Journal of Social Impact in Business Research

17

Driving small business social impact and innovation via design thinking and GenAI integration

Asrif Yusoff

Greenwich Business School, University of Greenwich, London, UK

Received 25 April 2025
Revised 16 November 2025
12 January 2026
10 February 2026
Accepted 24 February 2026

Abstract

Purpose – This study explore the opportunity to integrate generative artificial intelligence (GenAI) with design thinking in driving social impact and innovation for small businesses. Given the resource constraints often faced by small businesses, design thinking promises an accessible approach to accelerate problem-solving, product development and process improvement. The emergence of GenAI presents a potential to further enhance these processes.

Design/methodology/approach – The study develops a conceptual framework by synthesising the bodies of literature on small business social impact and innovation, design thinking and GenAI, to identify key constructs and relationships. These insights are integrated into a framework that maps concrete GenAI applications onto design thinking, specifically via the LUMA system approach of "looking", "understanding" and "making".

Findings – The proposed framework theorises how GenAI can augment design thinking while maintaining a human-centred orientation. It shows how small businesses can adopt design thinking and GenAI to deepen customer insights, prioritise social opportunities, and experiment with prototypes to scale. An implementation checklist is also proposed, which translates the framework into actionable guidance, alongside a future research agenda outlined around design thinking.

Originality/value – The paper advances small business social impact research by shifting attention from firm-level outcomes to design processes that create social value. It offers a novel integration of design thinking and GenAI for social- and innovation-focused small business research. In this context, GenAI is positioned as a design element rather than purely technology for productivity or efficiency.

Keywords Design thinking, Small business, Generative AI, Innovation, Social impact, LUMA system, Social innovation, Social entrepreneurship, Small medium enterprises, Small business social responsibility, Sustainable development goals, Conceptual framework

Paper type Conceptual paper

Introduction

Small businesses play a vital role in supporting local economies, generating employment, and enabling innovation at the community level (Akpan *et al.*, 2021; Pickett *et al.*, 2025; Thomas, 2023). However, they frequently operate under the constraints of limited resources such as time, funding and human capital (Bakhtiari *et al.*, 2020; Gherhes *et al.*, 2016). These barriers can hinder their ability to engage in strategic innovation and develop sustainable value for both internal and external stakeholders (e.g. employees, customers, authorities).

Conflict of interest: The author declares no conflicts of interest.

Journal of Social Impact in Business Research
Vol. 2 No. 3, 2026
pp. 17-30
Emerald Publishing Limited
3049-4877
DOI 10.1108/JSIBR-04-2025-0043

While these challenges remain as long-standing concerns, there exist toolkits that can help to overcome them. Yet, there is limited guidance on how small businesses can practically organise innovation activities in ways that effectively deliver impact.

Design thinking has emerged as a powerful approach to generate customer-centric solutions through iterative problem-solving and product development (Sarooghi *et al.*, 2019; Ward *et al.*, 2009). Design thinking puts the user or customer as the central focus of firm activities, and three established frameworks include Stanford d.school, IDEO and LUMA. These models offer versatile methods to gather customer insights, develop potential solutions, and scale products or services (Ericson, 2022; Lauff, 2022). As an inherently practical and accessible version of design thinking, the LUMA system is chosen for this study. That said, full adoption would still require overcoming a steep learning curve given the practical experience required to fully master and operationalise design thinking methods.

In this regard, generative artificial intelligence (GenAI) presents a timely opportunity to address these challenges. Through capabilities such as research synthesis and solution simulation, GenAI can augment each phase of the LUMA approach to design thinking, consequently accelerating processes and enabling innovation (Sreenivasan and Suresh, 2024; Weller, 2019). For small businesses, this opportunity represents a cost-effective means to enhance customer understanding and implement solutions with greater agility. One key requirement, however, is the openness of founders or entrepreneurs to adapt and experiment with design thinking. This may not be similar to other conventional tools that they might be more familiar with (e.g. SWOT, business model canvas, Porter's five forces). Given these opportunities, this study addresses the practical problem of limited guidance for small businesses in sustaining social impact and innovation under resource constraints. This is done via the integration of GenAI into design thinking phases as a conceptual framework (via the LUMA system).

In the context of this study, social impact refers to the positive outcomes that small firms create for their immediate communities (e.g. decent work, fair employment, inclusive access) (Kudłak *et al.*, 2022; Liguori *et al.*, 2024). In these settings, social impact is treated as localised and closer to stakeholders. Outcomes are visible to employees, customers and communities. This framing differentiates social impact for small businesses from general corporate social responsibility discourse, which is often discussed in terms of organisational activities (Fatima and Elbanna, 2023; Velte, 2022). In this study, social impact is more specifically scoped as local stakeholder level outcomes in small business settings.

This study responds to pertinent challenges faced by small businesses and contributes to ongoing discourse on the role of GenAI in enhancing innovation (Akpan *et al.*, 2021; Albats *et al.*, 2023). These efforts primarily advance two United Nations Sustainable Development Goals (SDGs) namely, SDG 8 (decent work and economic growth) by strengthening the capacity of small businesses to create and sustain local employment, and SDG 9 (industry, innovation and infrastructure) by enabling accessible innovation processes through design thinking and GenAI integration.

Existing studies on the impact of small businesses indicate that evidence of social impact could be further expanded (Lindeque and Samuel, 2022). In this regard, studies seem to focus more on benefits for small businesses themselves rather than society at large. This includes the aggregation of social responsibility activities while neglecting local impacts and clear links to SDGs. Concurrently, there are calls within the literature for research to more explicitly measure and theorise societal impact beyond firm performance (Liguori *et al.*, 2024). This suggestion is pertinent in underexplored contexts such as regulation, and digitalisation. The integration of design thinking and GenAI in this study specifies process-level pathways that can translate innovation efforts into localised impact.

Conceptual approach

This study adopts a model approach to conceptual design (Jaakkola, 2020) by developing a framework that specifies key constructs linking design thinking and GenAI to small business social impact. The study is conceptual, not empirical, and does not use primary or secondary data. This section outlines how the proposed framework was conceptually constructed and how it builds on a structured synthesis of existing literature.

To recap, the domain of interest for this study is small business social impact, which is understood as positive outcomes that small firms create for stakeholders and local communities, and the identified SDGs 8 and 9 (Akpan *et al.*, 2021; Kudłak *et al.*, 2022; Liguori *et al.*, 2024). In this context, design thinking provides the core processual lens for understanding how small firms organise innovation (Liedtka, 2015; Pacione, 2021a). Meanwhile, the literature on small business (including small-medium enterprise) and GenAI informs the enabling technology that explains how digital tools can augment these processes (Borah *et al.*, 2022; Sreenivasan and Suresh, 2024).

These lenses of small business social impact (outcome domain), design thinking (mechanism) and GenAI as enabling technology (capability) form the framework for this study. Conceptually, GenAI is theorised to augment design thinking by reducing the time and cognitive burden of discovery, synthesis and prototyping in resource constrained settings. These strengthened routines are theorised to increase the feasibility of identifying stakeholders, prioritising social opportunities and iterating low-cost solutions.

The literature for the framework development was informed by a synthesis of relevant peer-reviewed publications. Foundational design thinking sources were combined with recent work on GenAI for innovation synergies, small business technology adoption and social impact to capture established concepts and emerging developments (Lindeque and Samuel, 2022; Shaik *et al.*, 2024; Staub *et al.*, 2023).

The analysis proceeded in three steps. Firstly, it distilled from the reviewed literature the main constructs relevant to the focal problems. Secondly, it examined how prior work has (or has not) linked these constructs to the identified gaps. Thirdly, these insights were integrated into the proposed framework which maps concrete GenAI applications onto design thinking phases for small businesses.

Conceptual framework

Underpinning framework 1: Design thinking as a tool for small businesses

Grounded in human-centred principles that emphasise user-centricity and iterative prototyping, design thinking has emerged as a prominent method for problem-solving and innovation (Kimbell, 2011; Liedtka, 2015; Razzouk and Shute, 2012). Popularised through institutions such as Stanford University's d.school and consulting firm IDEO, design thinking offers a structured approach to understanding user needs and create solutions that are relevant and practical (Inglesis Barcellos and Botura, 2018; Kwon *et al.*, 2021). While initially adopted in product design for larger corporations in the technology and service sectors, design thinking has gained traction as a useful tool for small businesses due to its adaptability and potential for high-impact results (Sarooghi *et al.*, 2019; Suci *et al.*, 2022). The appeal of design thinking is in its accessibility as a method of facilitation and problem-solving for different contexts of varying scales (Yusoff, 2025). In this study, design thinking is operationalised through the LUMA system because it provides a clear structure that is easier to apply even when resources are limited.

The LUMA system represents a codified variant of design thinking encompassing 36 methods structured under three key design categories: looking, understanding and making (Pacione, 2021a). These categories guide practitioners through a full cycle of innovation

which includes gathering insights about customers, interpreting insights into patterns and needs, and ideating and testing solutions. Unlike more abstract frameworks, LUMA is conducive to users without design background or those working within resource-constrained environments. It offers step-by-step guidance to support immediate practical application (Pacione, 2021b). Design thinking is made accessible in the way the LUMA Institute trains practitioners of the method across the world, while also presenting its toolkits available freely on their website to facilitate self-learning.

LUMA functions as a toolkit of methods that can be selected and combined depending on the problem context. The three categories map onto common activity types such as insight generation (looking), framing (understanding) and experimentation (making). Through this perspective, broad principles are translated into a sequence of facilitation methods that are run with basic guidance. For small businesses under limited resources, design thinking presents a means to strategically develop customer-centric products and improve operational excellence, using structured methods (Ingle, 2013; You, 2022).

The emphasis on empathy and iterative development aligns well with the dynamic nature of small business operations, where direct customer feedback and rapid adaptation are critical (Chikweche and Bressan, 2022). The LUMA system enables structured creativity in areas such as the gathering of insights and collaborative efforts for product development and process improvement (Pacione, 2021a). These are activities that can easily become overwhelming and chaotic, and design thinking enables clear framing for founders to take charge and manage effectively.

Current success stories of LUMA are mostly from its adoption by large organisations. That said, its principles hold relevance for small businesses as a low-cost and replicable framework. For example, software firm Autodesk adopted LUMA to support its shift from traditional licensing to cloud-based subscriptions (Pacione, 2021b). Meanwhile, technology consultant Genpact integrated LUMA to improve workflows and accelerate service innovation, resulting in an increase in client-facing projects (Lauff, 2022). These examples demonstrate how LUMA aligns strategy and enhances value delivery that are desirable and attainable for small businesses.

These examples explain why LUMA can be effective beyond a single project. As a standardised yet flexible set of methods, LUMA supports repeatable routines for discovery, synthesis and experimentation. This is useful for teams to align around problem framing and evidence from iterations. For small businesses in particular, this repeatability matters as it reduces dependence on specialist expertise and supports cumulative learning over time. With the help of GenAI, the time spent on facilitation and documentation across these processes can be reduced.

Underpinning framework 2: generative artificial intelligence for small business innovation

GenAI technologies such as OpenAI's ChatGPT, Google's Gemini and Microsoft's Co-pilot have rapidly become more accessible and affordable to both individual and organisational users. They offer significant potential to enhance productivity and innovation (Cho *et al.*, 2025; Patel and Indurkhya, 2025). Small businesseses are exploring GenAI to automate administrative tasks, generate marketing content, and analyse sales data as part of customer relationship management (Abrokwah-Larbi and Awuku-Larbi, 2024; Borah *et al.*, 2022; Drydakis, 2022). These applications signal the role of GenAI in augmenting human effort and freeing up resources for higher-value strategic work (e.g. strategic planning, business development, stakeholder management). That said, the risk of overreliance and loss of human essence is real, and can already be seen in certain applications such as image generation which is prone to unwanted errors.

When integrated with design thinking processes, the value proposition of GenAI becomes more compelling (Sreenivasan and Suresh, 2024; Verganti *et al.*, 2021). The human-centred approach of design thinking and speed and scale of GenAI help small businesses to gain deeper insights, prototype ideas and iterate solutions (Staub *et al.*, 2023). The ability to simulate user behaviours or visualise complex patterns aligns with the iterative cycles of design thinking which enhances decision-making capacity (Verganti *et al.*, 2020). The processes of customer relationship management and intelligence gathering can also be better analysed with the support of GenAI. It needs to be noted, however, that these insights may be indicative or directional in nature. Thus, several assumptions need to be made before decisions are made. GenAI outputs are not meant to be taken without human intervention and validation.

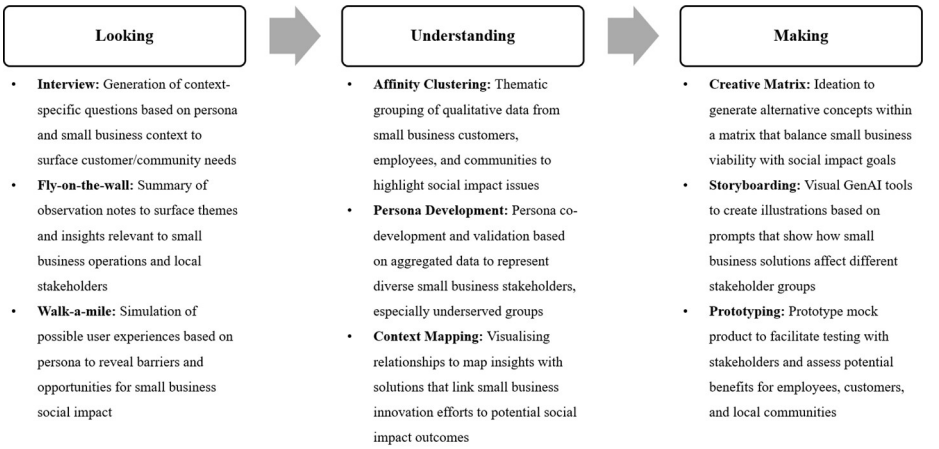
As indicated by the literature, GenAI adoption is not without risks. While it offers gains in speed and cost-efficiency, concerns remain around data privacy, output accuracy, and algorithmic bias (Benzie and Montasari, 2023). Small businesses may face challenges in discerning appropriate use cases and managing the ethical implications of AI-generated content. They could also face the challenge of maintaining authenticity of human-centred processes when they are taken over by large language models (Illia *et al.*, 2023). The dependence on GenAI could undermine the empathy-driven orientation of design thinking if not implemented thoughtfully (Klingbeil *et al.*, 2024). These concerns highlight the need for frameworks that integrate GenAI to balance technological adoption with human values.

Proposed framework: design thinking and Generative artificial intelligence integration

To leverage the opportunity to bridge GenAI capabilities and design thinking application, a framework for integrating GenAI into design thinking activities is proposed. As presented in Figure 1, the proposed conceptual framework identifies key elements of LUMA's three phases (i.e. looking, understanding, making) where GenAI can accelerate innovation. These activities are non-exhaustive, as there are more methods across the LUMA system, but the three selected samples for each phase are deemed to be most pertinent for small business application. Collectively, this framework specifies how this integration helps small businesses translate resource-constrained innovation efforts into concrete social impact outcomes.

Phase 1: Looking. The "looking" phase in the LUMA system involves techniques to gather contextual insights about customer behaviours and experiences. This emphasis on direct observation and empathy aligns with design thinking which positions early-stage user research as the foundation for problem framing (Kimbell, 2011; Liedtka, 2015; Razzouk and Shute, 2012). Methods such as interviewing (i.e. in-person conversation with current or prospective customers), fly-on-the-wall (i.e. observation of day-to-day activities) and walk-a-mile (i.e. simulation of user experience) are used to uncover pain points and tacit knowledge. Emerging studies also show that GenAI can assist small businesses in collecting market insights, albeit with limited attention to human-centred processes (Abrokwah-Larbi and Awuku-Larbi, 2024; Borah *et al.*, 2022). Across these activities, GenAI applications can take shape in various ways.

First, the generation of customer interview scripts. Language models can co-develop context-specific questions that are tailored to different user personas or contexts. This can help in navigating conversations to effectively gather specific information required for development of solutions. Second, summarising observation notes. GenAI can help distil qualitative field notes into thematic summaries by highlighting recurring patterns or outliers. Granted, these are checked for accuracy and specificity. Third, simulation of customer journeys. With meticulous prompting of different scenarios, GenAI can simulate plausible user experiences and enable preliminary hypothesis testing before live market research.



Note: Activities outlined are based on the LUMA System (non-exhaustive)

Figure 1. Potential GenAI integration across design thinking methods for small business social impact
Source: Author's own work

These applications streamline early-stage discovery particularly for small teams with limited time to conduct full-fledged research. One key requirement of this approach is a mindset of experimentation and testing, as well as openness to adapt to changes along the way. GenAI can only predict based on information that it has, and richer insights can only be obtained with effective notation and documentation across the data-gathering process. For small businesses seeking to improve job quality and service access in their communities, more efficient discovery work can become a critical enabler of socially oriented innovation.

Phase 2: Understanding. The "understanding" phase translates raw insights into patterns, themes, and user needs. This stage is closely linked to sensemaking and opportunity framing in design thinking, where teams move from diverse data points to shared interpretations that guide strategic choices (Staub *et al.*, 2023; Verganti *et al.*, 2020). Primary LUMA methods within this process include affinity clustering (i.e. grouping similar observations), persona development (i.e. crafting of representative customer traits) and concept mapping (i.e. rough drafting of solution prototype via collaboration). Across these procedures, GenAI can be integrated in many ways. Given GenAI's strength in pattern recognition and text analysis, these activities offer natural touchpoints for human-AI collaboration in synthesising insights (Cho *et al.*, 2025; Grashof and Kopka, 2023). Here are three instances.

First, clustering of insights. Large language models can support thematic grouping of qualitative data and suggest underlying categories that support human analysis. To ensure validity, one option is to do clustering manually prior to analysis by GenAI, which can enable complementary initiatives by human and large language models. Secondly, persona co-development and validation. GenAI-generated personas based on aggregated user data can act as validation references during team workshops. One key requirement is for a degree of acceptance over the breadth and depth of the persona specificity. This is in line with its purpose to provide directional perspective of the generic user or customer. Thirdly, visualising relationships. GenAI tools with visualisation capabilities (e.g. flowcharts, maps) can help to map connections between insights and solutions. This feature varies across different platforms, however, depending on types of subscription.

These enhancements help small businesses manage the cognitive load of synthesis while encouraging divergent and convergent thinking. The challenge is in adapting to agile or iterative mindset, whereby patience and persistence are required over time to get the optimal outcomes. Staff upskilling and reskilling are also required in this process, so that co-development of solutions are done in a fully participative and inclusive manner. Synthesis activities that are supported by GenAI can help prioritise concepts with the greatest potential social impact.

Phase 3: Making. The "making" phase focuses on ideation, prototyping and iterative testing. Design thinking literature highlights this phase as central to experimentation and learning, where ideas are externalised and tested to reduce uncertainty before full-scale implementation (Liedtka, 2015; Verganti *et al.*, 2020). LUMA methods such as creative matrix (i.e. plotting of solutions across stakeholders), storyboarding (i.e. first-cut drafting of customer journey) and prototyping (i.e. minimum viable product representation) can guide teams in developing tangible solutions. In these efforts, GenAI helps in multiple ways. Recent work suggests that GenAI can act as a creative partner in generating concepts and prototypes, although human judgement remains essential to ensure feasibility and ethical fit (Sreenivasan and Suresh, 2024; Weller, 2019). Following are some examples.

First, support of the ideation process. GenAI can be used to generate alternative concepts within a matrix framework, cross-pollinating ideas from multiple domains. This can come from existing applications of certain approaches which can act as quick case-study references, although accuracy of data or insights needs to be validated thoroughly. Second, automating storyboarding. Visual GenAI tools can create illustrations or narratives based on textual descriptions, consequently reducing production time. This is another form of sketched storyboarding which is commonly done manually. Third, prototyping development. GenAI can produce mock-ups of products to facilitate rapid testing with stakeholders. In doing this, however, prompting needs to be strategic and effective so that the desired output is aligned with the original intent of the user.

Prototyping is commonly a challenge faced by small businesses as it can require some form of investment or resource utilisation (e.g. 3D printing). By supporting visual articulation of ideas, GenAI enables an alternative option to physical mock-up and leaner iteration cycles that align with the agility and pace expected. For small businesses, these leaner prototyping cycles can lower the barrier to experimenting with offerings that target community needs, inclusive employment practices or accessible service models.

Discussion

Theoretical contribution

This study contributes to the literature by shifting the focus from viewing social impact as a static outcome, towards understanding how it can be designed through design thinking and GenAI integration. Prior work typically highlights the role of small businesses in sustaining local employment and community well-being (Liguori *et al.*, 2024; Lindeque and Samuel, 2022). This presents an opportunity to specify underlying innovation mechanisms to improve these intents. As such, this study foregrounds pathways whereby socially oriented innovation can be organised and scaled. In line with MacInnis (2011) call for conceptual work that delineates and integrates constructs and domains, the proposed framework specifies the mechanisms for design thinking and GenAI integration to organise small business innovation towards social impact. In doing so, the framework supports making impact a design criterion with explicit decision points rather than a retrospective claim or byproduct.

From a stakeholder perspective, social impact matters because it strengthens advocacy and legitimacy from the local ecosystem. In this regard, social impact is not positioned as philanthropy. It is seen as an outcome that reinforces conditions for small business sustenance (e.g. trust, retention, acceptance), alongside commercial viability. In addition, the existing literature on design thinking and GenAI is growing which shifts the treatment of both tools as distinct approaches to innovation (Sreenivasan and Suresh, 2024; Staub *et al.*, 2023; Weller, 2019). Through this perspective, GenAI acts as an efficiency and productivity enhancer, as well as a cognitive collaborator in the overall process. The study positions GenAI within the iterative and empathetic modes of innovation (Verganti *et al.*, 2020; Weller, 2019).

In the mapping of GenAI applications onto design thinking, the proposed framework clarifies how discovery, synthesis and prototyping activities are oriented towards social outcomes. The proposed framework also creates an avenue for future scholarly inquiry on workplace creativity and product innovation.

Critical considerations for social impact claims

One key concern is that social impact claims in small businesses can become vague or performative if not grounded in stakeholder validation. The proposed framework therefore treats impact as something to be continuously tested. It also highlights risks such as biased GenAI outputs, overreliance on automated synthesis and exclusion of stakeholder voices when participation is substituted with convenience. Therefore, GenAI should remain an enabling design element, not a replacement; particularly when decisions affect local communities.

Reconnecting to the SDGs, the framework is aligned to SDG 8 and SDG 9 by linking process-level design activities to localised social outcomes. SDG 8 is reflected through the emphasis on decent work and inclusive access as criteria during prototyping. SDG 9 is reflected through the focus on building accessible innovation with GenAI support.

Practical implications

For small business owners, the framework offers a practical roadmap. It reduces the learning curve often associated with mastering design thinking by using GenAI to support facilitation and ideation. In doing so, this effort democratises access to advanced innovation processes, consequently making it feasible for small firms without in-house expertise or large budgets for consultants to conduct iterative innovation. Effective use of the framework depends on a basic level of GenAI literacy among small business owners and staff, including the ability to craft prompts, interpret outputs and recognise ethical risks. Thus, the framework should be introduced alongside targeted capability building interventions via ecosystem partners (e.g. local councils, universities, small-medium enterprise support agencies). As this is a conceptual study, these implications are proposed as directional guidance and require empirical testing in future research before claims about effectiveness can be made.

As small businesses are equipped with scalable and low-cost design capability, the proposed framework supports the embedding of innovation competencies at the grassroots level. This holds the potential for underrepresented and underserved communities, often the base of small businesses, to engage in high-value creation. Policymakers and ecosystem enablers can also leverage on this model to design training programmes or toolkits that make design thinking and GenAI more accessible to entrepreneurs of all backgrounds.

To translate these ideas into day-to-day decision-making, the study proposes a simple implementation checklist for small businesses as outlined in Table 1. This checklist is organised around the LUMA phases and outlines concrete actions (e.g. how to prompt, what questions to

Table 1. Implementation guide and checklist for small businesses integrating design thinking and GenAI

Design thinking/ LUMA phase	GenAI support	Social impact focus	Illustrative example	Self-check question	Readiness checklist
Looking Goal: Understand customers and contexts	Draft interview questions, summarise notes, simulate journeys	Revelation of underserved groups and where barriers exist	Example: Use GenAI to draft interview questions for a target underserved group, summarise notes, and list key barriers to access	Have I identified any underserved groups and specific barriers in the customer context? Yes [ ] No [ ]	□ Target underserved group(s) defined □ Data source(s) chosen (interviews, observation, journeys) □ Prompt(s) drafted and stored
Understanding Goal: Make sense of insights	Cluster themes, generate and refine personas, map issues and ideas	Prioritisation of problems with highest social value	Example: Use GenAI to cluster insights into themes, refine a persona, and compare opportunities based on social value alongside viability	Have I prioritised a problem with clear social value, not only commercial value? Yes [ ] No [ ]	□ Themes agreed by team □ Social value criteria agreed □ Priority opportunity selected and documented
Making Goal: Develop and test solutions	Generate ideas, produce storyboards, outline test plans	Low-cost trial of solutions for fair access, decent work, community benefit	Example: Use GenAI to generate a storyboard or mock up and a simple test plan, then capture stakeholder feedback focused on access, decent work, or community benefit	Have I tested a low-cost prototype with stakeholder feedback on access, decent work, or community benefit? Yes [ ] No [ ]	□ Prototype format chosen (storyboard, mock up) □ Test participants identified (including affected stakeholders) □ Learning capture plan agreed

Source(s): Author's own work

Table 2. Future research agenda based on the proposed framework

Design thinking/ LUMA phase	Example social impact focus	Potential research question
Looking	Identifying underserved groups and local needs	• How do small businesses use GenAI-supported activities to identify underserved stakeholders and community needs? • What owner capabilities and mindsets enable effective use of GenAI for socially oriented customer discovery?
Understanding	Prioritising socially valuable opportunities	• How does GenAI-assisted affinity clustering and persona development influence the prioritisation of socially oriented opportunities compared with purely commercial ones? • In what ways does GenAI-supported synthesis shape the inclusion or exclusion of different stakeholders in small business design decisions?
Making	Designing and testing socially oriented solutions	• How do GenAI prototyping and storyboarding affect the speed, cost, and scope of experiments targeting decent work and inclusive access? • What social and economic outcomes emerge over time from solutions developed through design thinking and GenAI integration?

Source(s): Author's own work

ask, how to document learning). It also triggers small business owners to consider social impact alongside commercial viability at every stage of the process. Each row includes a "Yes/No" self-check question to support use as a checklist. The checklist also provides an illustrative example for each phase and a short worksheet for teams to document their own approach.

To interpret the checklist, each "Yes" can be treated as one point, giving a simple 0–3 score across the three phases. A score of 3 (all "Yes") indicates the team has met the minimum process conditions to proceed with the next cycle while keeping social impact in view. A score of 0 (all "No") suggests the team should pause and address foundational gaps before progressing. Scores of 1–2 indicate partial readiness, where the "No" items should be prioritised as immediate actions before proceeding. To further support implementation, a simple 4-week sequencing roadmap that teams can use to run the checklist in practice is outlined in Appendix.

Limitations and future research

This study is conceptual in nature and is based on a synthesis of existing literature rather than empirical testing. As such, the proposed relationships between the framework and social impact remain to be examined in specific industrial or regional contexts. Future research could use qualitative case studies, design experiments or longitudinal analysis to assess how small firms use the framework and what types of social outcomes emerge over time. In addition, ethical and governance questions related to data quality and bias warrant careful scrutiny particularly when interventions relate to real communities. The framework also assumes a minimum level of GenAI literacy that many small business owners may not yet possess.

Building upon this study, future research agenda could explore how GenAI integration into small business operations shapes inclusion in hiring, how it affects stakeholder groups, and how low-cost prototyping influence the expansion of socially oriented business models.

Future work could also take a more explicit scholar-activist orientation, partnering with small businesses and communities to co-design and evaluate interventions (Fisk, 2025). Table 2 outlines a list of potential research questions across these suggestions.

Data availability

No new data were generated or collected for this research.

Funding

No funding was received in conducting this study.

AI usage disclosure

Microsoft Co-pilot was used for editing this manuscript. All ideas, analyses and conclusions were developed by the author.

References

Abrokwah-Larbi, K. and Awuku-Larbi, Y. (2024), "The impact of artificial intelligence in marketing on the performance of business organizations: evidence from SMEs in an emerging economy", *Journal of Entrepreneurship in Emerging Economies*, Vol. 16 No. 4, pp. 1090-1117, doi: 10.1108/JEEE-07-2022-0207.

Akpan, I.J., Soopramanien, D. and Kwak, D.-H. (2021), "Cutting-edge technologies for small business and innovation in the era of COVID-19 global health pandemic", *Journal of Small Business and Entrepreneurship*, Vol. 33 No. 6, pp. 607-617, doi: 10.1080/08276331.2020.1799294.

Albats, E., Podmetina, D. and Vanhaverbeke, W. (2023), "Open innovation in SMEs: a process view towards business model innovation", *Journal of Small Business Management*, Vol. 61 No. 6, pp. 2519-2560, doi: 10.1080/00472778.2021.1913595.

Bakhtiari, S., Breunig, R., Magnani, L. and Zhang, J. (2020), "Financial constraints and small and medium enterprises: a review*", *Economic Record*, Vol. 96 No. 315, pp. 506-523, doi: 10.1111/1475-4932.12560.

Benzie, A. and Montasari, R. (2023), "Bias, privacy and mistrust: considering the ethical challenges of artificial intelligence", *Applications for Artificial Intelligence and Digital Forensics in National Security*, Springer Nature Switzerland, Cham, pp. 1-14, doi: 10.1007/978-3-031-40118-3_1.

Borah, S., Kama, C., Rakshit, S. and Vajjhala, N.R. (2022), "Applications of artificial intelligence in small- and medium-sized enterprises (SMEs)", in Mallick, P. K., Bhoi, A. K., Barsocchi, P. and De Albuquerque, V.H.C. (Eds), *Cognitive Informatics and Soft Computing*, Springer Nature Singapore, Singapore, Vol. 375, pp. 717-726, doi: 10.1007/978-981-16-8763-1_59.

Chikweche, T. and Bressan, A. (2022), "An investigation on the need for business advisors who can respond to the changing needs of small business enterprises faced with a dynamic operating environment", *Journal of Small Business and Entrepreneurship*, Vol. 34 No. 1, pp. 94-118, doi: 10.1080/08276331.2020.1723463.

Cho, Y., Park, J., Yoo, J., Kim, S. and Park, H. (2025), "A study on Gen-AI technology development trends to enhance small-medium sized enterprise digital competence and management quality", *Journal of Entrepreneurship in Emerging Economies*, Vol. 17 No. 5, doi: 10.1108/JEEE-10-2024-0485.

Drydakis, N. (2022), "Artificial intelligence and reduced SMEs' business risks. A dynamic capabilities analysis during the COVID-19 pandemic", *Information Systems Frontiers*, Vol. 24 No. 4, pp. 1223-1247, doi: 10.1007/s10796-022-10249-6.

Ericson, J.D. (2022), "Mapping the relationship between critical thinking and design thinking", *Journal of the Knowledge Economy*, Vol. 13 No. 1, pp. 406-429, doi: 10.1007/s13132-021-00733-w.

Fatima, T. and Elbanna, S. (2023), "Corporate social responsibility (CSR) implementation: a review and a research agenda towards an integrative framework", *Journal of Business Ethics*, Vol. 183 No. 1, pp. 105-121, doi: 10.1007/s10551-022-05047-8.

Fisk, R.P. (2025), "Viewpoint: wisdom-enabled business research: a scholar-activist framework for social impact", *Journal of Social Impact in Business Research*, Vol. 1 No. 2, pp. 39-52, doi: 10.1108/JSIBR-12-2024-0062.

Gherhes, C., Williams, N., Vorley, T. and Vasconcelos, A.C. (2016), "Distinguishing micro-businesses from SMEs: a systematic review of growth constraints", *Journal of Small Business and Enterprise Development*, Vol. 23 No. 4, pp. 939-963, doi: 10.1108/JSBED-05-2016-0075.

Grashof, N. and Kopka, A. (2023), "Artificial intelligence and radical innovation: an opportunity for all companies?", *Small Business Economics*, Vol. 61 No. 2, pp. 771-797, doi: 10.1007/s11187-022-00698-3.

Illia, L., Colleoni, E. and Zyglidopoulos, S. (2023), "Ethical implications of text generation in the age of artificial intelligence", *Business Ethics, the Environment and Responsibility*, Vol. 32 No. 1, pp. 201-210, doi: 10.1111/beer.12479.

Ingle, B.R. (2013), *Design Thinking for Entrepreneurs and Small Businesses: Putting the Power of Design to Work*, Apress, Berkeley, CA, doi: 10.1007/978-1-4302-6182-7.

Inglesis Barcellos, E.E. and Botura, G. (2018), "Design thinking: user-centered multidisciplinary methodology based on people and innovation", *Advances in Human Factors, Business Management and Leadership*, Vol. 594 Springer International Publishing, Cham, pp. 173-182, doi: 10.1007/978-3-319-60372-8_17.

Jaakkola, E. (2020), "Designing conceptual articles: four approaches", *AMS Review*, Vol. 10 No. 1-2, pp. 18-26, doi: 10.1007/s13162-020-00161-0.

Kimbell, L. (2011), "Rethinking design thinking: Part I", *Design and Culture*, Vol. 3 No. 3, pp. 285-306, doi: 10.2752/175470811X13071166525216.

Klingbeil, A., Grützner, C. and Schreck, P. (2024), "Trust and reliance on AI — an experimental study on the extent and costs of overreliance on AI", *Computers in Human Behavior*, Vol. 160, p. 108352, doi: 10.1016/j.chb.2024.108352.

Kudłak, R., Barkemeyer, R., Preuss, L. and Heikkinen, A. (2022), *The Impact of Corporate Social Responsibility: Corporate Activities, the Environment and Society*, 1st ed. Routledge, New York, NY, doi: 10.4324/9781003182276.

Kwon, J., Choi, Y. and Hwang, Y. (2021), "Enterprise design thinking: an investigation on User-Centered design processes in large corporations", *Designs*, Vol. 5 No. 3, p. 43, doi: 10.3390/designs5030043.

Lauff, C. (2022), "Bridging the gap: helping people understand the LUMA system", available at: www.luma-institute.com/2022/05/06/bridging-the-gap

Liedtka, J. (2015), "Perspective: linking design thinking with innovation outcomes through cognitive bias reduction", *Journal of Product Innovation Management*, Vol. 32 No. 6, pp. 925-938, doi: 10.1111/jpim.12163.

Liguori, E.W., Muldoon, J., Ogundana, O.M., Lee, Y. and Wilson, G.A. (2024), "Charting the future of entrepreneurship: a roadmap for interdisciplinary research and societal impact", *Cogent Business and Management*, Vol. 11 No. 1, p. 2314218, doi: 10.1080/23311975.2024.2314218.

Lindeque, J. and Samuel, O. (2022), "The societal case for small business social responsibility: a review of the evidence of societal impact types and their relevance to stakeholders", *The Impact of Corporate Social Responsibility*, 1st ed. Routledge, New York, NY, pp. 44-69, doi: 10.4324/9781003182276-3.

MacInnis, D.J. (2011), "A framework for conceptual contributions in marketing", *Journal of Marketing*, Vol. 75 No. 4, pp. 136-154, doi: 10.1509/jmkg.75.4.136.

Pacione, C. (2021a), "The origins of the LUMA system", available at: www.luma-institute.com/2021/05/14/origins-of-luma-system

Pacione, C. (2021b), "The LUMA system: now available to all", available at: www.luma-institute.com/2021/07/22/system-available-to-all

Patel, N.S. and Indurkhya, N. (2025), *The Rise of Intelligent Machines: A Multi-Disciplinary Perspective from Industry and Impact on Higher Education*, 1st ed. CRC Press, Boca Raton, FL.

Pickett, L., Lally, C. and Parry, J. (2025), *Supporting Local Economies, Communities, and Businesses*, UK Parliament.

Razzouk, R. and Shute, V. (2012), "What is design thinking and why is it important?", *Review of Educational Research*, Vol. 82 No. 3, pp. 330-348, doi: 10.3102/0034654312457429.

Sarooghi, H., Sunny, S., Hornsby, J. and Fernhaber, S. (2019), "Design thinking and entrepreneurship education: Where are We, and what are the possibilities?", *Journal of Small Business Management*, Vol. 57 No. sup1, pp. 78-93, doi: 10.1111/jsbm.12541.

Shaik, A.S., Alshibani, S.M., Jain, G., Gupta, B. and Mehrotra, A. (2024), "Artificial intelligence (AI)-driven strategic business model innovations in small- and medium-sized enterprises. Insights on technological and strategic enablers for carbon neutral businesses", *Business Strategy and the Environment*, Vol. 33 No. 4, pp. 2731-2751, doi: 10.1002/bse.3617.

Sreenivasan, A. and Suresh, M. (2024), "Design thinking and artificial intelligence: a systematic literature review exploring synergies", *International Journal of Innovation Studies*, Vol. 8 No. 3, pp. 297-312, doi: 10.1016/j.ijis.2024.05.001.

Staub, L., Van Giffen, B., Hehn, J. and Sturm, S. (2023), "Design thinking for artificial intelligence: How design thinking can help organizations to address common AI project challenges", *HCI International 2023 – Late Breaking Papers*, Springer Nature Switzerland, Cham, Vol. 14059, pp. 251-267, doi: 10.1007/978-3-031-48057-7_16.

Suci, A., Maryanti, S., Hardi, H. and Sudiar, N. (2022), "Embedding design thinking paradigm in a university's business assistance to small business", *Systemic Practice and Action Research*, Vol. 35 No. 2, pp. 177-201, doi: 10.1007/s11213-021-09565-w.

Thomas, J. (2023), *Small Businesses Are Vital to Job Creation in the Global South and This Is How We Can Help Them Grow*, World Economic Forum.

Velte, P. (2022), "Meta-analyses on corporate social responsibility (CSR): a literature review", *Management Review Quarterly*, Vol. 72 No. 3, pp. 627-675, doi: 10.1007/s11301-021-00211-2.

Verganti, R., Dell'Era, C. and Swan, K.S. (2021), "Design thinking: critical analysis and future evolution", *Journal of Product Innovation Management*, Vol. 38 No. 6, pp. 603-622, doi: 10.1111/jpim.12610.

Verganti, R., Vendraminelli, L. and Iansiti, M. (2020), "Innovation and design in the age of artificial intelligence", *Journal of Product Innovation Management*, Vol. 37 No. 3, pp. 212-227, doi: 10.1111/jpim.12523.

Ward, A., Runcie, E. and Morris, L. (2009), "Embedding innovation: design thinking for small enterprises", *Journal of Business Strategy*, Vol. 30 Nos 2-3, pp. 78-84, doi: 10.1108/02756660910942490.

Weller, A.J. (2019), "Design thinking for a user-centered approach to artificial intelligence", *She Ji: The Journal of Design, Economics, and Innovation*, Vol. 5 No. 4, pp. 394-396, doi: 10.1016/j.sheji.2019.11.015.

You, X. (2022), "Applying design thinking for business model innovation", *Journal of Innovation and Entrepreneurship*, Vol. 11 No. 1, p. 59, doi: 10.1186/s13731-022-00251-2.

Yusoff, A. (2025), "Design thinking for interdisciplinary learning and global competence in higher education: an integrative framework", *On the Horizon: The International Journal of Learning Futures*, Vol. 33 No. 4, pp. 475-490, doi: 10.1108/oth-04-2025-0048.

Appendix

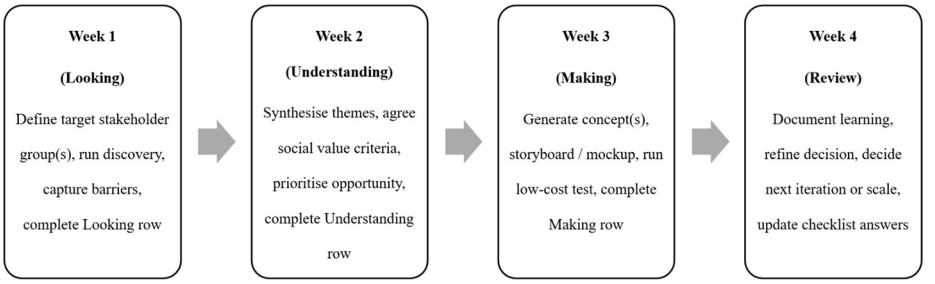


Figure A1. Sample 4-week implementation roadmap
Source: Author's own work

Corresponding author
Asrif Yusoff can be contacted at: a.yusoff@greenwich.ac.uk