



DESIGN THINKING AS A CREATIVE APPROACH TO SUSTAINABILITY

Mario Carrassi¹, Anna Argese¹, Teresa D'Andrea¹, Tomasz Ingram²

¹ *Università degli studi di Bari Aldo Moro, Dipartimento di Economia e Finanza, Bari, Italy*

² *The University of Economics in Katowice, Faculty of Economics, Poland*

Abstract: Sustainability has traditionally been framed as an external objective, driven mainly by compliance with regulations and corporate social responsibility. This paper proposes a paradigm shift toward “SustainAbility”, conceptualized as an intrinsic capacity for individuals, organizations, and systems to internalize sustainable principles.

By critiquing compliance-driven approaches, such as the EU Non-Financial Information Directive in producing a real transformative impact, this paper identifies a gap: the need to transition from surface-level reporting to embedding sustainability, into behavioral and organizational change.

To bridge this gap this paper positions Design Thinking as a transformative methodology, rooted in creativity, empathy, and iterative problem-solving, suitable for systemic sustainability challenges. We present a multi-dimensional framework that connects Design Thinking to behavioral and organizational shifts through four pillars: aligning behavior with systemic goals, embedding iterative processes as adaptive mechanisms, operationalizing systems thinking for strategic impact, and fostering a culture of innovation and resilience. These contributions aim to inspire innovation, behavioral change, and systemic real transformation in sustainability science and practice.

Keywords: SustainAbility, Design Thinking, Systemic Innovation, Organizational Transformation.

¹ Corresponding author: mario.carrassi@uniba.it

Mario Carrassi, ORCID: 0000-0002-2111-4459

Anna Argese, ORCID: 0009-0004-6128-3152

Teresa D'Andrea, ORCID: 0009-0008-3370-3892

Tomasz Ingram, ORCID: 0000-0002-4161-6261

1. INTRODUCTION

The concept of sustainability has evolved significantly over the past decades, transitioning from focusing on external goals, such as environmental preservation and compliance with regulatory frameworks, to a deeper understanding of its intrinsic dimensions. Early frameworks including the Brundtland Commission's definition (1987) emphasized intergenerational equity and resource management. However, scholars increasingly highlight the importance of embedding sustainability within the behavioral and cultural foundations of individuals, organizations and systems (Sterling, 2010; Lozano, 2015; Shrivastava et al., 2020; Mezirow, 1997).

This paper introduces the concept of "SustainAbility", defined as the intrinsic and dynamic capacity to internalize and operationalize sustainable principles in everyday practice, unlike traditional compliance-driven approaches, such as the EU Non-Financial Information Directive (Directive 2014/95/EU), while successfully increasing the volume of environmental disclosures across industries (Adams & Abhayawansa, 2022; Michelin et al., 2015; Boiral, 2013; Flower, 2015), often reports on metrics to satisfy compliance requirements, yet these disclosures often lack transparency or fail to address root causes such as carbon dependency or supply chain inequities (Ioannou & Serafeim, 2017; Bebbington & Larrinaga, 2014). These limitations of compliance-driven approaches, without integrating sustainability into operational practices risk perpetuating superficial efforts rather than fostering genuine change (Christensen et al., 2021; Lock & Seele, 2016).

This gap highlights the pressing need for methodologies that go beyond compliance to actively engage stakeholders in embedding sustainability as an intrinsic ability.

The transition from compliance-driven sustainability to SustainAbility requires more than technical solutions or regulatory mandates. It demands fostering a culture of innovation, collaboration and continuous learning.

This paper seeks to address the following research question: *"How can sustainability be embedded as an intrinsic capability within organizations, moving beyond compliance-driven approaches toward systemic and behavioral transformation?"*

To answer this research question, the paper sets out to:

1. Theoretically ground the notion of "SustainAbility" as an endogenous organizational capability, in contrast to compliance-oriented sustainability.
2. Examine Design Thinking as a methodological lens for catalyzing behavioral and systemic transformation.
3. Construct a conceptual framework that operationalizes this integration.

By integrating theoretical insights with practical methodologies, this paper aims to contribute to the discourse on sustainability and innovation, offering a framework for leveraging Design Thinking as a pathway to operationalize SustainAbility. In doing so, it seeks to inspire policymakers, organizations and individuals to embrace creative and human-centered approaches as central to sustainable transformation.

2. CONCEPTUAL FOUNDATIONS

2.1 SustainAbility: An Intrinsic Ability

The concept of SustainAbility, as an intrinsic capacity, has garnered increasing attention as sustainability efforts strive to achieve deeper integration into organizational and societal norms. SustainAbility emphasizes the internalization of ethical principles, whereby individuals and organizations not only comply with external mandates but actively innovate and adapt to

ensure alignment with long-term ecological, social and economic goals. This perspective shifts the focus from reactive to proactive strategies, embedding sustainability at the core of operational, strategic and cultural frameworks (Carrassi, 2016; Gunderson & Holling, 2002; Leach et al., 2012).

A key dimension of SustainAbility is behavioral awakening which moves beyond traditional behavioral change theories by emphasizing not just the adjustment of habits but a fundamental reorientation of values and priorities.

Behavioral awakening aligns closely with transformative learning theories, which stress the need for critical self-reflection to unearth and modify deeply held assumptions and behaviors (Mezirow, 1997).

SustainAbility also incorporates systems thinking, a framework that underscores the interconnectedness of ecological, social, and economic systems and helps to identify leverage points where small but strategic interventions can yield significant impacts (Meadows, 2008).

A further characteristic of SustainAbility is its reliance on adaptability and resilience. Adaptability is considered as an iterative learning and flexibility in dealing with uncertainty and complexity, particularly in dynamic contexts such as climate change or resource management (Pahl-Wostl, 2007; Biggs et al., 2012). Resilience, on the other hand, emphasizes the ability of systems to absorb shocks while maintaining functionality (Folke et al., 2016). Embedding SustainAbility also requires alignment with cultural values and leadership frameworks. Leaders play a crucial role in fostering a culture of sustainability by modeling ethical behaviors, incentivizing innovation and creating spaces for collaborative problem-solving. Research indicates that transformational leadership, which inspires and motivates teams toward shared goals, can be particularly effective in cultivating SustainAbility within organizations (Avolio & Bass, 2004; Doppelt, 2017).

At the organizational level, SustainAbility, as an intrinsic ability, necessitates to be embedded into core strategic processes. This includes leveraging tools such as life cycle analysis (LCA) and scenario planning to inform decision-making and foster long-term thinking (Finnveden et al., 2009; Swart et al., 2004). It also requires the integration of sustainability metrics into performance evaluation systems, ensuring accountability and improvement (Adams, 2022). When long-term environmental and social commitment is treated as a dynamic capability—one that evolves in response to shifting environmental and societal demands—it becomes a source of competitive advantage rather than a compliance burden (Teece, 2007; Helfat & Martin, 2015).

Moreover, emerging technologies such as artificial intelligence and blockchain hold promise for enhancing sustainability, by enabling data-driven decision-making and improving transparency across value chains (Saber et al., 2019).

SustainAbility as an intrinsic capacity represents a paradigm shift in how individuals, organizations and systems approach sustainability challenges, synthesizing behavioral insight, systemic thinking, adaptive leadership and innovative practice into a coherent framework for long-term resilience and socio-ecological regeneration.

2.2 Design Thinking: A Methodology for Change

Design thinking has emerged as a transformative methodology, uniquely suited for navigating the complexity and interconnectedness of sustainable challenges. Originating in the field of design, this human-centered approach prioritizes empathy, creativity, and iterative problem-solving. Its adaptability makes it especially relevant in sustainability contexts where

solutions must balance social, economic and environmental imperatives while remaining flexible in the face of evolving conditions (Brown, 2009; Dorst, 2011).

Unlike linear methodologies, Design Thinking embraces ambiguity, encouraging experimentation and co-creation to generate innovative, actionable solutions (Johansson-Sköldberg et al., 2013; Kolko, 2015) (fig.1).

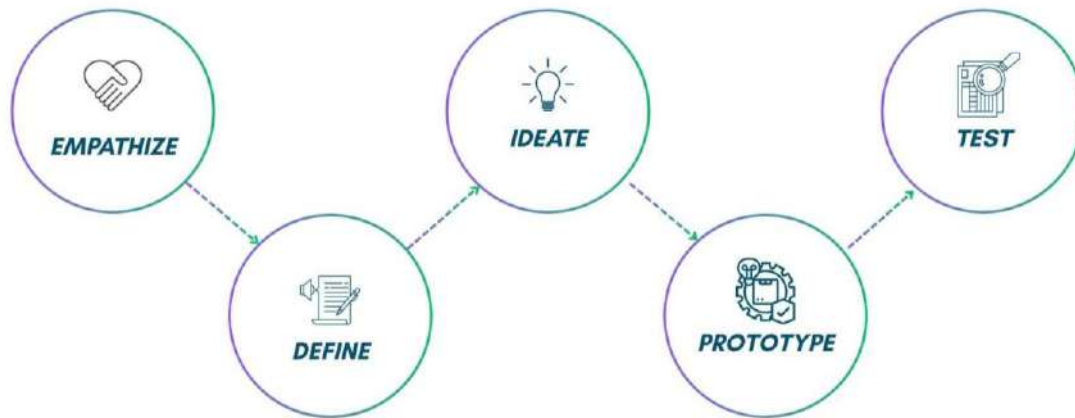


Figure 1: The Design Thinking process

The entire Design Thinking process is not linear, but an iterative process, within which, grouped into macro steps, 6 phases are included:

1. **Empathize:** conducting research to understand what users do, say, think, and feel.
2. **Define:** identify needs and problems, start highlighting opportunities.
3. **Idea:** brainstorm with the team and encourage and give free space to creativity.
4. **Prototype:** building real representations with the aim of understanding which components of ideas work and which don't. In this phase, start assessing the impact and feasibility through feedback on prototypes.
5. **Test:** Going back to users for feedback, asking, "Does this solution meet users' needs?", "Has it improved the way they feel, think, or perform their tasks?".
6. **Implement:** Putting the vision into practice, making sure the solution materializes and enters users' lives.

At the heart of Design Thinking there are its core principles: empathy, ideation, prototyping, and testing. Empathy involves a deep understanding of the needs, behaviors and motivations of stakeholders. In sustainability applications, empathy fosters a human-centered perspective, helping practitioners identify barriers to change and co-create interventions tailored to specific communities (Norman & Verganti, 2014; Brown & Katz, 2011). For example, empathy mapping enables designers to align sustainability goals with user preferences, creating solutions that resonate with diverse audiences.

Ideation facilitates the generation of creative ideas by encouraging divergent thinking and challenging conventional assumptions. Techniques such as brainstorming, lateral thinking, and "How Might We" questions empower teams to explore new perspectives and discover unconventional pathways to address systemic challenges (Martin, 2009; Liedtka & Ogilvie, 2011). These methods are particularly valuable in addressing systemic environmental issues, where entrenched behaviors and rigid systems often limit innovation (Bocken et al., 2014).

Prototyping transforms abstract ideas into tangible representations, allowing stakeholders to visualize and interact with potential solutions. By engaging in iterative prototyping, teams can test and refine ideas based on real-world feedback, ensuring their feasibility and effectiveness (Cross, 2006; Dorst, 2011). In the realm of sustainable development, prototyping can be applied

to test alternative business models, community engagement strategies or innovative technologies, reducing risk and increasing buy-in from stakeholders (Norman & Verganti, 2014; Johnson et al., 2013).

Testing, the final principle, involves evaluating the effectiveness and scalability of prototypes in real-world conditions. This iterative process enables organizations to identify potential weaknesses, gather feedback and optimize solutions before full-scale implementation (Liedtka, 2011; Kolko, 2015). In initiatives targeting sustainable transformation, testing ensures that interventions are adaptable to diverse conditions and capable of achieving measurable impacts across ecological, social and economic dimensions (Ramaswamy & Gouillart, 2010).

A defining strength of Design Thinking is its collaborative and interdisciplinary approach, which brings together diverse stakeholders to co-create solutions. By integrating multiple perspectives and expertise, Design Thinking facilitates holistic solutions that address systemic challenges (Rittel & Webber, 1973; Sovacool & Hess, 2017). Such collaboration also builds trust, enabling stakeholders to collectively navigate complex issues such as climate resilience, resource efficiency and sustainable urban development.

Moreover, Design Thinking's emphasis on iterative learning aligns closely with the dynamic nature of sustainability. Design Thinking empowers organizations to continuously refine their strategies (Stermann, 2001; Pahl-Wostl, 2007). This adaptability is critical for ensuring that solutions remain relevant and effective over time (Levin et al., 2012; Gehman et al., 2013).

Emerging technologies further enhance the application of Design Thinking in sustainability. For example, AI-driven analytics can uncover patterns in resource use, guiding the development of solutions that optimize efficiency and minimize environmental impact.

Finally, Design Thinking inspires a growth mindset, encouraging individuals and organizations to challenge entrenched behaviors and adopt forward-thinking strategies (Buchanan, 1992). This makes Design Thinking a critical enabler of SustainAbility, empowering stakeholders to align immediate actions with long-term ecological and social goals.

2.3 Linking SustainAbility and Design Thinking

The integration of SustainAbility and Design Thinking reveals a synergistic approach to systemic transformation, rooted in iterative, human-centered methodologies aligned to sustainability goals. SustainAbility requires individuals and organizations to move beyond compliance-driven approaches, embedding systemic thinking into their practices to achieve long-term resilience and adaptability. Design thinking operationalizes these principles by enabling organizations to address uncertainty, foster collaboration, and manage complexity through iterative tools like prototyping, empathy-driven design, and dynamic learning cycles (Ceschin & Gaziulusoy, 2016; Van der Bijl-Brouwer & Dorst, 2017).

Iterative learning plays a pivotal role in this integration, offering a structured approach to testing, feedback, and refinement and enables organizations to adapt solutions to shifting contexts and emerging challenges, by focusing on continuous improvement and iterative learning supports.

Leadership serves as a critical enabler in bridging SustainAbility and Design Thinking. Transformational leaders who champion empathy, experimentation, and co-creation are instrumental in fostering a culture of collaboration and adaptability. They also can guide organizations in operationalizing design Thinking to achieve ethical objectives. Alignment between iterative processes and systemic goals ensures that Design Thinking methodologies address immediate needs while contributing to transformative, long-term change.

The integration of SustainAbility and Design Thinking provides a structured yet flexible pathway for organizations. This fusion also offers a robust framework for achieving meaningful and enduring sustainability outcomes.

2.4 Conceptual Framework

The proposed framework integrates SustainAbility and Design Thinking across four interrelated pillars designed to bridge theoretical constructs with practical applications, fostering systemic change and operationalizing sustainable transformation (fig. 2).



Figure 2. Integrated Framework for SustainAbility and Design Thinking

2.5 Aligning Behavior with Systemic Goals

The first pillar focused on shifting individual and organizational behavior from compliance-driven actions to proactive, purpose-driven behaviors, aligned with long-term sustainability goals.

Design thinking methodologies, such as empathy mapping and personas development, play a critical role by uncovering stakeholder motivations and addressing barriers to sustainable behavior (Norman & Verganti, 2014).

Leadership is a key enabler in this alignment process. Values-based leadership creates an organizational culture where sustainable goals are internalized and acted upon (Gehman et al., 2013).

2.6 Embedding Iteration as an Adaptive Mechanism

The second pillar highlights the importance of embedding iterative processes into sustainable transformation initiatives to address the dynamic and uncertain nature of sustainable challenges. Design Thinking's iterative cycles of prototyping, testing, and refinement align with the adaptive needs of SustainAbility, enabling continuous improvement and responsiveness to emerge conditions.

Iteration is particularly effective in addressing wicked problems, as described by Rittel and Webber (1973), which lack definitive solutions. This approach aligns with double-loop

learning, where organizations not only reassess strategies but also challenge underlying assumptions, ensuring systemic transformation (Argyris & Schön, 1978).

2.7 Operationalizing Systems Thinking

The third pillar involves translating systems thinking into actionable strategies that address root causes rather than surface-level symptoms. Visualization tools like causal loop diagrams and systems mapping are instrumental in operationalizing systems thinking, helping stakeholders identify leverage points for meaningful intervention (Forrester, 2007). Applications in sustainable agriculture supply chains demonstrate how this approach improves efficiency and reduces waste (Sberman, 2001) while Design Thinking enables the co-creation of solutions that address root causes in contextually relevant ways (Levin et al., 2012).

2.8 Fostering a Culture of Innovation and Resilience

The fourth pillar underscores the necessity of fostering a culture of innovation and resilience, enabling organizations and communities to adapt to changing conditions while pursuing long-term sustainability goals. Innovation often stems from collaborative and interdisciplinary approaches. For example, interdisciplinary collaborations in sustainable fashion design have led to innovations in material sourcing and production processes, significantly reducing environmental impact (Pagell & Shevchenko, 2014). At the same time resilience, -the ability to absorb shocks and adapt to disruptions- is crucial for navigating sustainability challenges. Design Thinking fosters resilience through iterative experimentation and feedback loops (Folke et al., 2016).

3. THEORETICAL FOUNDATIONS

3.1 Behavioral and Organizational Perspectives

SustainAbility, as an intrinsic ability, requires significant behavioral and organizational transformation. This transformation involves shifting individual mindsets and collective attitudes to embed sustainability within everyday practices. Behavioral change theories, such as the Transtheoretical Model (Prochaska & DiClemente, 1983) and the intention-behavior gap framework (Kollmuss & Agyeman, 2002), emphasize the importance of gradual, staged changes in behavior. Organizations, as systems of collective action, play a pivotal role in facilitating such transformations. Aligning organizational strategies, operations, and cultures with sustainability goals is essential but fraught with challenges, including resistance to change, competing priorities, and a lack of integration between sustainability initiatives and core business processes (Senge et al., 2008; Lozano, 2015; Carrassi, 2016; Adams, 2022). Organizational change theories provide valuable insights into overcoming barriers to transformation. Kotter's (1966) eight-step model offers a structured framework for embedding sustainability within organizational culture. The steps include *Establishing a Sense of Urgency*: emphasize the risks of maintaining the status quo and highlight opportunities for sustainable transformation. *Creating a Guiding Coalition*: assemble a committed team of leaders to champion the change process. *Developing a Vision and Strategy*: define a clear vision for sustainability and outline actionable strategies to achieve it. *Communicating the Vision*: ensure consistent and persuasive messaging to align organizational efforts. *Empowering Broad-Based Action*: remove structural and cultural barriers that hinder progress, empowering teams to take initiative. *Generating Short-Term Wins*: Celebrate early successes to build momentum and

validate efforts. *Consolidating Gains and Producing More Change*: leverage initial wins to drive deeper, systemic changes. *Anchoring New Approaches in the Culture*: embed sustainability into the organization's core values and practices to ensure long-term impact.

In sustainability contexts, Kotter's model provides a roadmap for integrating SustainAbility principles into organizational strategies. For instance, fostering urgency around climate challenges and empowering teams through human-centered methodologies like Design Thinking can enhance stakeholder engagement and drive continuous improvement.

Behavioral economics complements organizational change theories by addressing cognitive and psychological barriers to sustainability. Concepts such as bounded rationality (Simon, 1955) and the "dragons of inaction" framework (Gifford, 2011) identify obstacles like limited cognition, ideological biases, and perceived risks that hinder sustainable decision-making. Even when individuals recognize the importance of sustainable practices, these barriers often prevent action.

Nudging strategies provide practical solutions to these challenges. For example, small environmental prompts—such as default settings for renewable energy or labeling systems for waste separation—can drive significant behavioral changes with minimal effort (Thaler & Sunstein, 2008). These interventions align with Design Thinking's focus on empathy and user-centered design, making sustainability more accessible and actionable.

3.2 The Role of Design Thinking in Behavioral Transformation

Design Thinking enhances the application of behavioral change theories by focusing on empathy, collaboration, and iteration. Tools like empathy mapping enable practitioners to understand user constraints and motivations, creating solutions that resonate with stakeholders' needs (Buchanan, 1992; Brown, 2009). Furthermore, Design Thinking reduces "sludge"—excessive friction in decision-making processes—by simplifying complex systems and aligning them with user behavior (Sunstein, 2021). This synergy between behavioral economics and Design Thinking ensures that interventions are both practical and impactful, addressing psychological barriers while fostering organizational transformation.

3.3 Aligning Theoretical Foundations with Practice

The theoretical foundations of SustainAbility and Design Thinking provide a robust framework for addressing sustainability challenges. However, their effective implementation requires bridging the gap between theory and practice. Translating abstract concepts into actionable strategies is critical for achieving meaningful impact. This involves operationalizing systems thinking principles through Design Thinking methodologies and fostering the behavioral and organizational changes necessary for sustainable transformation (Senge et al., 2008; Lozano, 2015).

One effective approach is the development of sustainable development roadmaps, which guide organizations in aligning strategic objectives with the systemic nature of sustainability challenges. These roadmaps leverage iterative learning and feedback loops to enable organizations to adapt strategies in response to evolving circumstances and stakeholder needs (Shrivastava et al., 2020; Meadows, 2008). For example, roadmaps for transitioning to renewable energy often include phased targets, stakeholder engagement plans, and mechanisms for tracking progress, ensuring alignment with both organizational goals and broader sustainability imperatives.

Despite their potential, aligning theoretical frameworks with on-ground realities presents significant challenges. Abstract models often fail to account for the complexity and variability of local contexts. Organizations must navigate competing priorities, resource constraints, and cultural resistance, which can hinder the practical application of sustainability principles. For instance, a roadmap for circular economy adoption may face logistical barriers in supply chain restructuring or resistance from stakeholders unfamiliar with new practices. Addressing these challenges requires a balance between maintaining theoretical integrity and adapting to practical constraints.

Design Thinking provides tools to overcome these challenges by fostering collaboration and co-creation. Workshops and iterative prototyping enable employees and stakeholders to co-develop sustainability initiatives, ensuring that solutions are both contextually relevant and practically feasible (Kolko, 2015; Liedtka, 2011). Additionally, the integration of systems thinking with Design Thinking facilitates the identification of leverage points—critical areas where small interventions can drive significant systemic change. Visualization tools, such as causal loop diagrams and systems maps, help organizations translate abstract sustainability goals into targeted, actionable strategies (Meadows, 2008).

3.4 Operationalizing Sustainability through Design Thinking

Operationalizing Sustainability through Design Thinking requires embedding creative, human-centered methodologies into organizational frameworks to achieve long-term sustainability. This integration elevates Design Thinking from a standalone practice to a strategic mechanism capable of navigating the complexities inherent in systemic environmental and social issues. By aligning Design Thinking with organizational goals, it becomes a vital tool for facilitating adaptive learning, innovation, and system-wide transformation (Evans et al., 2017; Helfat & Martin, 2015).

One of Design Thinking's core strengths is its ability to overcome the limitations of linear problem-solving by embracing iterative and holistic approaches. This is particularly relevant in sustainability contexts, where ecological, economic, and social systems interact in complex and unpredictable ways. Iterative processes within Design Thinking ensure that strategies remain flexible, responsive, and adaptable to evolving conditions (Ansari et al., 2013; O'Brien, 2012). However, organizations must be cautious not to overly rely on iteration as an end in itself. Balancing short-term wins with long-term sustainability goals is critical to ensuring that iterative processes do not delay substantive action or create the illusion of progress without systemic change.

Leadership plays a pivotal role in integrating Design Thinking into sustainability strategies. Leaders who adopt Design Thinking principles can foster collaborative environments that enhance decision-making and empower stakeholders to co-create solutions. Empathy—a cornerstone of Design Thinking—enables leaders to deeply understand stakeholder needs, ensuring that solutions align with shared values and long-term objectives (Taneja et al., 2011; Waddock & McIntosh, 2011). This empathetic leadership approach also builds trust and encourages inclusive participation, which are critical for achieving systemic transformation (Elkington, 2012).

Operationalizing Sustainability through Design Thinking also requires a systemic perspective that aligns short-term operations with long-term environmental and social objectives. Feedback loops, a key element of systemic thinking, help organizations identify interdependencies and leverage points within their systems (Spangenberg, 2011; Whiteman et al., 2013). The resilience fostered by Design Thinking is another critical advantage for organizations navigating

sustainability transitions. Resilience enables organizations to absorb shocks, adapt to disruptions, and maintain functionality in the face of challenges like climate change, resource scarcity, or economic volatility. By embedding adaptability into core operations, Design Thinking empowers organizations to continuously test and refine strategies in response to emerging threats and opportunities (Holling, 2001; Marshall et al., 2012). This adaptive capacity ensures that long-term development efforts remain relevant and effective over time, contributing to both immediate goals and long-term transformation.

Design Thinking fosters a growth mindset, encouraging individuals and teams to challenge entrenched behaviors and experiment with new approaches. However, organizations must also address the challenges of aligning abstract frameworks with on-ground realities, such as resource constraints, stakeholder resistance, and competing priorities.

3.5 Challenges and Opportunities for Improvement

Despite its strengths, Design Thinking also faces significant challenges in its application to sustainability. One notable limitation is scalability. While Design Thinking excels in localized and context-specific scenarios, extending these solutions to global challenges, such as climate change or biodiversity loss, remains a critical issue. Solutions often require significant customization to maintain their relevance across diverse cultural, environmental, and regulatory settings. Balancing local specificity with global scalability is an ongoing challenge that practitioners must navigate (Ostrom, 2009; Filho et al., 2019).

Another challenge is the resource demands associated with participatory and iterative processes. Design Thinking requires substantial investments of time, financial resources, and stakeholder engagement, which can limit its applicability in resource-poor settings where sustainable challenges are often most acute (Carver & Turoff, 2007; Manzini, 2015). Streamlined processes and the use of digital tools, such as online collaboration platforms and AI-driven ideation tools, can help reduce these demands and expand accessibility, enabling broader participation.

Behavioral and cultural resistance also pose persistent barriers to the successful implementation of Design Thinking in sustainable innovation environments. . Many challenges entrenched norms, values, and organizational structures, creating friction that can impede progress. Overcoming these barriers requires strategies that align sustainability goals with local cultural contexts, foster trust among stakeholders, and build a shared vision of change (Sterling, 2010; Prochaska & DiClemente, 1983). By addressing resistance at both the individual and organizational levels, practitioners can create more inclusive and impactful solutions.

Balancing innovation with practicality is another critical consideration. While Design Thinking's emphasis on creativity encourages the exploration of visionary ideas, some solutions may prove overly ambitious or resource intensive. Practitioners must carefully align stakeholder expectations with available resources and implementation capabilities to ensure that solutions are both innovative and actionable (Brown & Katz, 2011; Dorst, 2017).

4. CONCLUSION

The transition from sustainability as an external obligation to *SustainAbility* as an intrinsic capacity mark a significant paradigm shift in addressing global challenges. This paper argues that Design Thinking serves as a critical methodology for enabling this transformation, fostering creativity, collaboration, and adaptability to address the complexity of sustainable development imperatives. By integrating theoretical insights and practical methodologies this

study has illustrated how Design Thinking can unlock *SustainAbility* as an innate ability, driving innovation and systemic transformation.

The concept of *SustainAbility* reframes sustainability from a reactive, compliance-driven practice to a proactive and dynamic process rooted in behavioral and systemic change. Grounded in behavioral and organizational theories, *SustainAbility* emphasizes the importance of internalizing sustainability principles and aligning actions with long-term ecological and social goals. Yet, embedding these principles into organizational practices and cultural systems remains a considerable challenge. Design Thinking has emerged as a transformative enabler, offering a structured yet flexible framework for navigating these challenges. Its human-centered approach facilitates the co-creation of inclusive, practical, and scalable solutions. The iterative processes of Design Thinking align seamlessly with the dynamic nature of *SustainAbility*, fostering continuous learning and adaptation.

While the potential of Design Thinking to foster *SustainAbility* is evident, several areas warrant further exploration and action. Research is needed to explore how Design Thinking initiatives, often localized and context-specific, can be scaled to address broader sustainability challenges without compromising their relevance to local contexts. Digital tools such as artificial intelligence and blockchain hold immense promise for enhancing the scalability and efficiency of Design Thinking in sustainability practices. Further investigation into these technologies can uncover new synergies. Moreover, there is a pressing need to assess the long-term impacts of Design Thinking initiatives on sustainability outcomes. Longitudinal studies would offer critical insights into their effectiveness, scalability, and potential for systemic transformation. *SustainAbility* as an intrinsic capacity represents a forward-looking paradigm—one in which individuals, organizations, and systems collaborate to co-create solutions that balance ecological integrity, social equity, and economic viability. Design Thinking, with its emphasis on creativity, empathy, and iteration, serves as a powerful methodology for realizing this vision. By bridging the gap between theory and practice, it empowers stakeholders to navigate the complexities of sustainability and co-create a future that is both innovative and equitable.

The hope is that these insights will inspire interdisciplinary research, innovation, and collaboration, propelling the collective journey toward a more sustainable and resilient world.

References

- Adams, C. A. & Abhayawansa, S. (2022). A critical review of corporate sustainability reporting and stakeholder engagement: An agenda for research. *Sustainability Accounting, Management and Policy Journal*. DOI: 10.1108/SAMPJ-09-2020-0321
- Ansari, S., Wijen, F., & Gray, B. (2013). Constructing a climate change logic: An institutional perspective on the “tragedy of the commons.” *Organization Science*, 24(4), 1014–1040. DOI: [10.1287/orsc.1120.0799](https://doi.org/10.1287/orsc.1120.0799)
- Argyris, C., & Schön, D. A. (1978). *Organizational Learning: A Theory of Action Perspective*. Addison-Wesley.
- Avolio, B. J., & Bass, B. M. (2004). *Multifactor Leadership Questionnaire Manual*. Mind Garden.
- Bebbington, J., & Larrinaga, C. (2014). Accounting and sustainable development: An exploration. *Accounting, Organizations and Society*, 39(6), 395–413. DOI: [10.1016/j.aos.2014.01.003](https://doi.org/10.1016/j.aos.2014.01.003)
- Biggs, R., Schlüter, M., & Schoon, M. L. (2012). *Principles for Building Resilience: Sustaining Ecosystem Services in Social-Ecological Systems*. Cambridge University Press. DOI: [10.1017/CBO9781139017237](https://doi.org/10.1017/CBO9781139017237)

- Boiral, O. (2013). Sustainability reports as simulacra? A counter-account of A and A+ GRI reports. *Accounting, Auditing & Accountability Journal*, 26(7), 1036–1071. DOI: [10.1108/AAAJ-04-2012-00998](https://doi.org/10.1108/AAAJ-04-2012-00998)
- Bocken, N. M. P., Short, S. W., Rana, P., & Evans, S. (2014). A literature and practice review to develop sustainable business model archetypes. *Journal of Cleaner Production*, 65, 42–56. DOI: [10.1016/j.jclepro.2013.11.039](https://doi.org/10.1016/j.jclepro.2013.11.039)
- Brown, T. (2009). *Change by Design: How Design Thinking Creates New Alternatives for Business and Society*. Harper Business.
- Brown, T. (2011). Design thinking for social innovation. *Stanford Social Innovation Review*, 9(1), 30–35.
- Brown T., Katz B. (2011) Change by Design. *Journal of Product Innovation Management* Volume 28, Issue 3 p. 381-383. DOI: [10.1111/j.1540-5885.2011.00806.x](https://doi.org/10.1111/j.1540-5885.2011.00806.x)
- Buchanan, R. (1992). Wicked problems in design thinking. *Design Issues*, 8(2), 5–21. DOI: [10.2307/1511637](https://doi.org/10.2307/1511637)
- Carrassi, M. (2016), "Can the Understanding of Economics Lead to Conscious Sustainability? The Example of Love", *The Contribution of Love, and Hate, to Organizational Ethics (Research in Ethical Issues in Organizations, Vol. 16)*, Emerald Group Publishing Limited, Leeds, pp. 123-137. <https://doi.org/10.1108/S1529-209620160000016014>
- Carver, L., & Turoff, M. (2007). The design of emergency response management information systems (ERMIS). *Journal of Information Technology Theory and Application*, 8(4), 1–34.
- Ceschin, F., & Gaziulusoy, I. (2016). Evolution of design for sustainability: From product design to design for system innovations and transitions. *Design Studies*, 47, 118–163. DOI: [10.1016/j.destud.2016.09.002](https://doi.org/10.1016/j.destud.2016.09.002)
- Christensen, H. B., Hail, L., & Leuz, C. (2021). Mandatory CSR and sustainability reporting: Economic analysis and literature review. *Review of Accounting Studies*, 26(3), 1176–1230. DOI: [10.1007/s11142-021-09562-4](https://doi.org/10.1007/s11142-021-09562-4)
- Doppelt, B. (2017). *Transformational Resilience: How Building Human Resilience to Climate Disruption Can Safeguard Society and Increase Wellbeing*. Routledge.
- Dorst K. (2011). The core of ‘design thinking’ and its application. *Design Studies, The Interdisciplinary Journal of Design Research*, 32 (6), 521-532. DOI: [10.1016/j.destud.2011.07.006](https://doi.org/10.1016/j.destud.2011.07.006).
- Elkington, J. (2012). *The Zeronauts: Breaking the Sustainability Barrier*. Routledge.
- European Parliament and Council, Directive. 2014/95/EU
- Evans, S., Vladimirova, D., Holgado, M., Van Fossen, K., Yang, M., Silva, E. A., and Barlow, C. Y. (2017). Business Model Innovation for Sustainability: Towards a Unified Perspective for Creation of Sustainable Business Models. 26, 597–608. DOI: [10.1002/bse.1939](https://doi.org/10.1002/bse.1939).
- Filho, W.L. (2019). The role of planning in implementing sustainable development in a higher education context, *Journal of Cleaner Production*. 235, 678-687. DOI: [10.1016/j.jclepro.2019.06.322](https://doi.org/10.1016/j.jclepro.2019.06.322).
- Finnveden, G., Hauschild, M. Z., Ekvall, T., & Guinee, J. (2009). Recent developments in life cycle assessment. *Journal of Environmental Management*, 91(1), 1–21. DOI: [10.1016/j.jenvman.2009.06.018](https://doi.org/10.1016/j.jenvman.2009.06.018)
- Flower, J. (2015). The International Integrated Reporting Council: A story of failure. *Critical Perspectives on Accounting*, 27, 1–17. DOI: [10.1016/j.cpa.2014.07.002](https://doi.org/10.1016/j.cpa.2014.07.002)
- Folke, C., Biggs, R.A., Norström, V., Reyers, B. & Rockström, J. (2016). Social-ecological resilience and biosphere-based sustainability science. *Ecology and Society* 21(3), 41. DOI: [10.5751/ES-08748-210341](https://doi.org/10.5751/ES-08748-210341)

- Forrester, J. W. (2007). System dynamics—a personal view of the first fifty years. *System Dynamics Review*, 23(2–3), 345–358. DOI: [10.1002/sdr.381](https://doi.org/10.1002/sdr.381)
- Gehman, J., Treviño, L. K., & Garud, R. (2013). Values work: A process study of the emergence and performance of organizational values practices. *Academy of Management Journal*, 56(1), 84–112. DOI: 10.5465/amj.2010.0628
- Gifford, R. (2011). The dragons of inaction: Psychological barriers that limit climate change mitigation and adaptation. *American Psychologist*, 66(4), 290–302. DOI: 10.1037/a0023566
- Gunderson, L. H., & Holling, C. S. (2002). *Panarchy: Understanding Transformations in Human and Natural Systems*. Island Press.
- Helfat, C. E., & Martin, J. A. (2015). Dynamic managerial capabilities: Review and assessment of managerial impact on strategic change. *Journal of Management*, 41(5), 1281–1312. DOI: [10.1177/0149206314561301](https://doi.org/10.1177/0149206314561301)
- Holling, C. (2001) Understanding the Complexity of Economic, Ecological, and Social Systems. *Ecosystems* 4, 390–405 DOI: 10.1007/s10021-001-0101-5
- Ioannou, I., & Serafeim, G. (2017). The consequences of mandatory corporate sustainability reporting. *SSRN Electronic Journal*. DOI: [10.2139/ssrn.1799589](https://doi.org/10.2139/ssrn.1799589)
- Johansson-Sköldberg, U., Woodilla, J., & Çetinkaya, M. (2013). Design thinking: Past, present and possible futures. *Creativity and Innovation Management*, 22(2), 121–146. DOI: [10.1111/caim.12023](https://doi.org/10.1111/caim.12023)
- Johnson et al., (2013). Entrepreneurship for Sustainable Development: A Review and Multilevel Causal Mechanism Framework. *Entrepreneurship Theory and Practice*, Volume 44, Issue 6 DOI: 10.1177/1042258719885368
- Kolko, J. (2015). Design thinking comes of age. *Harvard Business Review*.
- Kollmuss, A., & Agyeman, J. (2002). Mind the Gap: Why do people act environmentally and what are the barriers to pro-environmental behavior? *Environmental Education Research*, 8(3), 239–260. <https://doi.org/10.1080/13504620220145401>
- Kotter, J. P. (1966). *Leading Change*. Harvard Business School Press.
- Leach, M., Rockström, J., Raskin, P., Scoones, I., Stirling, A. C., Smith, A., Thompson, J., Millstone, E., Ely, A., Arond, E., Folke, C., & Olsson, P. (2012). Transforming Innovation for Sustainability. *Ecology and Society*, 17(2). <http://www.jstor.org/stable/26269052>.
- Lock, I., & Seele, P. (2016). The Credibility of CSR (Corporate Social Responsibility) Reports in Europe. Evidence from a Quantitative Content Analysis in 11 Countries. *Journal of Cleaner Production*, 122, 186–200. DOI: 10.1016/j.jclepro.2016.02.060.
- Levin, K., Cashore, B., Bernstein, S., & Auld, G. (2012). Overcoming the tragedy of super wicked problems: Constraining our future selves to ameliorate global climate change. *Policy Sciences*, 45(2), 123–152. DOI: [10.1007/s11077-012-9151-0](https://doi.org/10.1007/s11077-012-9151-0)
- Liedtka, J., & Ogilvie, T. (2011). *Designing for Growth: A Design Thinking Tool Kit for Managers*. Columbia University Press. DOI: [10.7312/columbia/9780231158381.001.0001](https://doi.org/10.7312/columbia/9780231158381.001.0001)
- Lozano, R. (2015). A holistic perspective on corporate sustainability drivers. *Corporate Social Responsibility and Environmental Management*, 22(1), 32–44. DOI: [10.1002/csr.1325](https://doi.org/10.1002/csr.1325)
- Manzini, E. (2015). *Design, When Everybody Designs: An Introduction to Design for Social Innovation*. MIT Press. DOI: [10.7551/mitpress/9876.001.0001](https://doi.org/10.7551/mitpress/9876.001.0001)
- Marshall, N. A., Park, S. E., Adger, W. N., Brown, K., & Howden, S. M. (2012). Transformational capacity and the influence of place and identity. *Environmental Research Letters*, 7(3), 034022. DOI: [10.1088/1748-9326/7/3/034022](https://doi.org/10.1088/1748-9326/7/3/034022)

- Martin, R. (2009). *The Design of Business: Why Design Thinking Creates the Next Competitive Advantage*. Harvard Business Review Press.
- Meadows, D. H. (2008). *Thinking in Systems: A Primer*. Chelsea Green Publishing.
- Mezirow, J. (1997) [Transformative Learning: Theory to Practice. New Directions for Adult and Continuing Education, 74, 5-12. DOI: 10.1002/ace.7401](#)
- Michelon, G., Pilonato, S., & Ricceri, F. (2015). CSR reporting practices and the quality of disclosure: An empirical analysis. *Critical Perspectives on Accounting*, 33, 59–78. [DOI: 10.1016/j.cpa.2014.10.003](#)
- Norman, D. A., & Verganti, R. (2014). Incremental and radical innovation: Design research versus technology and meaning change. *Design Issues*, 30(1), 78–96. [DOI: 10.1162/DESI_a_00250](#)
- O'Brien, K. (2012). Global environmental change II: From adaptation to deliberate transformation. *Progress in Human Geography*, 36(5), 667–676. [DOI: 10.1177/0309132511425767](#)
- Ostrom E. (2009). A general framework for analyzing sustainability of social-ecological systems. *Science*. 24;325(5939), 419-22. DOI: 10.1126/science.1172133.
- Pagell, M., & Shevchenko, A. (2014). Why research in sustainable supply chain management should have no future. *Journal of Supply Chain Management*, 50(1), 44–55. [DOI: 10.1111/jscm.12037](#)
- Pahl-Wostl, C. (2007). Transitions towards adaptive management of water facing climate and global change. *Water Resources Management*, 21(1), 49–62. [DOI: 10.1007/s11269-006-9040-4](#)
- Prochaska, J. O., & DiClemente, C. C. (1983). Stages and processes of self-change of smoking: Toward an integrative model of change. *Journal of Consulting and Clinical Psychology*, 51(3), 390–395. DOI: 10.1037/0022-006X.51.3.390
- Ramaswamy, V., & Guillard, F. (2010). *The Power of Co-Creation: Build It with Them to Boost Growth, Productivity, and Profits*. Free Press.
- Rittel, H. W. J., & Webber, M. M. (1973). Dilemmas in a general theory of planning. *Policy Sciences*, 4(2), 155–169. DOI: 10.1007/BF01405730
- Saberi, S., Kouhizadeh, M., Sarkis, J., & Shen, L. (2018). Blockchain technology and its relationships to sustainable supply chain management. *International Journal of Production Research*, 57(7), 2117–2135. [DOI:10.1080/00207543.2018.1533261](#)
- Senge, P. M., Smith, B., Kruschwitz, N., Laur, J. and Schley, S. (2008), *The Necessary Revolution: How Individuals and Organizations Are Working Together to Create a Sustainable World*. Random House, New York, NY.
- Shrivastava, P., Stafford-Smith, M., & O'Brien, K. (2020). Transforming sustainability science to generate positive social and environmental change globally. *Nature Sustainability*, 3(9), 667–673. [DOI: 10.1038/s41893-020-0588-3](#)
- Simon, H.A. (1955). A behavioral model of rational choice. 69, 99–118.
- Sovacool, B. K., & Hess, D. J. (2017). Ordering theories: Typologies and conceptual frameworks for sociotechnical change. *Social Studies of Science*, 47(5), 703–750. DOI: 10.1177/0306312717709363
- Spaenberg, J. H. (2011). Sustainability science: a review, an analysis and some empirical lessons. *Environmental Conservation*, 38(3), 275–287. DOI:10.1017/S0376892911000270
- Sterling, S. (2010). Transformative learning and sustainability: Sketching the conceptual ground. *Learning and Teaching in Higher Education*, 5(11), 17–33.
- Sterman, J. D. (2001). System dynamics modeling: Tools for learning in a complex world. *California Management Review*, 43(4), 8–25. [DOI: 10.2307/41166098](#)

- Swart R.J., Raskin,P. & Robinson, J. (2004). The problem of the future: sustainability science and scenario analysis. *Global Environmental Change*, 137-146. DOI: 10.1016/j.gloenvcha.2003.10.002
- Sunstein, C. R. (2021). *Sludge: What Stops Us from Getting Things Done and What to Do About It*. MIT Press. DOI: [10.7551/mitpress/13053.001.0001](https://doi.org/10.7551/mitpress/13053.001.0001)
- Taneja et al., (2011); Researches in Corporate Social Responsibility: A Review of Shifting Focus, Paradigms, and Methodologies. *Journal of business Ethics*. Volume 101, pages 343–364, (2011)
- Teece, D.J. (2007). Explicating dynamic capabilities: the nature and microfoundations of (sustainable) enterprise performance. *Strategic Management Journal* Volume 28, Issue 13 p. 1319-1350. DOI: 10.1002/smj.640
- Thaler, R. H., & Sunstein, C. R. (2008). *Nudge: Improving Decisions About Health, Wealth, and Happiness*. Yale University Press.
- Van der Bijl-Brouwer, M., & Dorst, K. (2017). Advancing the strategic impact of human-centred design. *Design Studies*, 53, 1–23. DOI: [10.1016/j.destud.2017.06.003](https://doi.org/10.1016/j.destud.2017.06.003)
- Waddock, S. and McIntosh, M. (2011), Business Unusual: Corporate Responsibility in a 2.0 World*. *Business and Society Review*, 116, 303-330. DOI: 10.1111/j.1467-8594.2011.00387
- Whiteman, G., Walker, B. and Perego, P. (2013), Planetary Boundaries: Ecological Foundations for Corporate Sustainability. *Journal of Management Studies*, 50: 307-336. DOI: 10.1111/j.1467-6486.2012.01073