematic approaches to evaluating and improving such integration remain limited.

SUS²A model addresses these gaps by providing a comprehensive framework for evaluating and improving startup attractiveness to investors through the dimensions of technological innovation and sustainability. As briefly pointed out, SUS²A represents a transformative approach to evaluating the readiness and maturity of innovative startups. Its comprehensive methodology, which incorporates advanced analytics and self-administration, provides a tool for researchers, advisors, investors, and entrepreneurs alike. By offering detailed scoring across various dimensions of enterprise operation and strategic orientation, SUS²A can facilitate informed decision-making, targeted improvements, and enhanced investor readiness, positioning it as a crucial instrument in the landscape of startup development and innovation.

This leads to the formulation of two critical research questions for the core of the present paper:

1) *How does the SUS²A model integrate technological innovation and sustainability in startup evaluation?*

This question seeks to explore the methodological underpinnings of the SUS²A model, examining how it incorporates sustainability and technological innovation into its evaluation criteria. It involves a detailed analysis of the model’s evaluation areas and categories, its scalable and comparable measurement approach, and the method for facilitating effective diagnosis and action planning. This analysis will provide insights into how the model bridges the gap between sustainability and technological innovation, ensuring startups are not only innovative but also sustainable in their operations and business models.

2) *What are the implications of using SUS²A for startup development and investor decision-making?*

This question delves into the practical implications of employing the SUS²A model for startups and investors. It seeks to understand how the model can influence startup strategy, development, and the ability to attract investment. It also explores the implications for investors in terms of identifying startups that not only promise high returns but, at the same time, contribute to sustainable development.

3. The central concept of Investment Readiness Level (IRL)

SUS²A provides a “cognitive map” that serves as an automatic filter for objectively assessing the condition of startups, spin-offs, and innovative SMEs in terms of their readiness for businesses and investors, using the Innovation Readiness Level (IRL) and its variations through detailed scoring. It’s important to note that there’s no analytical and established description in literature for the underlying nine stages of maturity that the classical IRL indicator expresses for attributing a specific level of IRL, unlike the technology readiness level (TRL) indicator.

IRL acts as a tool that accompanies the lifecycle of a startup, spin-off, or innovative SME, offering a representation of its actual conditions, collateral risks, improvement areas, and enables the association of necessary action plans, effort levels, costs, and tracking of outcomes.

Its methodology consists of:

- Extended and deep analytical basis
- Characterised categories and areas
- Flexible delivery modes
- Scoring based on consistent metrics
- Traceability of results

Its prerequisites make it possible to:

- Use weighting algorithms
- Develop an updatable Analytical Base
- Allow self-administration modes
- Establish a Methodology for advisory
- Issue standardised reports.

In other words, IRL represents a structured approach to gauge a startup’s maturity and readiness for investment. Originally conceptualized by Steve Blank (Blank, 2013), the IRL provides a framework analogous to the Technology Readiness Level (TRL) used by NASA (Mankins, 1995), but specifically tailored for startups. It serves as a metric system that evaluates the readiness of a startup to receive and effectively utilize investment based on various criteria, including business model validation, market fit, scalability potential, and the robustness of the management team.

IRL’s importance lies in its ability to transform the often subjective and speculative process of startup evaluation into a more objective and structured assessment. It offers both startups and investors a common language to discuss progress and pinpoint specific areas that need improvement before a startup can be considered ready for investment. This framework not only facilitates better decision-making for investors but also provides startups with clear milestones and targets for development, making the journey towards investment readiness more transparent and navigable.

The role of IRL in startup assessment is multifaceted, contributing to a more comprehensive and nuanced evaluation of a startup’s potential for success and sustainability. Here’s how IRL contributes to the startup assessment process:

1. **Objective Benchmarking:** IRL offers a standardized method for assessing startup maturity across various stages of development. This standardization allows for objective benchmarking, where startups can be compared against established criteria, helping investors identify ventures with the highest potential for success.
2. **Identifying Strengths and Weaknesses:** By breaking down the investment readiness into specific levels, IRL helps startups identify their strengths and weaknesses in critical areas such as product development, market validation, and business strategy. This detailed analysis enables targeted improvements, ensuring that resources are allocated efficiently to areas that will most significantly impact investment readiness.
3. **Facilitating Investor Communication:** The IRL framework provides a common vocabulary for discussions between startups and investors. It shifts the conversation from a binary “yes” or “no” investment decision to a more constructive dialogue about what startups need to do to reach the next level of readiness. This facilitates better mentoring and guidance from investors and other stakeholders.

4. **Enhancing Strategic Planning:** Startups can use their IRL assessment to inform strategic planning and prioritization. Understanding their current level of investment readiness helps startups set realistic goals and timelines for reaching the next level, ensuring that efforts are aligned with enhancing their attractiveness to investors.
5. **Improving Capital Efficiency:** The focus on reaching specific readiness levels before seeking investment ensures that startups are more likely to use the capital they receive efficiently. By addressing key risks and validating their business model before seeking significant funding, startups can reduce waste and increase the likelihood of successful growth.
6. **Encouraging Sustainability:** Although not explicitly focused on environmental sustainability, the IRL framework encourages startups to build solid foundations for long-term success. This includes developing sustainable business models that are resilient to market changes and capable of delivering consistent value over time.

The SUS²A model, which is grounded in the principles of strategic management, technological innovation, and sustainability, incorporates IRL as a key component to offer an evaluation of startups based on various parameters. This integration aims to provide a comprehensive understanding of a startup's position in the investment readiness spectrum, thereby facilitating targeted strategies to elevate their attractiveness to investors. The following elaboration details how SUS²A utilizes IRL, emphasizing a scientific and methodological perspective devoid of an overly promotional tone.

The SUS²A model adopts the IRL framework to systematically evaluate a startup's maturity across several domains critical to investment attractiveness. This evaluation includes an assessment of the startup's business model validation, market fit, scalability, management team robustness, and the integration of technological innovation and sustainability. By incorporating IRL, SUS²A offers a structured path for startups to progress through different levels of investment readiness, focusing on achieving specific milestones that signal their preparedness for external funding, in the following ways.

Objective Benchmarking and Targeted Improvement: SUS²A leverages IRL's objective benchmarking capabilities to compare startups against established criteria, identifying areas of strength and opportunities for improvement. This benchmarking serves as a foundation for SUS²A's diagnostic tool, which evaluates startups across multiple dimensions, including financial viability, market potential, technological innovation, and sustainability practices. By pinpointing precise areas where a startup needs to develop further to become investment-ready, SUS²A facilitates targeted improvements, enabling startups to allocate their resources more efficiently and effectively.

Enhanced Investor Communication and Strategic Planning: the integration of IRL into SUS²A enhances communication between startups and investors by providing a shared framework for discussing a startup's current investment readiness level and the steps required to advance. This improved communication fosters a more collaborative relationship between startups and investors, where feedback and guidance can be more precisely tailored to address specific gaps in readiness. Besides, SUS²A's adoption of IRL aids startups in strategic planning, allowing them to set realistic goals and timelines for achieving higher levels of investment readiness. This strategic focus ensures that startups remain aligned with the critical factors that influence investor decision-making, thereby increasing their chances of securing investment.

Addressing Market Fit, Scalability, and Operational Excellence: SUS²A's use of IRL emphasizes the importance of achieving market fit, scalability, and operational excellence as prerequisites for investment attractiveness. Through its comprehensive evaluation framework, SUS²A guides startups in validating their market fit, demonstrating their potential for scalability, and achieving operational efficiency. These aspects are critical for assuring investors of the startup's capacity to grow and generate returns on investment. By systematically addressing these challenges, startups can enhance their profiles, making them more appealing to a broad spectrum of investors.

Reducing Investment Uncertainty and Risk the structured approach to evaluating startup potential offered by the SUS²A model, through the incorporation of IRL, plays a fundamental role in reducing the uncertainty and risk associated with early-stage investments. By providing clear, objective

assessments of a startup's readiness for investment, SUS²A mitigates the speculative elements of investment decision-making. This reduction in uncertainty is beneficial for both startups and investors, as it leads to more informed, confident investment decisions and fosters a more efficient allocation of capital within the startup ecosystem.

The outcomes of scoring through SUS²A can be represented by the description of the 9 IRL levels.

- IRL 1 Initial business idea
- IRL 2 Existence of a corporate team to develop the business idea
- IRL 3 Corporate team established and initiated
- IRL 4 Corporate team established, initiated, and structured
- IRL 5 Corporate entity active and dedicated to implementing the business idea
- IRL 6 Corporate entity active and capable of market testing
- IRL 7 Active, solid, and sustainable corporate entity
- IRL 8 Corporate entity with proven competitive capabilities in collaborative contexts
- IRL 9 Corporate entity with proven autonomous competitive capabilities

4. Methodology and framework of the SUS²A Model

As briefly pointed out, the SUS²A model offers a comprehensive framework for the evaluation and enhancement of startup investment potential. It is structured to provide a multidimensional assessment, integrating various components that gauge a startup's performance across a spectrum of domains. These domains include strategic management, technological innovation, sustainability, financial viability, market potential, and team competency, among others. This integrative approach ensures that the evaluation of startups transcends mere financial metrics, acknowledging the significance of strategic alignment with contemporary trends in technology and sustainability.

The strategic management component evaluates a startup's ability to define, implement, and adapt strategies that ensure its long-term success and sustainability. This involves assessing the clarity of the startup's vision, the effectiveness of its competitive strategies, and its responsiveness to market dynamics. Indicators within this domain may include the coherence of business planning, the rigor of market analysis, and the agility of strategic decision-making processes.

In the domain of technological innovation, the model scrutinizes a startup's capacity to develop and implement groundbreaking technologies. This evaluation not only considers the novelty and disruptiveness of the technology but also its scalability and the startup's ability to maintain a competitive technological edge. Indicators here could include the level of innovation, the potential for market disruption, intellectual property rights, and the integration of new technologies into existing markets.

Sustainability assessment within the model focuses on a startup's commitment to and implementation of practices that ensure environmental stewardship, social responsibility, and economic growth. This domain evaluates how well a startup's operations and business model are aligned with sustainable development goals. Key indicators might include the reduction of carbon footprint, social impact initiatives, ethical business practices, and sustainable supply chain management.

The financial viability component examines a startup's economic health and its potential for sustainable growth and profitability. This involves an analysis of revenue models, cost structures, funding strategies, and financial projections. Indicators in this area assess the robustness of financial planning, the effectiveness of resource allocation, and the startup's ability to generate revenue and manage expenses.

Assessment of market potential looks at a startup's ability to identify, enter, and grow within its target markets. This includes evaluating the size and accessibility of the market, the startup's market positioning, and its marketing strategies. Indicators might cover market size and growth forecasts, competitive analysis, customer segmentation, and go-to-market strategies.

The team competency domain assesses the skills, experience, and cohesion of the startup's founding and management teams. This area considers the team's ability to execute on the startup's vision, manage challenges, and drive the company towards success. Indicators include the team's background and expertise, leadership and management skills, and the ability to attract and retain talent.

The methodology of the model is characterized by its rigorous and structured assessment framework, made of hierarchical questions and evaluation criteria. Startups are categorized according to multiple evaluation areas, with each area being further dissected into categories and sub-categories. This hierarchical structure ensures a detailed and granular analysis of startup performance. Specific indicators within each sub-category are used to measure performance, enabling a comprehensive and nuanced understanding of a startup's strengths and areas for improvement.

The implementation of this model involves a systematic process where startups are evaluated against the predefined indicators across all domains. This process begins with the collection of qualitative and quantitative data about the startup, followed by analysis and scoring based on the model's criteria. The results of this evaluation provide a wide view of the startup's investment attractiveness, highlighting areas of strength as well as gaps that need to be addressed.

The use of specific indicators allows for the generation of actionable insights, facilitating targeted strategies for improvement. For instance, if a startup scores low in the sustainability domain, it may be prompted to develop a more robust sustainability strategy, incorporating environmental and social considerations into its business model. Similarly, a startup lacking in financial viability may be advised to refine its revenue model or improve its cost management practices.

One of the primary advantages of this model is its ability to provide a complete view of a startup's readiness for investment. By considering a broad range of factors beyond financial performance, the model offers a more comprehensive assessment of a startup's potential for success. This is particularly important in today's business environment, where technological innovation and sustainability are increasingly critical to long-term success.

In addition, the model's structured and nuanced approach allows for the identification of specific areas where startups need to improve, making it a valuable tool for targeted development efforts. This can significantly enhance a startup's attractiveness to investors, who are often looking for ventures that not only promise high returns but also demonstrate alignment with broader societal and environmental objectives.

The application of the SUS²A model to the proposed research questions—how it integrates technological innovation and sustainability in startup evaluation, and its implications for startup development and investor decision-making—illustrates the model's capacity to provide solutions to critical challenges in the startup ecosystem.

1) Integration of Technological Innovation and Sustainability

The SUS²A model's methodological approach to integrating technological innovation and sustainability into startup evaluation is distinguished by its comprehensive and multi-faceted framework. This framework is built on the premise that challenges and market opportunities require startups to adopt innovative technologies and sustainable practices not just as a compliance or marketing strategy, but as a core component of their business model. The model delineates specific indicators for assessing the extent to which startups incorporate these dimensions into their operations and strategy.

For technological innovation, indicators are designed to evaluate the originality of the technology, its disruptive potential, and scalability. This includes examining the startup's R&D activities, patent holdings, and the technological readiness level (TRL) of its products or services. The aim is to ascertain not only the current state of the technology but also its future growth trajectory and potential to alter existing market contexts or create new ones.

In the domain of sustainability, the model emphasizes a comprehensive assessment that goes beyond environmental considerations to include social and governance aspects (ESG criteria).

Indicators in this context assess the startup's impact on environmental conservation, including its carbon footprint, resource efficiency, and waste management practices. The model also evaluates the startup's contribution to social well-being, which includes employee welfare, community engagement, and contributions to societal challenges. Ethical business practices and governance, including transparency, accountability, and stakeholder engagement, are also critical components of the sustainability assessment.

The strategic alignment of startups with technological innovation and sustainability is facilitated by the SUS²A model through a detailed evaluation process that identifies not only the current integration of these elements but also opportunities for deeper incorporation. Startups are guided to align their strategies with best practices in technology and sustainability, enhancing their market positioning and investment attractiveness. The model advocates for an iterative process where startups continually assess and refine their approaches to innovation and sustainability, ensuring they remain responsive to evolving market expectations and regulatory environments.

2) Implications for Startup Development and Investor Decision-Making

As a diagnostic tool, the SUS²A model offers startups a clear insight into their strengths and areas requiring improvement. This diagnostic capability is crucial for startups to prioritize areas for development, especially in fast-evolving sectors where technological and sustainable advancements are rapidly changing the competitive context, directly connected with the descriptive and prescriptive dimensions of the Viable Systems Approach (Golinelli, 2011).

By providing a detailed analysis across multiple dimensions, the model enables startups to devise targeted strategies that enhance their technological and sustainability profiles, thereby improving their overall investment attractiveness.

For startup development, the implications of this model are potentially important. Strategically, it encourages startups to adopt a forward-looking perspective, where technological innovation and sustainability are integrated into the core of their business models. This not only prepares startups for the increasing demands of consumers and regulatory bodies but also positions them to capitalize on new market opportunities that these dimensions unlock.

From an investor's perspective, the SUS²A model offers a structured framework that demystifies the complexities of evaluating early-stage investments. By dissecting a startup's performance across technological innovation, sustainability, and other critical domains, the model reduces the uncertainty and risks associated with such investments. Investors are provided with a comprehensive profile of each startup, highlighting areas of strength and potential risks, thereby facilitating informed decision-making.

Investors using the SUS²A model can better identify startups that not only promise robust economic returns but also align with broader societal and environmental goals. This alignment is increasingly becoming a determinant of long-term success in the global market, where sustainability and innovation drive competitive advantage. Consequently, the model not only aids in the selection of viable investments but also promotes a more sustainable and innovative startup ecosystem.

5. SUS²A Model Conceptual Development

SUS²A model's conceptual development is deeply rooted in the foundational theories of strategic management. Strategic management provides a framework for organizations to analyze competitive environments, define strategic direction, and make decisions to achieve long-term goals. The SUS²A model adopts these principles to guide startups in managing the complex and dynamic business context, emphasizing the importance of a strategic approach in enhancing investment attractiveness.

The model's connection to strategic management theories is evident in its emphasis on strategic alignment and agility. It encourages startups to align their operations and business models with both current market demands and future trends. This alignment involves a thorough analysis of internal strengths and weaknesses, as well as external opportunities and threats (SWOT analysis), a concept

borrowed directly from strategic management literature (Gurl, 2017). The SUS²A model operationalizes this analysis through its multidimensional assessment framework, evaluating startups on various fronts including market potential, technological innovation, and sustainability.

Additionally, the model underscores the significance of strategic agility (Ferraris *et al.*, 2022), which refers to a startup's ability to rapidly adapt to market changes and emerging opportunities. This is aligned with the dynamic capabilities theory, which posits that the ability of a business to integrate, build, and reconfigure internal and external competencies to address rapidly changing environments is a key source of competitive advantage. By incorporating these strategic management concepts, the SUS²A model equips startups with a roadmap for strategic development, ensuring they are well-positioned to attract investment.

Innovation and technology constitute central concepts in the SUS²A model's framework, reflecting the model's approach to embedding technological advancement within the startup evaluation process. The model recognizes that technological innovation is a critical driver of competitive advantage (Cerrato, 2011; Dagnino, 2014), market differentiation, and long-term sustainability for startups. It examines how startups leverage technology to create value, disrupt existing markets (Sehnem *et al.*, 2022), or establish new ones.

The model's focus on innovation extends beyond mere adoption of new technologies; it includes the capacity for continuous innovation and improvement. This is aligned with the concept of continuous innovation, where organizations persistently transform their business processes, products, and services to meet evolving customer needs and stay ahead of competition. The SUS²A model evaluates the extent to which startups embed innovation in their culture, processes, and strategy, considering factors such as R&D investment, innovation output (e.g., patents, new products), and the adoption of emerging technologies (e.g., AI, blockchain).

This comprehensive approach to assessing technological innovation is informed by theories of innovation management, which emphasize the importance of innovation ecosystems, collaboration with external partners (Yaghmaie and Vanhaverbeke, 2020), and the role of leadership in fostering an innovative culture. By integrating these aspects into its framework, the SUS²A model offers a nuanced understanding of how startups innovate and the implications of their technological strategies for investment attractiveness.

Sustainability integration within the SUS²A model reflects a forward-looking approach to embedding environmental, social, and governance (ESG) criteria into the startup evaluation process. The model conceptualizes sustainability not as an add-on but as an integral component of a startup's strategic management and innovation processes. This integration is premised on the understanding that sustainable practices are crucial for addressing contemporary challenges such as climate change, resource depletion, and social inequality, and for ensuring long-term business viability.

The SUS²A model's sustainability framework is informed by the triple bottom line (TBL) concept (Goh *et al.*, 2020), which encourages businesses to achieve a balance between economic, environmental, and social objectives. It assesses startups based on their environmental impact, including energy efficiency, waste management, and carbon footprint; their social impact, such as community engagement, employee welfare, and diversity and inclusion practices; and their governance structures, including transparency, ethical business practices, and stakeholder engagement.

Last, but not least, the model recognizes the strategic value of sustainability as a source of innovation and competitive advantage. This perspective is supported by theories of sustainable innovation, which argue that sustainability challenges can spur innovation in products, services, and business models. The SUS²A model evaluates how startups leverage sustainability as a driver for innovation, examining their approaches to sustainable product development, circular economy practices, and the creation of shared value for society and the environment (Diaz *et al.*, 2021).

6. Categories for SUS²A and their connection with IRL levels

SUS²A is a comprehensive tool that, in synergy with the IRL categories, offers a detailed and personalized analysis of the status of a startup, facilitating informed decision-making and supporting a sustainable growth path.

This tool is divided into specific categories, that emerge from a series of discourses related to operative practice and literature analysis, which gives them a well-founded foundation. The questions within each category are the result of an in-depth analysis, selecting the main issues to be explored for each area.

SUS²A's seven areas of analysis (Team, Marketing & Strategy, Finance & Economics, Legal & Protection, Product & Industrial, Validation, ESG) are structured to offer a comprehensive view of the factual conditions of a startup. These categories are not mere checkpoints but reflect critical aspects that contribute to the success and maturity of a startup. The use of SUS²A can take place at different levels of depth, allowing a granular detection of the analytical elements relevant to each category. The analysis derived from SUS²A provides the basis for the identification of relevant action plans. The subsequent surveys, representing actual changes in the characteristics assessed, serve as documentation of the results of the actions taken in the process of acceleration and attraction of investors.

By integrating SUS²A with the Investment Readiness Level (IRL) classification model, it is possible to get a complete picture of a startup's condition. Each category of SUS²A finds a direct parallel to key concepts from the IRL, as described in the previous section, thus allowing for a detailed and informed view of the startup's maturity.

Team (A), Marketing & Strategy (B), Finance & Economics (C), Legal & Protection (D), Product & Industrial (E), Validation (F), and ESG (G) reflect critical aspects that contribute to a startup's success and readiness. This correlation with the IRL offers a broad and detailed view of the startup's condition, considering all facets relevant to investors and long-term success. There are several benefits to using SUS²A and IRL together. SUS²A provides a step-by-step guide to explore and improve startup conditions, diagnose deficiencies, and define improvement actions. The IRL, on the other hand, offers an overall rating scale, allowing for a broader view of a startup's maturity. The analysis resulting from SUS²A can be translated into specific actions through acceleration tools, and continuous monitoring allows you to document the progress and effects of the actions taken.

The use of SUS²A therefore potentially allows for the granular detection of the presence/absence of individual analytical elements pertinent to the reference category and to group these results for each area to which they belong, but it is possible to use them of different depths, for subsequent detailed approximations:

- At the level of areas A/B/C/D/E/F/G
- At the level of the categories into which each area is divided
- At the level of the analytical elements underlying each category.

SUS²A's division into seven areas of analysis reflects the complexity and comprehensiveness of the business conditions to be assessed. These categories are closely related to the IRL categories, but with a more detailed and specific approach. Here are the categories, with specific insights.

- Team (A): The "Team" component in SUS²A has a direct parallel to the concept of "Team" within the IRL. A competent and cohesive team is crucial to the success of a startup at every stage of development. This category assesses the team's cohesion, skills, and leadership that are critical to the company's success.
- Marketing & Strategy (B): SUS²A's "Marketing & Strategy" category is closely related to concepts such as "Defining Market Positioning" (IRL 2) and "Defining Marketing Strategies" (IRL 5) in IRL. A well-defined marketing strategy is essential for growth and investment attractiveness. This

category examines marketing strategy, identifying how the company positions itself in the market and reaches its customers.

- Finance & Economics (C): Financial management and understanding economics are crucial considerations in both models. SUS²A's "Finance & Economics" category can be linked to concepts such as "Operating Model Validation" (IRL 8) in the IRL. This category analyses financial management and economic outlook, including future financial needs.
- Legal & Protection (D): Legal security is paramount for a startup, and SUS²A's "Legal & Protection" category aligns with the concept of "Legal Protection" within the IRL, which covers intellectual property protection and other legal aspects. This category evaluates the robustness of the legal structures and protections put in place to safeguard the company.
- Product & Industrial (E): This category reflects the stage of product development and its integration into the industrial environment. In terms of IRL, it could correspond to concepts such as "Product/Service Validation" (IRL 3) and "Market Validation of the Effectiveness of the Minimum Viable Product" (IRL 7). This category examines the quality and innovation of the product or service offered, as well as the positioning in the industrial sector.
- Validation (F): Validation is a crucial aspect for both instruments. SUS²A's "Validation" category links directly to various levels of IRLs, including "Value Proposition Validation" (IRL 6) and "Fundamental Metrics Validation" (IRL 9). This category evaluates the product's validation in the market and the company's value proposition.
- ESG (G): The growing importance of sustainability is reflected in SUS²A's "ESG" category. Even though it is not explicitly covered in the IRL, sustainability can influence the long-term success of a startup and could be considered across many IRL categories. This category examines the company's compliance and environmental, social, and governance impact.

The challenge is to devise an assessment model that is both simple and effective. The preferred approach is the pyramid model due to its simplicity, yet it acknowledges the complexity and variability of reality. Currently, approximate measurements are utilized rather than foregoing measurements altogether. The assessment relies on individual analytical items with affirmative, negative, or "not applicable" responses. These items are categorized and grouped into the above-mentioned areas, forming a pyramid-like structure. The overall score is derived from the interplay between areas, categories, and analytical items.

A careful balance between areas, categories, and analytical elements is maintained to avoid oversimplification. Introducing new criteria must respect this balance, ensuring that additional information remains meaningful and cognitively sound. The summary score enables vertical navigation to attain the desired level. Relevant information is primarily represented through analytical elements, while categories and areas serve a descriptive role and aid in synthesis.

To preserve the information density of analytical elements, repeated tests are conducted to ensure no redundancy exists. This safeguards the impartiality of the model by preventing networks of privileged relationships between analytical elements. The "not applicable" option allows for the exclusion of irrelevant elements without impacting the model, representing the widest possible perimeter based on the adopted methodology. Balancing simplicity with accurate representation underscores the complexity, ensuring the model remains unbiased and informative.

7. Strategic Implications and Application

This model's strategic applications extend to both startups seeking to optimize their strategic positioning and investors aiming to refine their investment selection criteria. By invoking theories from the strategic management literature, such as Porter's Five Forces, the Resource-Based View (RBV), and the Dynamic Capabilities Framework, the SUS²A model offers a mix of analytical tools and strategic insights for stakeholders in the startup ecosystem.

Porter's Five Forces framework provides a method for analyzing the competitive forces within an industry, offering insights into profitability and strategic positioning. Applied within the SUS²A model, this framework aids startups in understanding the competitive context, assessing the intensity of competition, the threat of new entrants, the bargaining power of suppliers and customers, and the threat of substitute products. By evaluating these forces, startups can strategically position themselves to mitigate threats and capitalize on opportunities, enhancing their attractiveness to investors who value a comprehensive competitive analysis.

RBV suggests that a company's competitive advantage is derived from its unique resources and capabilities. The SUS²A model incorporates this perspective by evaluating startups based on their internal strengths, including tangible and intangible assets, organizational capabilities, and human resources. This internal analysis enables startups to identify and leverage their core competencies, aligning them with market opportunities to build a sustainable competitive advantage. Investors, guided by the RBV, can assess the intrinsic value of startups based on their resource endowments and potential for generating long-term returns.

The Dynamic Capabilities Framework emphasizes the importance of a firm's ability to integrate, build, and reconfigure internal and external competencies to address rapidly changing environments. Within the SUS²A model, this framework underlines the significance of strategic agility and innovation as key determinants of startup success. By fostering an organizational culture that prioritizes learning, adaptation, and innovation, startups can enhance their resilience and flexibility, making them more attractive to investors who are concerned with adaptability and long-term viability in the face of market volatility.

For startups, the strategic application of the SUS²A model, enriched by these strategic management theories, facilitates a comprehensive assessment of their operational, competitive, and strategic contexts. This model encourages startups to conduct a deep introspective analysis that goes beyond surface-level evaluations, fostering a culture of continuous improvement and strategic alignment with broader market trends and investor expectations. The emphasis on leveraging unique resources, understanding competitive dynamics, and maintaining strategic flexibility equips startups with the tools necessary for sustainable growth and market differentiation.

Investors, leveraging the structured approach provided by the SUS²A model, gain wider view of startup potential. This comprehensive methodology allows for a deeper dive into a startup's strategic foundation, evaluating not only financial metrics but also the qualitative aspects of strategic management, innovation capacity, and sustainability integration. By applying strategic management theories through the lens of the SUS²A model, investors can identify startups with robust strategic foundations, high potential for disruption, and alignment with future market trends, thereby mitigating investment risks and enhancing the potential for sustainable growth.

The practical application of the SUS²A model, underpinned by strategic management theories, has profound implications for both startups and investors. Startups are guided to strategically manage the complexities of the business environment, using their unique resources and capabilities to carve out competitive advantages and align with sustainability and innovation trends. This strategic positioning is critical for attracting investment, as it signals to investors a startup's potential for long-term success and resilience.

Investors, equipped with insights from the SUS²A model, are better positioned to make informed decisions, selecting startups that not only promise financial returns but also demonstrate strategic acumen, adaptability, and a commitment to sustainable practices. This alignment of startup potential with investor criteria fosters a more efficient and effective investment process, contributing to the overall health and dynamism of the startup ecosystem.

The main focus of SUS²A is to establish a reference subject to updates and new descriptions of the startup's condition that the tool captures throughout its maturation cycle with regard to the market and investors. Its main characteristic is to meet the cognitive premise of any action plan the startup intends to initiate.

Referring to the Deming wheel model PLAN DO CHECK ACTION, the point of connection between the conclusion of a cycle of initiatives and the start of a new plan is represented by the

depiction of the situation as the outcome of the previous cycle. The cognitive aspect of the factual state is therefore necessary to identify the subsequent steps, and having a comparable measurement unit represents the ability to have measurable feedback with simple and reliable metrics, enabling repetition over time.

The method of obtaining measurable feedback may vary depending on the intensity of measurement efforts, i.e., the relationship between time spent and the quality of data obtained, which often represents the trap of tool hypertrophy that poorly suits the fragile condition of a newly established company, which must strengthen gradually to access the market and investors. In this sense, SUS²A aims to represent a balance between the thoroughness of analysis, data collection cost, and the type of actions connected, as the evidence provided by the unsatisfactory response to certain areas or categories already allows for defining actions to be initiated quickly to achieve improvement based on underlying best practices of the checkpoints to be satisfied. Control and measurement actions can then be repeated at short intervals, following the cycle of actions taken and impacts achieved.

Therefore, this mental map lends itself to the following interconnected uses.

1. Serving as the methodological guide for the advisor's field action, who uses the evaluative elements in whole or in part depending on the relevant conditions for the analyzed startup (economic sector, technology, age since establishment, and other metadata). The reference provided by SUS²A allows for coherent and systematic representation of advisory activities' outcomes, providing feedback metrics and appreciation of actual conditions, identifying risk areas among those less satisfied by quantitative indicators, and enabling controlled, repeatable, and applicable output in various contexts.
2. Acting as a tool that allows and integrates self-assessment of the startup/SME through the usual form of a questionnaire. In this case, the sections of SUS²A applicable to the analyzed startup must also be considered. SUS²A in this case presents itself as a structured checklist, whose answers are weighted according to relevance criteria within the different evaluation areas and categories in which the multiple checkpoints expressed with the questions are grouped.

8. Conclusions, limits and future developments

This study presented the SUS²A model, a comprehensive framework based on the concept of IRL and designed to enhance startups' attractiveness to investors by integrating technological innovation and sustainability. Grounded in strategic management principles, the SUS²A model offers a multidimensional evaluation of startups across domains such as strategic business management, innovation, sustainability, financial viability, market potential, and team competency.

The literature review conducted for the development and scientific foundation of tool, thoroughly examines the existing body of work on startup sustainability, strategic management, and innovation. It identifies a gap in the integration of sustainability within the strategic planning of startups, highlighting the evolving nature of startup ecosystems and the increasing importance of sustainability in business models. The review synthesizes findings from various disciplines, emphasizing the necessity for startups to align innovation with sustainable practices to achieve long-term success and resilience and to be attractive for the investors.

The combined use of SUS²A and IRL offers several benefits, providing a detailed guide to explore and improve the startup's condition, diagnose deficiencies, and define improvement actions. This integration provides a comprehensive and detailed view of startups, allowing for in-depth analysis that considers all facets relevant to investors and the long-term success of emerging businesses.

Integrating SUS²A and IRL provides a comprehensive and detailed view of startups, allowing for in-depth and informed analysis that considers all facets relevant to investors and the long-term success of emerging businesses.

The categories outlined in SUS²A justify and relate to the IRL categories since they aim to examine a wide range of critical aspects that can affect a startup's success and readiness to invest.

SUS²A is configured as a flexible tool, suitable both for internal use by a business analyst and as a direct questionnaire for the startup. The resulting analyses are then used to extract relevant action plans. The subsequent surveys, which reflect actual changes in the presence/absence of the characteristics assessed, serve as documentation of the results of the actions taken in the process of acceleration and attraction of investors.

The use of SUS²A is divided into several aspects:

- SUS²A provides a guide to explore the real conditions of the startup, offering a complete picture of its characteristics and performance in the different analytical areas.
- SUS²A's categories allow you to express the positioning of the startup on the IRL scale through a detailed analytical background. This provides a deeper insight than the traditional IRL model.
- SUS²A identifies shortcomings and areas for improvement, offering a detailed analysis of the challenges and opportunities the startup may face on its growth journey.
- SUS²A's analyses allow you to define specific improvement actions, adaptable to the unique needs of the startup, using various available acceleration tools.
- SUS²A is suitable as a progress control tool, allowing you to monitor the effectiveness of the actions taken over time and evaluate the evolution of the startup with respect to the set objectives.

Despite its innovative approach, the model acknowledges limitations, including reliance on available data and the need for certain customization across diverse startup ecosystems.

A prospective development of the model involves enabling a conversational interface in natural language between the startup self-presented documents and the expertise, experience, and foundational knowledge drawn from scientific literature that underpins the mental map. This will be achieved through leveraging the reading and interpretative capabilities of generative AI. In this scenario, SUS²A will not be explicitly disclosed to the startup/SME. Instead, they will be invited to freely describe themselves, allowing for autonomous interrogation and facilitating explicit outcomes in the form of self-diagnosis and ongoing comparison over time.

The self-description provided will undergo mapping and evaluation using a linguistic model that examines correspondences and delves into the semantic relationship between the text and all identified control points. This analysis aims to trace the positioning and path of closing competitive gaps by implementing improvement actions, learning from best practices, and capitalizing on shared experiences.

This proposed approach aims to leverage the potential of generative AI by enabling it to establish relationships between databases at varying levels of structure. It harnesses the capability of the linguistic model to conduct reasoned comparisons between defined perimeters, one being the pre-established mental map and the other representing the evolving starting point under evaluation, enriched by accumulated experiences over time. This approach minimizes interpretive uncertainties inherent in open-ended investigations and emphasizes the AI's capacity for interpretation and comparison within a predefined context.

The primary challenge in this approach lies in ensuring that the mental map effectively represents a model applicable to the specific case (startup/spin-off/SME) being compared with relevant best practices. The mental map serves as the actual generator of know-how for this comparison, while AI functions as the tool facilitating this process with minimal resource expenditure and rapid turnaround times. Through multiple rounds of evaluation, the AI will highlight prominent gaps and provide evidence of changes and improvements made over time.

This development is aimed at endowing an AI solution with genuine unsupervised potential, meaning it operates without requiring corrective human interventions or interpretive filtering of outcomes, except those predefined within the adopted process.

References

- ADHIKARI D.R., SHRESTHA P., ADHIKARI B.R. (2023), “New perspectives on people management dimensions in recycling startups”, *Journal of Small Business and Enterprise Development*, vol. 30, n. 7, pp. 1396-1422.
- ALÄNGE S., STEIBER A., CORVELLO V. (2022), “Evaluating corporate-startup collaboration: A government perspective”, *Evaluation and Program Planning*, vol. 95, p. 102176.
- ALDIANTO L. *et al.* (2021), “Toward a business resilience framework for startups”, *Sustainability*, vol. 13, n. 6, pp. p. 3132.
- ALIZADA F. (2023), “Measurement of Business Incubator Performance by Governments: Studying the Practices in the Nordic Region”. Available at: <https://gupea.ub.gu.se/handle/2077/77857> (Accessed: 7 February 2024).
- ALKARAAN F. *et al.* (2023), “Sustainable strategic investment decision-making practices in UK companies: the influence of governance mechanisms on synergy between industry 4.0 and circular economy”, *Technological Forecasting and Social Change*, vol. 187, p. 122187.
- ARABECHE Z. *et al.* (2022), “Entrepreneurial orientation, organizational culture and business performance in SMEs: Evidence from emerging economy”, *Sustainability*, vol. 14, n. 9, pp. p. 5160.
- BAAZIZ A. (2019), “Towards a new paradigm of “coopetitiveness” in emerging countries: Case of the Algerian Entrepreneurial Ecosystems”, *International Journal of Innovation*, vol. 7, n. 1, pp. 67-86.
- BELLUCCI M., BINI L., GIUNTA F. (2020), “Implementing environmental sustainability engagement into business: sustainability management, innovation, and sustainable business models”, in *Innovation strategies in environmental science*. Elsevier, pp. 107-143. Available at: <https://www.sciencedirect.com/science/article/pii/B9780128173824000046> (Accessed: 7 February 2024).
- BLANK S. (2013), “It’s time to play moneyball: The investment readiness level”, *Accessed July*, vol. 8, p. 2020.
- CERRATO D. (2011), “Natura e determinanti del vantaggio competitivo sostenibile nella prospettiva resource-based: alcune riflessioni critiche”, *Sinergie Italian Journal of Management*, vol. 63, pp. 11-40.
- CHEGE S.M., WANG D. (2020), “The influence of technology innovation on SME performance through environmental sustainability practices in Kenya”, *Technology in Society*, vol. 60, p. 101210.
- CHIARINI A., BELVEDERE V., GRANDO A. (2020), “Industry 4.0 strategies and technological developments. An exploratory research from Italian manufacturing companies”, *Production Planning & Control*, vol. 31, n. 16, pp. 1385-1398..
- CONWAY T., HEMPHILL T. (2019), “Growth hacking as an approach to producing growth amongst UK technology start-ups: an evaluation”, *Journal of Research in Marketing and Entrepreneurship*, vol. 21, n. 2, pp. 163-179.
- COZGAREA A.N. *et al.* (2023), “Predicting economic and financial performance through machine learning”, *Economic Computation & Economic Cybernetics Studies & Research*, vol. 57, n. 2.
- DAGNINO G.B. (2014), “Cambiamento di paradigma, fonti del vantaggio competitivo ed evoluzione del concetto di strategia (Change of paradigm, sources of competitive advantage and evolution of the concept of strategy)”, *Sinergie Italian Journal of Management*, vol. 32, n. May-Aug, pp. 27-50.
- DARAOJIMBA C. *et al.* (2023), “Technology and innovation to growth of entrepreneurship and financial boost: a decade in review (2013-2023)”, *International Journal of Management & Entrepreneurship Research*, vol. 5, n. 10, pp. 769-792.
- DAVIS P. (2022) *Innovation ecosystems and New Zealand firms*. PhD Thesis. ResearchSpace@ Auckland. Available at: <https://researchspace.auckland.ac.nz/handle/2292/58274> (Accessed: 7 February 2024).
- DE PROPRIIS L., BAILEY D. (2020), “1 Disruptive Industry 4.0”, *Industry 4.0 and regional transformations*, p. 1.
- DI PAOLA N. *et al.* (2018), “Hi-tech start-ups: legitimacy challenges and funding dynamics”, *Technology Analysis & Strategic Management*, vol. 30, n. 3, pp. 363-375.
- DIAZ A. *et al.* (2021), “Sustainable product development in a circular economy: Implications for products, actors, decision-making support and lifecycle information management”, *Sustainable Production and Consumption*, vol. 26, pp. 1031-1045.
- DOH J., BUDHWAR P., WOOD G. (2021), “Long-term energy transitions and international business: Concepts, theory, methods, and a research agenda”, *Journal of International Business Studies*, vol. 52, n. 5, pp. 951-970.
- ELIA G. *et al.* (2021), “Digital society incubator: Combining exponential technology and human potential to build resilient entrepreneurial ecosystems”, *Administrative Sciences*, vol. 11, n. 3, pp. p. 96.
- FERRARIS A. *et al.* (2022), “Microfoundations of strategic agility in emerging markets: empirical evidence of Italian MNEs in India”, *Journal of World Business*, vol. 57, n. 2, pp. p. 101272.
- GOH C.S. *et al.* (2020), “Revisiting triple bottom line within the context of sustainable construction: A systematic review”, *Journal of Cleaner Production*, vol. 252, p. 119884.
- GOLINELLI G. (2011), “L’approccio sistemico vitale (ASV) al governo dell’impresa. Volume 2. Verso la scientificazione dell’azione di governo (II ed.)”, in *L’approccio sistemico vitale (ASV) al governo dell’impresa. Volume 2. Verso la scientificazione dell’azione di governo (II ed.)*. Cedam (Wolters Kluwer)..
- GRANZ C., HENN M., LUTZ E. (2020), “Research on Venture Capitalists’ and Business Angels’ Investment Criteria: A Systematic Literature Review”, in A. Moritz *et al.* (eds) *Contemporary Developments in Entrepreneurial Finance*. Cham: Springer International Publishing (FGF Studies in Small Business and Entrepreneurship, pp. 105-136.

- GROSSI G., VAKKURI J., SARGIACOMO M. (2022), "Accounting, performance and accountability challenges in hybrid organisations: a value creation perspective", *Accounting, Auditing & Accountability Journal*, vol. 35, n. 3, pp. 577-597.
- GUO C., XING J. (2023), "Text Mining-based Enterprise Financial Performance Evaluation in the Context of Enterprise Digital Transformation", *International Journal of Advanced Computer Science and Applications*, vol. 14, n. 6.
- GURL E. (2017), SWOT analysis: A theoretical review'. Available at: <https://demo.dspace.direct.org/handle/10673/792> (Accessed: 11 February 2024).
- HARIRAM N.P. *et al.* (2023), "Sustainalism: An integrated socio-economic-environmental model to address sustainable development and sustainability", *Sustainability*, vol. 15, n. 13, pp. p. 10682.
- IKRAM M. *et al.* (2021), "Enabling progress in developing economies: A novel hybrid decision-making model for green technology planning", *Sustainability*, vol. 14, n. 1, pp. p. 258.
- JAVAID M. *et al.* (2022), "Understanding the adoption of Industry 4.0 technologies in improving environmental sustainability", *Sustainable Operations and Computers*, vol. 3, pp. 203-217.
- KAGGWA, S. *et al.* (2023), "Entrepreneurial strategies for AI startups: navigating market and investment challenges", *International Journal of Management & Entrepreneurship Research*, vol. 5, n. 12, pp. 1085-1108.
- KIVIMAA P. *et al.* (2021), "Moving beyond disruptive innovation: A review of disruption in sustainability transitions", *Environmental Innovation and Societal Transitions*, vol. 38, pp. 110-126.
- KOSTIN K.B., FENDEL R., WILD F. (2022), "Comparing the Situation of FinTech Start-Ups in Russia and Germany through Equity Investments", *Economies*, vol. 10, n. 2, pp. p. 33.
- KRAIEM I.B., MABROUK M.B., Lucas D.E. (2023), "A Comparative Study of Machine Learning Algorithm for Predicting Project Management Methodology", *Procedia Computer Science*, vol. 225, pp. 665-675.
- LE T.T. *et al.* (2023), "Corporate social responsibility, green innovation, environment strategy and corporate sustainable development", *Operations Management Research*, pp. 1-21.
- LOVISCEK V. (2020), "Triple bottom line toward a holistic framework for sustainability: A systematic review", *Revista de Administração Contemporânea*, vol. 25, p. e200017.
- LÜDEKE-FREUND F. (2020), "Sustainable entrepreneurship, innovation, and business models: Integrative framework and propositions for future research", *Business Strategy and the Environment*, vol. 29, n. 2, pp. 665-681. Available at: <https://doi.org/10.1002/bse.2396>.
- MANKINS J.C. (1995), "Technology readiness levels", *White Paper, April*, vol. 6, n. 1995, pp. p. 1995.
- NINDUWEZUOR-EHIOBU N. *et al.* (2023), "Exploring innovative material integration in modern manufacturing for advancing us competitiveness in sustainable global economy", *Engineering Science & Technology Journal*, vol. 4, n. 3, pp. 140-168.
- NYADU-ADDO R., MENSAH M.S.B. (2017), "Entrepreneurship education in Ghana-the case of the KNUST entrepreneurship clinic", *Journal of Small Business and Enterprise Development*, vol. 25, n. 4, pp. 573-590.
- OLÁH J. *et al.* (2020), "Impact of Industry 4.0 on environmental sustainability", *Sustainability*, vol. 12, n. 11, pp. p. 4674.
- OZTURKOGLU Y., SARI F.O., SAYGILI E. (2021), "A new holistic conceptual framework for sustainability oriented hospitality innovation with triple bottom line perspective", *Journal of Hospitality and Tourism Technology*, vol. 12, n. 1, pp. 39-57.
- PARZEN M. *et al.* (2022), "Beyond cost reduction: improving the value of energy storage in electricity systems", *Carbon Neutrality*, vol. 1, n. 1, pp. p. 26.
- PRADHAN R.P. *et al.* (2017), "Venture capital investment, financial development, and economic growth: the case of European single market countries", *Venture Capital*, vol. 19, n. 4, pp. 313-333.
- RAHMANI, S. *et al.* (2023), "Designing a dynamic investment model in an open innovation environment using the definitions of self-organization and organizational learning", *Journal of Industrial Engineering and Management Studies*, vol. 10, n. 2, pp. 75-89.
- VAN RIJNSOEVER F.J. (2022), "Intermediaries for the greater good: How entrepreneurial support organizations can embed constrained sustainable development startups in entrepreneurial ecosystems", *Research Policy*, vol. 51, n. 2, pp. p. 104438.
- RUTITIS D., VOLKOVA T. (2021), "Model for Development of Innovative ICT Products at High-Growth Potential Startups", in M.H. Bilgin *et al.* (eds) *Eurasian Business and Economics Perspectives*. Cham: Springer International Publishing (Eurasian Studies in Business and Economics, pp. 229-241. Available at: https://doi.org/10.1007/978-3-030-77438-7_14.
- SALAMZADEH A. *et al.* (2022), "Sustainability-oriented innovation foresight in international new technology based firms", *Sustainability*, vol. 14, n. 20, pp. p. 13501.
- SEGOVIA-HERNÁNDEZ J.G. *et al.* (2023), "Challenges and opportunities in process intensification to achieve the UN's 2030 agenda: Goals 6, vol. 7, vol. 9, vol. 12 and 13", *Chemical Engineering and Processing-Process Intensification*, p. 109507.
- SEHNEM S. *et al.* (2022), "Disruptive innovation and circularity in start-ups: A path to sustainable development", *Business Strategy and the Environment*, vol. 31, n. 4, pp. 1292-1307.
- SINGH S., SRIVASTAVA S.K. (2022), "Decision support framework for integrating triple bottom line (TBL) sustainability in agriculture supply chain", *Sustainability Accounting, Management and Policy Journal*, vol. 13, n. 2, pp. 387-413.

- SOVACOO B.K. *et al.* (2022), “Equity, technological innovation and sustainable behaviour in a low-carbon future”, *Nature Human Behaviour*, vol. 6, n. 3, pp. 326-337.
- SURIYANKIETKAEW S., KRITTAYARUANGROJ K., IAMSAWAN N. (2022), “Sustainable Leadership practices and competencies of SMEs for sustainability and resilience: A community-based social enterprise study”, *Sustainability*, vol. 14, n. 10, pp. p. 5762.
- TÖDTLING F., TRIPPL M., DESCH V. (2022), “New directions for RIS studies and policies in the face of grand societal challenges”, *European Planning Studies*, vol. 30, n. 11, pp. 2139-2156.
- TRAUTWEIN C. (2021), “Sustainability impact assessment of start-ups-Key insights on relevant assessment challenges and approaches based on an inclusive, systematic literature review”, *Journal of Cleaner Production*, vol. 281, p. 125330.
- TSAI F.M. *et al.* (2020), “A performance assessment approach for integrated solid waste management using a sustainable balanced scorecard approach”, *Journal of cleaner production*, vol. 251, p. 119740.
- VASILE V. *et al.* (2022), “Performance management and sustainable development: an exploration of non-financial performance of companies with foreign capital in Romania”, *Italian Journal of Marketing*, vol. 2022, n. 3, pp. 371-400.
- VLIES S. VAN DER (2023) *Assessing and Advancing Startup Potential: A Novel Tool for the unlock_ Startup Incubator*. Master’s Thesis. Available at: https://studenttheses.uu.nl/bitstream/handle/20.500.12932/44364/FinalVersion1.0_Thesis_SvenvanderVlies_SB%20vBusiness_unlock_26_06_23.pdf?sequence=1 (Accessed: 11 February 2024).
- WU C. *et al.* (2019), “Influence of venture capital and knowledge transfer on innovation performance in the big data environment”, *Journal of Risk and Financial Management*, vol. 12, n. 4, pp. p. 188.
- YAGHMAIE P., VANHAVERBEKE W. (2020), “Identifying and describing constituents of innovation ecosystems: A systematic review of the literature”, *EuroMed Journal of Business*, vol. 15, n. 3, pp. 283-314.
- ZENG J. (2018), “Fostering path of ecological sustainable entrepreneurship within big data network system”, *International Entrepreneurship and Management Journal*, vol. 14, n. 1, pp. 79-95