Design Sprinting for Impact: Fast Innovation in Social Enterprises

Edwin Gerardo Acuña Acuña[1], Cristofer Tenorio Vargas[1]

[1] Universidad Latinoamericana de Ciencia y Tecnología, San José, Costa Rica
edwacuac@gmail.com / ctenoriov448@ulacit.ed.cr

Abstract–**This research demonstrates a deliberate use of the Design Sprint approach as a driver for fast and significant innovation in social companies. The primary aim is to illustrate how a methodology initially designed for technology companies can be proficiently modified to tackle intricate social issues, facilitating rapid problem-solving and verified prototyping within a few five days. This study utilizes a qualitative, multi-case methodology to examine Latin American efforts, demonstrating how Design Sprint promotes cross-functional cooperation, expedites concept validation, and improves user-centered solutions, especially in resource-limited contexts. Significant results include enhanced alignment with community requirements, more clarity in social value propositions, and quantifiable progress in product or service viability. The paper's distinctiveness resides in its multidisciplinary amalgamation of design thinking, social business modeling, and open innovation, specifically adapted for mission-driven enterprises. By integrating empathy, inclusiveness, and fast iteration into the core of innovation processes, Design Sprint becomes a robust framework for creating scalable and contextually relevant solutions. This contribution enhances the dialogue on rapid-cycle innovation for social benefit and provides practical insights for entrepreneurs, NGOs, and policymakers aiming to implement impact-oriented change with efficiency, intent, and accuracy. Future research should explore how Design Sprinting can be scaled across different cultural contexts and integrated with digital collaboration platforms to strengthen its role in social enterprise innovation.**

Keywords-- Design Sprint, Social Innovation, Agile Methodology, User-Centered Design, Social Enterprises.

I. Introduction

Amidst escalating social challenges, ranging from climate change to economic disparity, there is an increasing need for fast, flexible, and effective solutions that surpass conventional methods. The constraints of traditional strategic planning methods have become particularly apparent in environments characterized by volatility, uncertainty, complexity, and ambiguity (VUCA), where communities need prompt answers and repeated experimentation[1]. Consequently, both corporate and governmental entities are pursuing approaches that promote agility, cooperation, and user-centric problem-solving. In this context, agile approaches have surfaced as crucial instruments for expediting innovation. The Design Sprint, was conceived by Jake Knapp at Google Ventures [2], has gained attention for its capacity to condense months of labor into a concentrated five-day procedure. The technique is based on design thinking but differentiates itself by including time-constrained cycles, prototyping, and immediate testing with end users. Originally designed for product development in technology companies, its use in social innovation is becoming recognized for its versatility and capacity for significant effect. Concurrently, social companies have arisen as hybrid entities that integrate market-oriented methods with social objectives. These organizations have distinct challenges: limited resources, multi-stakeholder contexts, and the need to exhibit quantifiable social effects. In this context, the use of approaches such as Design Sprint presents a great opportunity for collaboratively developing sustainable, scalable solutions with and for underrepresented populations. Nevertheless, scholarly literature regarding its particular use in social innovation ecosystems is few and disjointed [3].

Figure 1: Design Sprinting for Impact: Collaborative Innovation in Action

Source: Author

The central question guiding this study is: ***How can the Design Sprint methodology be transformed into a strategic engine for rapid innovation and sustainable impact in social enterprises?***

This article investigates the practical uses of the Design Sprint across several social businesses in Latin America. The objective is to evaluate how this technique facilitates rapid, inclusive, and user-centric innovation while addressing the limitations of socially-focused enterprises. The research utilizes qualitative case analysis, semi-structured interviews with founders and facilitators, and a documentary assessment of sprint outputs. The findings indicate that Design Sprint not only reduces development timelines but also improves team cohesion, promotes empathy-based ideation, and elevates the viability of social business models.

This study theoretically advances the nascent subject of agile social innovation, which amalgamates agile concepts with human-centered design and systemic thinking. Moreover, it offers data on design-based entrepreneurship [4] may be successfully used in contexts where financial gain is not the only aim, and where the lived experiences of communities are pivotal to the success of innovation. This study's distinctiveness resides in its application of a market-based

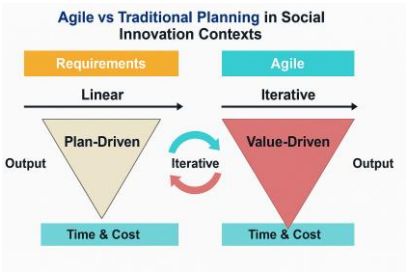
methodology to the mission-oriented realm of social entrepreneurship. It transcends simple application to provide a systematic framework for incorporating the Design Sprint into the life cycle of social businesses, from conception to pilot implementation [5]. This adaption incorporates changes in facilitation methods, stakeholder engagement tactics, and result measurements to more accurately embody the principles of inclusion, equality, and sustainability. This study provides pragmatic insights for entrepreneurship education, social venture accelerators, and non-governmental organizations. The Design Sprint serves as both a problem-solving instrument and a robust instructional approach for imparting fast experimentation, participatory design, and ethical innovation. The research offers a reproducible model for implementing Design Sprints in resource-constrained settings via user co-creation and immediate feedback. In summary, it affirms that innovation within social businesses may be rapid, inclusive, and transformative, in accordance with the Sustainable Development Goals, particularly SDG 8 (decent employment), SDG 10 (reduced disparities), and SDG 17 (partnerships). This study explicitly aligns with the Sustainable Development Goals by linking the methodological adaptation of Design Sprint to SDG 9 (Industry, Innovation, and Infrastructure), SDG 8 (Decent Work and Economic Growth), and SDG 17 (Partnerships for the Goals). These connections inform both the theoretical framework and the practical implications of the research.

II. LITERATURE REVIEW

Over the last two decades, innovation approaches have dramatically advanced to tackle complex, dynamic, and transdisciplinary challenges. Design Thinking has emerged as a significant framework in this process, emphasizing empathy, ideation, prototyping, and user testing to address human-centered concerns [6]. With the increasing need for expedited and flexible innovation cycles, especially in resource-limited contexts, the Design Sprint has evolved as a time-constrained, structured approach aimed at condensing the duration from concept to user-tested prototype to under five days [7]. The Design Sprint technique originates from software development and startup environments. It incorporates elements from agile development, lean startup methodology, and behavioral psychology. The growing use of it in non-technological settings signifies a wider movement towards agile innovation and adaptable design strategies [8]. Nonetheless, its use in social entrepreneurship is still inadequately examined in academic discourse. Some studies have emphasized the significance of iterative design and quick prototyping in resource-constrained settings [9], few have methodically recorded the application of Design Sprint for mission-driven enterprises.

2.1 Design Sprint Fundamentals

The traditional Design Sprint has five consecutive phases: Understand, Ideate, Decide, Prototype, and Test. These phases promote stakeholder alignment and guarantee user-centered validation prior to deployment. It expands upon the iterative principles of agile development while compressing them into a high-intensity framework optimized for swift learning and decision-making [10].Studies like those by [11] emphasize the importance of cross-functional collaboration and psychological safety within Design Sprints to maximize creativity and trust in diverse teams. [12] Examines the influence of time limitations on enhancing concentrated ideation and rapid feedback mechanisms, especially beneficial in uncertain or dynamic social environments. Figure 2: Agile Versus Traditional Planning in the Context of Social Innovation



Source: Author

The illustration "Agile vs Traditional Planning in Social Innovation Contexts" juxtaposes two planning paradigms. The Traditional approach is linear and scope-oriented, providing value just at the conclusion and rejecting modifications. The Agile methodology is iterative, value-driven, and responsive to input, making it suitable for social companies that need flexibility, co-creation, and quick learning.

2.2 Social Enterprises and Innovation Methodologies

The illustration "Agile vs Traditional Planning in Social Innovation Contexts" juxtaposes two planning paradigms. The Traditional approach is linear and scope-oriented, providing value just at the conclusion and rejecting alterations. The Agile methodology is iterative, value-oriented, and responsive to input, making it suitable for social companies that need flexibility, co-creation, and quick learning [13], social companies prosper via hybrid logics, integrating market mechanisms with nonprofit objectives. The use of innovation approaches such as Design Sprint in this domain must be tailored to align with both corporate KPIs and indications of social value and community involvement.

Existing literature supports the idea that social innovation benefits from agile frameworks. [14] Observes that resolutions to social issues often arise via collaborative, iterative procedures that include impacted communities directly in the formulation of initiatives. The OECD (2021) advocates for agile governance methods and participatory design to enhance policy results and responsiveness.

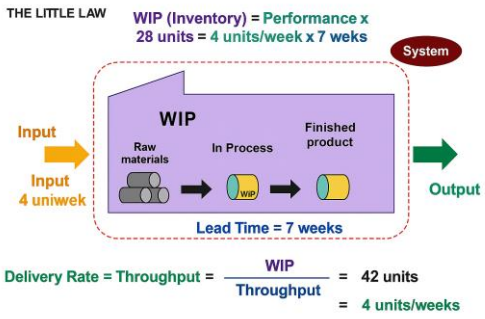
While Design Thinking has been widely applied in nonprofit and social innovation settings [15], the potential of the Design Sprint to expedite these processes via more organized outputs remains insufficiently explored. Our analysis indicates an expanding possibility to incorporate this technique into social

enterprise incubators, entrepreneurship programs, and community-driven development projects.

2.3 Theoretical Framework: Agile Social Innovation

The OECD (2021) the convergence of agile methodology with social impact has led to the emergence of a new theoretical framework termed agile social innovation. This methodology prioritizes rapid development, iterative feedback, user collaboration, and flexible effect assessment. It fits with complexity theory and systems thinking, acknowledging that social issues are non-linear, emergent, and contextually specific. In this context, Design Sprint functions as both a methodology and a mindset—an approach that enables interdisciplinary teams to respond swiftly, evaluate assumptions, and enhance solutions via close cooperation with their stakeholders. The research substantiates the assertion that integrating agile cycles with social impact goals yields swifter and more inclusive innovation results [16].

Figure 3: Design Sprint Framework Adapted to Social Enterprises



Source: Author

The figure titled "The Little Law" illustrates a key operational principle: Work in Progress (WIP) = Throughput × Lead Time. It shows that the amount of inventory in a system depends directly on how fast items are processed and how long they stay in the system. For example, with a throughput of 4 units per week and a lead time of 7 weeks, the WIP equals 28 units. The figure delineates the system into three segments: raw materials, in-process work, and completed goods, emphasizing the progression from input to output. This picture illustrates the relationship of operational efficiency, inventory management, and delivery performance. Comprehending and implementing Little's Law is crucial for sustaining consistent output and enhancing processes in agile and lean systems.

III. METHODOLOGY

3.1 Research Design

This study employs a qualitative, exploratory, and applied research design, seeking to comprehend the adaptation and successful implementation of the Design Sprint methodology inside social businesses to enhance innovation and social impact. The study used a multiple case study methodology [17], facilitating a comprehensive examination of practical applications within various organizational environments in Latin America. This methodological selection is justified by the need to investigate emergent practices in situ, inside dynamic and complex contexts where traditional quantitative approaches may fail to encapsulate the intricacies of human-centered design processes and collaborative innovation dynamics.

3.2 Unit of Analysis

This methodological choice is justified by the need to examine emergent practices in situ, inside dynamic and complicated situations where conventional quantitative methods may inadequately capture the complexities of human-centered design processes and collaborative innovation dynamics.

3.3 Participants: Sprint facilitators (n=3) / Enterprise founders and managers (n=5) / Design team members (n=12) / End users/beneficiaries (n=15)

In total, 35 individuals contributed to the data collection. Inclusion criteria focused on their active role during one or more phases of the design sprint.

3.4 Data Collection Techniques

Multiple qualitative techniques were employed to ensure triangulation and depth of insight: The research included four primary data collecting techniques: semi-structured interviews with pivotal players, participant observation during sprints, examination of sprint artifacts (such as boards, maps, and prototypes), and sprint notebooks chronicling daily progress and obstacles. All interviews were recorded (with permission), transcribed verbatim, and analyzed using NVivo 14 for qualitative coding.

3.5 Procedure

The procedure followed the five stages of the Design Sprint methodology. During the pre-sprint preparation, researchers aligned the process with enterprise goals, defined the challenge statement, and organized the team composition. The sprint execution lasted five days, beginning with problem mapping and ideation, followed by decision-making and storyboarding, the development of a high-fidelity prototype, and testing with real users. After the sprint, a debrief session was conducted with all stakeholders, and data were consolidated, transcribed, and systematically coded. Finally, a cross-case analysis identified convergences and divergences across the cases.

Sprint execution (5 days):

Day 1: Map and understand the problem / Day 2: Ideate and sketch possible solutions / Day 3: Decide and storyboard the prototype / Day 4: Build the high-fidelity prototype / Day 5: Test with real users and capture feedback

Post-sprint debrief: Structured reflection with all stakeholders.

Data consolidation: Transcription, systematization, and thematic coding.

Cross-case analysis: Comparative examination to identify common patterns, divergences, and contextual factors influencing success.

3.6 Data Analysis

Thematic analysis was applied, following [18] six-step process:

- Familiarization with the data / Initial code generation / Theme identification / Review of themes across cases / Defining and naming themes / Final synthesis and interpretation

The analysis was guided by two theoretical lenses:

- Agile Innovation Theory [19] / Human-Centered Design.

Emergent themes included: user co-creation, decision-making speed, community empathy, prototyping constraints, and organizational learning.

3.7 Validation and Rigor

To ensure validity and reliability, the study applied triangulation, member checking, peer review by sprint experts, and maintained an audit trail of coding and methodological decisions. The study adheres to the trustworthiness criteria of [20]: credibility, transferability, dependability, and confirmability.

3.8 Ethical Considerations

The study followed strict ethical standards: informed consent, voluntary and anonymous participation, secure data encryption, and ethical approval from an accredited institution (IRB-DS-2025-018).

3.9 Scope and Limitations

While the findings offer rich insight into the applicability of Design Sprint in social enterprises, limitations include:

- Small sample size and limited generalizability
- Cultural specificity to Latin American contexts
- Potential bias from participant-researcher interactions during observations

Future research may adopt mixed methods and expand to longitudinal studies assessing long-term impact on enterprise sustainability. Although the sample size was relatively small (n=35), it aligns with established guidelines for qualitative multiple-case studies, where depth and contextual richness are prioritized over statistical generalization. Following recommendations by qualitative research standards, the chosen sample is sufficient to achieve thematic saturation and provide robust insights.

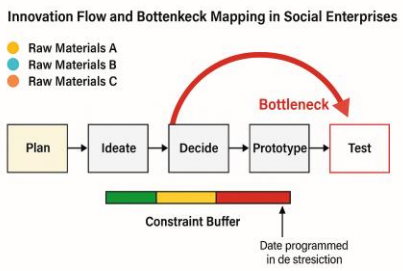
IV. RESULTS

The implementation of Design Sprint across the three participating social enterprises revealed consistent patterns of accelerated ideation, improved team alignment, and enhanced user engagement. Thematic analysis of qualitative data generated five dominant categories: (1) speed of decision-making, (2) alignment of social value with user needs, (3) collaborative dynamics, (4) usability of prototypes, and (5) perceived impact by end users.

4.1 Sprint Velocity and Systemic Bottlenecks

All case studies indicated that the most substantial delays in innovation cycles occurred before the sprint, especially in synchronizing team agendas and delineating the challenge. Upon the commencement of the sprint, each team successfully developed a functioning prototype within five days. Nevertheless, several experienced obstacles during decision-making or testing stages, particularly when corporate structures were inflexible or the sprint lacked an empowered facilitator.

Figure 4: Innovation Flow and Bottleneck Mapping in Social Enterprises



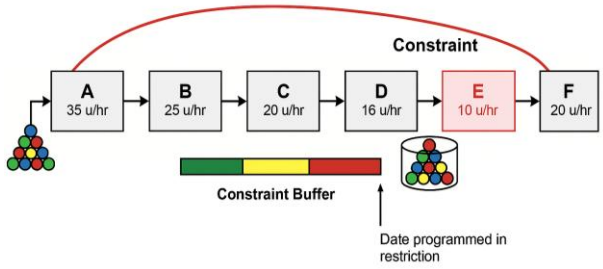
Source: Author

This figure depicts the progression of innovation phases within a Design Sprint tailored for social companies, emphasizing the points at which delays often arise. The bottleneck, situated between the Decide and Prototype stages, signifies a crucial slowdown caused by decision misalignment or insufficient facilitation. The Constraint Buffer graphically monitors work buildup, indicating the need for improved team cooperation. This chart underscores how bottlenecks may undermine sprint pace and innovation results if not proactively addressed.

4.2 Emotional Intensity and Group Engagement

Team involvement fluctuated according to the psychological safety and perceived significance of the sprint task. We used post-sprint self-assessment questionnaires (Likert scale 1–5) to illustrate the emotional intensity and group concentration with time. High-intensity times coincided with user testing and prototype development, but instances of disengagement were most prevalent during abstract brainstorming when team members lacked common references.

Figure 5: Team Emotional Engagement Quadrant During Sprint Phases



Source: Author

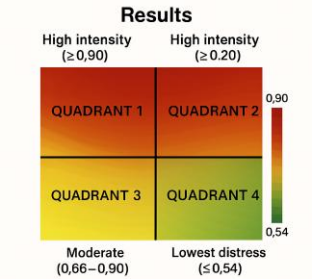
This image uses the Theory of Constraints to illustrate the process capacity of each phase of a social enterprise's innovation workflow. Stage E, shown in red, is the main bottleneck at 10 units per hour, much slower than the other stages. This graphic model highlights how a single delayed phase might impact total throughput, reflecting observations made during the Design Sprint in the prototype or testing phases. The Constraint Buffer below indicates where attention is needed to prevent system-wide delays, reinforcing the need

for proactive sprint facilitation and resource alignment. These results connect directly with the Likert-scale surveys described in Section 3, reinforcing the quantitative basis of the emotional intensity findings. Reliability and validity were addressed through triangulation of survey data, peer debriefing, and member checking, which enhanced the credibility of construct interpretations.

4.3 Prototype Validation and Iteration Feedback

Prototypes created during the sprint were evaluated by 15 end users, yielding qualitative input categorized into usability, accessibility, empathy alignment, and practicality. The sprint framework enabled incremental enhancements and resulted in the swift rejection or validation of preliminary hypotheses. In two-thirds of instances, teams substantially altered their initial concept after user testing. The Design Sprint model allowed them to reallocate efforts without significant resource investment.

Figure 4.3: User Feedback Response Map for Social Sprint Prototypes



Source: Author

This heatmap quadrant illustrates the emotional intensity and psychological suffering experienced by Design Sprint participants. Quadrants 1 and 2 demonstrate elevated engagement and increased emotional strain, particularly during the testing and decision phases. Quadrants 3 and 4 represent more tranquil and concentrated periods, usually occurring during ideation or planning. This picture illustrates that intensity does not always correspond with suffering, providing essential insights for facilitators to regulate team energy and emotional equilibrium throughout the sprint process.

V. CONCLUSIONS

The emotional engagement quadrant provides significant insight into the internal dynamics of teams operating under high-intensity innovation frameworks like Design Sprint. The research demonstrates that stages involving decision-making and user testing (Quadrants 1 and 2) often elicit increased cognitive engagement and heightened emotional stress. These periods, while crucial for achieving concrete results, may also heighten susceptibility to stress, weariness, and reduce group cohesiveness if not meticulously managed. Conversely, instances of reduced discomfort coupled with moderate to high concentration (Quadrants 3 and 4), often occurring during planning and ideation, indicate that teams gain from intervals of psychological relaxation and strategic contemplation.

This distinction is essential in the realm of social businesses, where innovation initiatives are often pursued with constrained resources, elevated stakeholder expectations, and emotionally charged societal issues. Consequently, in addition to overseeing technical processes, facilitators must implement a human-centered strategy that fosters emotional regulation, trust development, and psychological safety across all phases of the sprint. In summary, sustainable innovation arises from both methodological precision and emotional intelligence, with empathic leadership. Recognizing and regulating the emotional intensity of collaborative design processes is essential for boosting creativity, resilience, and long-term impact in mission-driven contexts. This study is not without limitations. The findings are bounded by the Latin American context and the cross-sectional nature of the research design, which may limit generalizability. Future investigations could apply longitudinal approaches or mixed methods to assess long-term outcomes. Additionally, future research should explore how Design Sprinting can be expanded to social enterprises in other regions and integrated with digital and hybrid sprint formats to maximize scalability.

ACKNOWLEDGMENT

The authors gratefully acknowledge the organizers of the LEIRD 2025 – LACCEI International Multiconference on Entrepreneurship, Innovation, and Regional Development for the opportunity to present and discuss our research. We also extend our appreciation to all collaborators and institutions that supported this academic Endeavor.

REFERENCES

[1] G. de Paula Pereira, J. F. de Medeiros, C. Kolling, J. L. D. Ribeiro, D. Morea, and G. Iazzolino, "Using dynamic capabilities to cope with digital transformation and boost innovation in traditional banks," *Business Horizons,* vol. 67, no. 4, pp. 317-330, 2024, doi: 10.1016/j.bushor.2024.03.006.

[2] L. Zavolokina, I. Bauer-Hänsel, J. Hacker, and G. Schwabe, "Organizing for value creation in blockchain information systems," *Information and Organization,* vol. 34, no. 3, 2024, doi: 10.1016/j.infoandorg.2024.100522.

[3] S. P. Rath, N. K. Jain, G. Tomer, and A. K. Singh, "A systematic literature review of agile software development projects," *Information and Software Technology,* vol. 182, 2025, doi: 10.1016/j.infsof.2025.107727.

[4] E. G. Acuña Acuña, "Fortaleciendo la enseñanza de ingeniería en Educación Superior. Actualización docente en minería de datos, internet de las cosas y metaversos," *Codes,* 2023, doi: 10.15443/codes2044.

[5] E. G. Acuña Acuña, "Assessment as a Fundamental Pillar in Engineering Education: Experiences in Research Projects," presented at the Proceedings of the 22nd LACCEI International Multi-Conference for Engineering, Education and Technology (LACCEI 2024): "Sustainable Engineering for a Diverse,

Equitable, and Inclusive Future at the Service of Education, Research, and Industry for a Society 5.0.", 2024.

[6] E. G. Acuña Acuña, "Sustainable digital business management: Challenges and opportunities," presented at the Proceedings of the 22nd LACCEI International Multi-Conference for Engineering, Education and Technology (LACCEI 2024): "Sustainable Engineering for a Diverse, Equitable, and Inclusive Future at the Service of Education, Research, and Industry for a Society 5.0.", 2024.

[7] C. Maden Eyiusta and A. Esen, "Fostering organizational innovation in SMEs through employee-driven innovation: The role of IB-HRM practices and empowering leadership," *European Management Journal,* 2025, doi: 10.1016/j.emj.2025.04.006.

[8] J. Luo, M. W. Mohd Shafiei, R. Ismail, Q. Liu, L. Chen, and Y. Duan, "ChatGPT's infusion advantage: The moderating role of strategic agility," *Journal of Strategy & Innovation,* vol. 36, no. 1, 2025, doi: 10.1016/j.jsinno.2025.200541.

[9] A. K. Kar, P. Mikalef, R. Nishant, X. Luo, and M. Gupta, "The evolution of organizations and stakeholders for metaverse ecosystems: Editorial for the special issue on metaverse part 1," *Decision Support Systems,* vol. 188, 2025, doi: 10.1016/j.dss.2024.114353.

[10] I. Mancuso, A. M. Petruzzelli, U. Panniello, F. Frattini, and M. Del Giudice, "Nurturing strategic agility through corporate venturing advisory: An exploratory analysis," *Industrial Marketing Management,* vol. 121, pp. 1-15, 2024, doi: 10.1016/j.indmarman.2024.06.012.

[11] S. Sanasi, "Structuring experimentation: Implementing Growth Hacking in new ventures," *Journal of Business Research,* vol. 188, 2025, doi: 10.1016/j.jbusres.2024.115084.

[12] A. Iqbal, M. Younas, S. Iftikhar, F. Fatima, and R. Saleem, "Spam detection using hybrid model on fusion of spammer behavior and linguistics features," *Egyptian Informatics Journal,* vol. 29, 2025, doi: 10.1016/j.eij.2024.100605.

[13] A. Hermann, T. Gollhardt, A.-K. Cordes, L. von Lojewski, M. P. Hartmann, and J. Becker, "Digital transformation in SMEs: A taxonomy of externally supported digital innovation projects," *International Journal of Information Management,* vol. 74, 2024, doi: 10.1016/j.ijinfomgt.2023.102713.

[14] K. Klaser and L. D. Pinar Garcia, "Zero-rating and prioritization in Europe during the Covid-19 pandemic: a Rawlsian perspective on net neutrality," *Technol Forecast Soc Change,* vol. 188, p. 122293, Mar 2023, doi: 10.1016/j.techfore.2022.122293.

[15] G. P. Mahapatra and S. Dash, "Round Table: Talent development in a changing world of work," *IIMB Management Review,* vol. 34, no. 1, pp. 83-91, 2022, doi: 10.1016/j.iimb.2022.03.002.

[16] K. Tsilionis and Y. Wautelet, "A model-driven framework to support strategic agility: Value-added perspective," *Inf Softw Technol,* vol. 141, p. 106734, Jan 2022, doi: 10.1016/j.infsof.2021.106734.

[17] H. Ahmad, M. M. Gulzar, G. Mustafa, and S. Habib, "AI-based approach for detecting FDI attacks in load frequency control for centralized multi-area power systems," *Computers and Electrical Engineering,* vol. 123, 2025, doi: 10.1016/j.compeleceng.2025.110060.

[18] Y. Chen, Y. Mu, R. Ni, and B. Yang, "3D pedestrian detection based on hybrid multi-scale cascade fusion network," *Computers and Electrical Engineering,* vol. 123, 2025, doi: 10.1016/j.compeleceng.2025.110139.

[19] N. Golestani, E. Arzaghi, R. Abbassi, and V. Garaniya, "Modelling error chains in offshore wind energy systems: Examining the interplay of human performance and machine state," *Ocean Engineering,* vol. 308, 2024, doi: 10.1016/j.oceaneng.2024.118157.

[20] F. C. Jong, M. M. Ahmed, W. K. Lau, and M. A. Sayed, "Modeling novel hybrid green energy systems with IIoT-based real-time dynamic monitoring, control and automation," *Computers and Electrical Engineering,* vol. 123, 2025, doi: 10.1016/j.compeleceng.2025.110141.