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Review

Change management in sustainability transformation: A model for business organizations

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ABSTRACT

This study zooms in on sustainability transformation processes by deploying Stouten, Rousseau, and Cremer's (SRC) model of ten key evidence-based steps in managing planned organizational change as an anchor to develop a sequential sustainability transformation model (STM) for business organizations. The study highlights phases and steps in sustainability transformation with environmental, social, and governance (ESG) factors. Implementing planned organizational change models in sustainability transformation provides new evidence that the governance (G) factor plays the most significant role among ESG factors. Moreover, the study reveals the importance of developing more robust metrics to gauge governance factors. This study also connects change management with sustainability transformation and addresses future research in this nexus.

1. Introduction

The "transformations toward sustainability" notion has taken an increasingly central position in global sustainability research and policy discourse in recent years (Patterson et al., 2017). However, achieving greater sustainability is the greatest challenge in organizational change management in the contemporary world (Matos and Clegg, 2013). The involvement of a large variety of actors and interests makes sustainability transition a field of high complexity (Markard et al., 2012). How will organizations overcome these challenges? The answer lies in scientific approaches.

Although the research body on sustainability transformation or transition for business organizations is relatively new and limited, there are robust studies in organizational change management that can cast light on sustainability transformations. As one of the recent and comprehensive studies on planned organizational change, Stouten et al. (2018) synthesized seven canonical prescriptive models. Our study translates Stouten, Rousseau, & Cremer's model (the SRC model) of ten key evidence-based steps in managing planned organizational change into the sustainability transformation of business organizations in the context of environmental, social, and governance (ESG) criteria.

Few companies are born with a broad-based commitment to sustainability (Eccles et al., 2012). To transform companies into sustainable forms, they need leadership commitment and the ability to engage with multiple stakeholders along the value chain, widespread employee engagement, and disciplined mechanisms for execution (Eccles et al., 2012). Although the imperative for developing a sustainable strategy is clear, the process often is not (Eccles and Serafeim, 2013). Salomaa and Juhola (2020) assert that sustainability transformation is still a relatively new concept, and it needs closer examination, particularly in terms of how it is operationalized. More focus has been placed on unsustainability in academic studies rather than on how possible transformation processes would improve the situation (Salomaa and Juhola, 2020). Therefore, organizations require a comprehensive sustainability implementation framework to achieve sustainability (Chofreh and Goni, 2017). By deploying planned organizational change studies and scientific sustainability approaches, specifically the SRC model, this study develops a new sustainability management model, namely the sequential sustainability transformation model (STM), which can be a green light tower for business organizations.

The approach of this study is a science-based translation of planned organizational change into ESG-oriented sustainability. STM introduces 50 steps, indicating that ESG-oriented sustainability transformation is a long march and should be handled scientifically and sequentially (step

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by step) in line with established scientific management models. In general, our study:

1. Follows another scientific field (change management) to develop a strategic sustainability management approach,
2. Implements an established model (the SRC model) for developing a sustainability transformation model (STM),
3. Develops a science-based roadmap for business organizations,
4. Opens up a new research avenue in ESG-oriented sustainability transformation,
5. Indicates weights among E, S, and G factors throughout sustainability transformations.

This study is comprised of three sections. The first section defines the approach and framework used to develop the model (STM). As the backbone section of the article, section two explains STM's main processors, change and transformation steps under scientific approaches, and some implementation experiences. Finally, the third section introduces the findings and their implications.

2. Approach and framework

This study casts light on sustainability transformation processes and answers the following questions: "How can organizations start and manage a successful sustainability transformation?" Furthermore, this study answers another relevant research question: "Which ESG factor plays the biggest role in a sequential sustainability transformation model for business organizations?"

We consider sustainability transformation a planned organizational change, a specific scientific area in organizational change management. Planned organizational change refers to deliberate activities aiming to move an organization from its present state to the desired state (Stouten et al., 2018).

This study zooms in on sustainability transformation issues deploying Stouten, Rousseau, & Cremer's model of ten key evidence-based steps in managing planned organizational change as an anchor to develop a sequential sustainability transformation model (STM) and classify transformation steps in terms of E, S, and G factors. Stouten, Rousseau, & Cremer's model (2018) was developed based on seven cornerstone organizational change models: Lewin (1948), Cooperrider and Srivastva (1987), Beer et al., 1990, Judson (1991), Kanter et al. (1992), Hiatt (2006), and Kotter (2012). Stouten, Rousseau, & Cremer's integration of given cornerstone models is organized sequentially from the start of the change to its full implementation and institutionalization, which paves the way for our model (STM) considering case-specific dimensions. STM categorizes steps as change steps or "CS" and transformation steps or "TS." STM further classifies each transformation step in terms of E, S, and G factors.

Wiek and Lang (2016) classify sustainability science into two distinct research streams: descriptive-analytical and transformational. Descriptive-analytical sustainability science is primarily concerned with describing and analyzing sustainability problems, and the latter aims at developing evidence-supported solution options to solve these problems (Wiek and Lang, 2016). Sustainability transformation is a solution-oriented research field aiding humanity with normative goals in its transition toward sustainability (Abson et al., 2017). Our study falls into the transformational sustainability science area.

This study focuses only on ESG-oriented sustainability transformation and holds other factors constant. For example, the paper does not focus on performance evaluations of given sustainability practices, or the effects of other mega trends, such as digital transformation. Moreover, no single approach can answer enormous variability in organizations operating in different jurisdictions and sectors with firm-specific issues (Kanter et al., 1992; Judson, 1991). The nature of the organization plays a key role in where the sustainability changes start and how the changes affect system elements (Lozano and Garcia, 2020). Furthermore, regulatory landscapes can have some effects on the content and sequence of implementing transformation processes; thus, the application of the model (STM) might vary based on firm, sector, and jurisdiction-specific factors. Additionally, the study does not focus on the interactions of E, S, and G factors, for example, how and why E factors affect S or G factors and vice versa, or how to balance sustainability components.

3. Sequential steps in sustainability transformation

3.1. Assessment of problems, risks, and opportunities (change step 1)

Sustainability transformations start with the assessment of problems, risks, challenges, and opportunities. Such an assessment requires comprehensive analyses by professionals. Sustainability transformation has multiple aspects, mainly sustainability science, organizational theory, regulatory dimensions, and more. Management teams of business organizations are not expected to develop expertise in these areas in a short period. Moreover, the staff of a firm might not have a strong enough background in sustainability and organizational change. Thus, the first transformation step (TS 1) is to obtain consultancy from scientists and experts. Working with scientists and experts can catalyze every step of a transformation program. As the second step (TS 2), developing a solid understanding clarifies the way for sustainability transformation. According to PennState-Sustainability Institute (2019), understanding sustainability sits in the first position.

As the third step (TS 3), business organizations should focus on gathering facts. In the transformation, a critical first step is gathering facts to diagnose whether a change is needed (Stouten et al., 2018). The empirical literature points to a key fact: change recipients and other stakeholders need to believe that the reasons for change are legitimate and its direction rational (Stouten et al., 2018). Abundant resources, such as United Nations (2020) and UNFCCC (2021), address the need for change, given the facts and statistics about global warming, loss of biodiversity, and their current and probable effects on firms (financial materiality) and their effects on the environment (impact materiality).

The next step is to determine whether the organization planning the transformation is ready for a change in the sustainability direction (TS 4). Assessing the organization's readiness for change is another work of the diagnosis step (Stouten et al., 2018). According to PennState-Sustainability Institute (2019), assessing the current state of sustainability is the second step in sustainability planning.

A key aspect of readiness is the capability of senior leadership to guide and implement the change (Stouten et al., 2018). Sustainability transformation cannot be initiated without the decisions of senior managers of business organizations. Sustainability transformation considerations should be set as a critical strategic pillar by shareholders and the senior management of firms (Maimbo and Zadek, 2017). It is a planned change and requires sparking decisions of the highest-level management.

Moreover, to be able to manage a sustainability transformation, an organization-wide perspective is required, which addresses another transformation step (TS 5): identification of kind(s) of change needed and ways to improve readiness (Stouten et al., 2018). A sustainability transformation addresses engagements not only by senior management but also by the back office, mid-office, and front office (Raux and Fischer, 2021). Furthermore, sustainability transformation requires a holistic approach for organizations and a customized strategy for every company (Herrmann, 2021).

As the next step, organizations need an ESG materiality map (TS 6). Eccles and Serafeim (2013) assert that to achieve a successful sustainability transformation, firms first identify which ESG issues are most critical in their business, a concept in sustainability known as the "ESG Industry Materiality Map." The MSCI uses this materiality map as a representation of the key ESG issues and their contribution to companies' ESG ratings (MSCI, 2020). Materiality check addresses key

performance indicators (KPIs) as the next step in sustainability transformation (TS 7). In this context, KPIs are quantifiable metrics for tracking the sustainability performance of business organizations, such as green turnover KPIs to measure the revenue from environmentally sustainable business activities and green asset ratios to gauge green assets in total assets. Although there is a general consensus regarding the overall set of KPIs that can be used to measure ESG performance, taking stock of geography and sector differences is vital for exploring materiality (Pimentel and Volde, 2016). Developing KPIs points out the next step (TS 8): identifying target values and establishing a base year. Target values indicate targets that an organization is expected to reach in a period, for example, in a year, and they help compare performance year to year or more frequently. Since monitoring is a significant part of organizational change (CS 9), KPIs and target values provide organizations with monitoring tools. Moreover, the meaningful and consistent tracking of ESG performance requires companies to establish a base year (Science Based Targets, 2020).

Sustainability transformation is intertwined with country or region-specific regulations and compliance requirements (TS 9). Nidumolu et al., 2009 assert that the first steps business organizations must take on the long march to sustainability usually emerge from regulatory requirements. Various countries or economies initiate new sustainability infrastructure by introducing new regulations. For example, the EU initiated a broader reporting and disclosure system for corporates and financial services providers in recent years and passed a climate law in 2021 for the entire EU economy.

As the next steps, business organizations need to identify sustainability risks (TS 10) and opportunities (TS 11). Starting transformative change programs entails risks, and the expected success is tied to careful preparation in advance (Benn et al., 2018). Furthermore, the success of ESG-oriented sustainability transformation is connected to the success of understanding the role of ESG factors. Moreover, with good leadership and governance, business organizations make significant differences in transformation (Doppelt, 2017). On the opportunity side of ESG-oriented sustainability transformation, successfully aligning with ESG factors implies more attraction from investment communities, a stronger investor base, and a stronger financing capacity, along with many other opportunities. According to the PRI's annual report (Principles of Responsible Investment, 2022), some 97% of signatory asset owners and investment managers out of 3286 signatories representing collective assets under management of over $121 trillion incorporated ESG factors into their listed equity investments in 2021.

In the first phase of sustainability transformation, promoting sustainability language might be pursued at all steps (TS 12). According to KPMG (2020), setting a common ground agreed upon by key stakeholders in an organization on the definition of ESG and its importance is one of the first steps in integrating ESG into the business.

3.2. Selecting and supporting a guiding change coalition (change step 2)

Change coalitions can be crucial in aiding effective diagnosis because of the diversity of input members can offer (Stouten et al., 2018). The design and members of the change coalition might convey a message about sustainability transformation: forming a coalition of powerful and influential employees or other leaders can help signal consensus about the message (Kellogg, 2012; Bies, 2013; Stouten et al., 2018). In the organizational change context, Kellogg (2012) shows that implementing reform inside organizations may require reformers not only to mobilize with one another across diverse identities but also to stand up to defenders' countertactics. Beer et al., 1990 address the importance of a coalition comprising a variety of stakeholders. Furthermore, Sulkowski et al. (2018) argue that firms can catalyze collaborative relationships to cocreate sustainable value. On the other hand, Kotter (2007, p. 4) marks "*not creating a powerful enough guiding coalition*" as one of the eight mistakes causing failure in transformation efforts. In sustainability transformation, a change coalition is an engine that should work with renewable energy produced by all stakeholders. Hence, at this phase, our model (STM) suggests three transformational steps. Developing effective change leadership, including all stakeholders, is the first transformation step (TS 13). Establishing a dedicated high-level and formal committee in the organizational structure might be the second step (TS 14). Additionally, forming a sustainability team is a critical step in operationalizing sustainability change and transformation steps throughout the organization (TS 15).

3.3. Formulating a clear and compelling vision for sustainability (change step 3)

As the third change step in the model (both for the SRC and STM), formulating a clear and compelling vision for sustainability change gives clear targets to the organization and its stakeholders. The prescriptive literature and academic literature agree on the importance of articulating a compelling change vision (Stouten et al., 2018). According to Kotter (2007), transformation efforts can lead organizations in the wrong direction or nowhere without a sensible vision. Kotter (2007, pp. 5–7) cites "*lacking a vision*" and "*not removing obstacles to the new vision*" as two of the eight mistakes causing failure in transformation efforts.

A vision reflects goals that all stakeholders can broadly share; thus, in formulating a compelling vision, information can be gathered from stakeholder groups, such as employees, managers, and clients, to help identify motivating features (Stouten et al., 2018). For business organizations, a clear and compelling vision stems from various sources at different levels, the global, regional, national, industry, and firm. Thus, the first transformation step in this phase might be global sustainability anchors, mainly the United Nations' Sustainable Development Goals (SDGs) and the Paris Agreement targets (TS 16). The SDGs are an overarching set of standards for organizations in developing vision and strategy. The United Nations (UN) handles sustainability from the broadest perspective with a historical resolution adopted by the UN's General Assembly on the SDGs on September 25, 2015: "*Transforming our world: the 2030 Agenda for Sustainable Development*." This is a plan of action for people, the planet, prosperity, and a plan to strengthen universal peace in more extensive freedom (United Nations, 2020). Additionally, the Paris Agreement, a legally binding international treaty on climate change, proposes a global framework to limit global warming to well below 2, preferably to 1.5 °C, compared to preindustrial levels (UNFCCC, 2021).

In sustainability transformation, business organizations are also expected to align with global sustainability standards (TS 17). For example, the Principles for Responsible Investment (PRI) are a voluntary and aspirational set of investment principles that offer possible actions for incorporating ESG issues into investment practices (Principles for Responsible Investment, 2020). Similarly, some international standard setters, such as the International Sustainability Standards Board (ISSB) and Global Reporting Initiative (GRI), publish sustainability reporting and disclosure standards for business organizations.

Furthermore, some countries have their own sustainability targets, climate laws, and even sustainability reporting and disclosure standards. For example, many countries submitted their targets, or nationally determined contributions (NDCs), in eliminating greenhouse gases according to the Paris Agreement. Countries are regulating their markets and encouraging new business conduct rules based on their ambition for sustainability. Hence, in addition to the global anchors and industry standards, business organizations are expected to align with national and regional sustainability guidelines, principles, strategic plans, and regulations on sustainability (TS 18).

Sustainability transformation also has firm and sector-specific features. For example, business firms and financial firms have different sustainability metrics, regimes, regulations, and standards. More specifically, their materiality maps, key performance indicators, and target values can be significantly different. Furthermore, sectoral regulatory agencies publish binding or suggestive sustainability rules for the

organizations under their realm. Additionally, sectoral organizations, such as industry associations, publish their standards and guidelines for guiding their members. Thus, business organizations are also expected to align with sectoral sustainability guidelines, principles, and regulations (TS 19).

These steps indicated until this point address the need for developing a strategy document reflecting the vision and mission (TS 20). A sustainability transformation strategy must address all stakeholders' interests: investors, employees, customers, governments, NGOs, and society at large (Eccles and Serafeim, 2013). A strategy document clarifies targets and main dimensions in sustainability transformation and paves the way for developing a precise vision statement (TS 21). Since vision must reflect a goal that can be broadly shared, in formulating a compelling vision, information from stakeholders, such as employees, managers, and clients, can be gathered to help identify motivating features (Stouten et al., 2018). A strategy document should be detailed and comprehensive to convince stakeholders, but the vision should be concise, clear, and compelling.

3.4. Communicating the vision (change step 4)

Change models agree that a vision should be communicated via multiple channels, including newsletters, social media, or workshops (Stouten et al., 2018). Moreover, research supports the value of a vision communication process based on repetition and quality evidence (Stouten et al., 2018). Furthermore, Kotter (2007) emphasizes the "walk the talk."

The new vision refers to new products, business models, regulations, organizational changes, and other dimensions in sustainability transformation. Communicating with stakeholders about innovations in products, processes, and business models (Eccles and Serafeim, 2013) is one of the main steps in communicating the vision (TS 22). Some stakeholders might not obtain the context of the change and its implications for their business relationship in a timely manner. Since probable time lags among different stakeholders to capture the transformation and its implications can be a source of risk, it can be a strategic step to address all stakeholders to deliver the new vision at earlier sustainability transformation stages.

Equally, the way and strategy of delivering such a message are important. Based on a study supporting social accounts theory and motivated reasoning theory, Rousseau and Tijoriwala (1999) assert that managerial accounts are often needed to motivate change. In this sense, it is critical to provide sufficient justification for a change in the form of demonstrable benefits and concrete values over time (Rousseau and Tijoriwala, 1999). At this stage, it is worth noting that external experts and social scientists on sustainability play a critical role in convincing stakeholders to support the change, as addressed in the first change step.

Broadcasting via multiple channels with sustainability messages is the main street for communicating the vision (TS 23). For example, a firm might join the Race to Zero Campaign, a global sustainability initiative, and hold a press conference to declare this move and use this feature on all communication documents and platforms. Such broadcasting is an essential part of sustainability transformation since stakeholders should obtain new and convincing sustainability messages from the organization.

Business organizations might perform well in terms of sustainability. Unless this performance is disclosed via strong communication policies, it might stay unnoticed in the market and by stakeholders. In this regard, promoting integrated reporting and better disclosure is one of the main parts of sustainability and an important sustainability transformation step (TS 24). Integrated reporting, which combines financial and ESG performance information in one document, can be an effective way to measure and communicate firms' real performance (Eccles and Serafeim, 2013). Lozano et al. (2016) showed that sustainability reports drive sustainability changes in the company, and this feeds organizational change and leads to changes in data, indicators, and strategy. The authors also showed that sustainability reporting and organizational change management for sustainability have reciprocal reinforcing relationships. Sustainability disclosure is also critical in terms of both transparency and performance declaration. Corporate stakeholders are increasingly demanding transparent and reliable information on ecological and social aspects (Herrmann, 2021). Furthermore, there is evidence that sustainability performance factors and stock price informativeness are stronger for firms with higher sustainability disclosure (Ng and Rezaee, 2020). The study (Ng and Rezaee, 2020) shows that investors pay attention to both economic performance and ESG sustainability performance and disclosure factors, highlighting the importance of integrated reporting and disclosure in sustainability transformation.

Communicating vision can be translated into real life via behaviors at work and the lifestyles of main stakeholders, such as executives, C-Suite members, and front and back-office employees (TS 25). In successful transformation cases, most of the top managers walk the talk by consciously attempting to become a living symbol of new concepts (Kotter, 2007). For example, some stakeholders use bicycles or public transportation vehicles instead of private cars, hence, minimizing carbon footprints both in work life and personal life. This is often not easy (Kotter, 2007), but it also helps institutionalize the change and cultivates the sustainability culture, pointing out one of the core features in the final state (CS 10) of transformation.

3.5. Mobilizing energy for change (change step 5)

Mobilizing energy for change refers to planning the actual change implementation across multiple levels of the organization (Stouten et al., 2018). Studies show that only 30% of change programs succeed (Blackburn et al., 2011). Employee resistance and management behaviors that do not support the desired changes are two primary causes of failure in change, accounting for more than 70% of all failures (Blackburn et al., 2011). Stouten et al. (2018) state that an essential part of actual change planning may be readying managers for the change, their skills in implementing change, and the extent to which they are trusted by change recipients.

Considering the previous change steps and transformation steps, the organization under sustainability transformation now has a new vision, a strategy, and a change coalition; however, it needs concrete and clear implementation plans. Research on learning related to organizational change suggests that the uncertainties associated with change hamper both learning and the motivation to accept change (Stouten et al., 2018); thus, each organization can avoid such hindering and demotivating factors by developing and declaring its roadmap in a timely manner in line with sustainability expectations. Hence, the next step is to declare a roadmap indicating implementation steps in line with the new vision and strategy (TS 26).

Having a concrete plan requires new roles and responsibilities. Therefore, defining and declaring new roles and responsibilities in line with the roadmap might be the next step (TS 27). Moreover, the change plan requires some special funds, time and effort, and motivation to fulfill the transformation goals, namely, the mobilization of proper resources (TS 28).

3.6. Empowering others to act (change step 6)

A study (2020) conducted by the University of Cambridge Institute for Sustainability Leadership finds that empowering employees with time and knowledge about the transition is one of the key factors in sustainability transition. Using survey and interview data, Perkins and Serafeim (2015) analyzed how a chief sustainability officer's authority and responsibilities differ across organizations in different stages (compliance, efficiency, and innovation) of sustainability commitment. They (Perkins & Serafeim) documented increasing the organizational authority of chief sustainability officers (CSOs) as organizations increase

their commitment to sustainability, moving from the compliance to the efficiency stage and then to the innovation stage. Although CSOs play critical roles in the sustainability policies of firms, a comprehensive sustainability transformation program addresses a broader scope and employees at all levels, as well as other stakeholders.

A cornerstone organizational dimension related to empowering others to act might be establishing a sustainability unit. Since sustainability has many links to different departments in an organization, it is crucial to establish a central sustainability unit (Riese, 2020). A sustainability unit functions as a special unit to deal with sustainability transformation. Under a group of companies, a sustainability unit may coordinate transformation policies concurrently and provide cost efficiency. Riese (2020) points out that one trap that can easily arise is that this central unit lacks the power to steer the entire organization where it needs to be in terms of sustainability.

In the previous change step, the organization declared a roadmap, defined and announced new roles and responsibilities, and mobilized the proper resources, but not yet empowered all relevant stakeholders. In sustainability transformation, assigning relevant responsibilities, titles, and powers to employees, committees, units, departments and branches is the next transformation step (TS 29). However, empowering others might not be enough; organizations should also eliminate obstacles to change (TS 30), systems or structures that undermine the vision (TS 31), and encourage risk-taking and nontraditional ideas and activities (Kotter, 2007) (TS 32).

3.7. Developing and promoting change-related knowledge and ability (change step 7)

Sustainability transformation changes almost all dimensions of business organizations, and it is long-standing work entailing a multi-angle touch. Change typically requires training and development at all levels, and effective change involves learning new skills and developing knowledge (Stouten et al., 2018). Using a new and common language to communicate effectively with the same understanding in the ESG context is essential (KPMG, 2020). ESG-oriented sustainability transformation has its own rules, language, and terminology; hence, it addresses new knowledge for stakeholders (TS 33).

Developing change-related knowledge and ability also refers to long-termism. In interviews with more than 200 executives and in-depth research on 30 companies engaged in the process, Eccles and Serafeim (2013) spotted four organizational barriers that hinder organizational change: short-term incentives, shortage of expertise, capital-budgeting limitations, and investor pressure. Short-termism is an obstacle to adopting sustainable practices (Schoenmaker and Schramade, 2019). Louche et al. (2019) argue that short-termism, predictability of the future based on ex-post data, price efficiency, and risk-adjusted returns, which are the current dominant logic in finance, hinder the effective integration of climate considerations.

Learning plays a central role in all change processes (Stouten et al., 2018). Hence, promoting learning sustainability skills is one of the key steps in sustainability transformation (TS 34). Moreover, possessing new knowledge or skills is not the same as being proficient in performance; thus, knowledge should be developed through training, workshops, coaching, or user groups (Stouten et al., 2018), as the next step (TS 35). Training is an effective way for organizations to communicate the importance of sustainability values and strategy to employees, and it also ensures that all employees have the right skill sets (Bertels et al., 2010). In addition to sustainability-related knowledge, new competencies, such as analytical skills and interpersonal skills, are necessary if people are expected to identify and solve problems as a team (Beer et al., 1990). As Stouten et al. (2018) point out, a set of studies highlights the importance of team learning as a crucial mechanism in promoting the uptake of change. In the case of missing any of these elements, the change process might break down (Beer et al., 1990).

Sustainability transformation has a greater chance of success when it yields innovation, sustainable products and services, and business models (TS 36). Conducting a study based on econometric analyses of 3000-plus organizations, Eccles and Serafeim (2013) show that innovating companies can simultaneously improve ESG and financial performance and move the trajectory of the frontier line upward. Schlaile et al. (2017) argue that improving the capacity of an innovation systems framework for dealing with wicked problems and the normative complexity of sustainability entails a fundamental paradigm shift because, in the current innovation systems paradigm, innovations are considered desirable and mostly in technological terms. Therefore, taking the normative dimension of transformations toward sustainability requires more explicit and integrative research on directionality, legitimacy, responsibility, and their interrelation in innovation systems (Schlaile et al., 2017).

Sustainability transformation calls for change in multiple areas, including human resources and personnel management areas. Thinking about the Sustainable Development Goals, organizations should take into account social factors, such as equality and diversity, labor rights and conditions, and health and safety issues, with utmost care. Human resources should feel that sustainability transformation is not only about business performance; it is about the common good, which refers to what is beneficial for society at large (Schoenmaker and Schramade, 2019). Hence, updating personnel management or human resources policy in line with the vision is another critical step in transformation (TS 37).

Furthermore, developing and promoting change-related knowledge and ability lead to in-house sustainability transformation for organizations (TS 38). In-house sustainability transformation later serves the circular economy mentality. Business organizations are expected to develop circularity and support the circular economy (TS 39). According to UNEP (2020), buildings use approximately 40% of global energy, 25% of global water, and 40% of global resources, and they emit approximately 1/3 of GHG emissions; however, buildings also offer the greatest potential for achieving significant GHG emission reductions. As a significant cost-cutting area, energy consumption in buildings can be reduced by 30%–80% using proven and commercially available technologies (UNEP, 2020).

In-house operational issues fall into the category of in-house sustainability, which primarily comprises E and G factors. Sustainability refers to the transformation from the concept "*take-make-waste*" to the concept "*borrow-use-return*," which is a new way of thinking suggesting that we borrow natural resources, use them efficiently and respectfully, and then return the value to society and to the environment (Penn-State-Sustainability Institute, 2019). To be convincing in sustainability policies, organizations should transform their in-house organizational and operational activities into sustainable forms. Transforming operational facilities into sustainable forms reduces operational costs and decreases risks arising from supply chains.

Finally, sustainability knowledge and ability reach their highest value when they turn into new norms at work and become a new lifestyle. Developing knowledge and ability concerning sustainability addresses the learning aspects of organizational change, and it can be related to how to practice new behaviors the change motivates (Stouten et al., 2018). Thus, in the context of developing change-related knowledge and ability, encouraging "walk the talk" among all stakeholders is another step and strategy in sustainability transformation (TS 40).

3.8. Identifying short-term wins and using them as reinforcement of change progress (change step 8)

Short-term wins help convince those members cynical about the change (Stouten et al., 2018). Kotter (2007) specifies that many people might give up and join people who have been resisting change without short-term wins. University of Cambridge Institute for Sustainability Leadership (2020) predicts that sustainability transformation takes more than five years. Most people will not go on a long march unless

they see compelling evidence indicating that the change yields the expected results (Kotter, 2007). Hence, identifying short-term targets and wins increases the perception and motivation of the change (TS 41).

On the other hand, visible short-term wins might be used as reinforcement tools for an ongoing transformation (TS 42). In this context, employees involved in improvements can be rewarded (Kotter, 2007). However, organizations should consider the fact that sustainability transformation is a long walk, and short-term wins should not be interpreted as the yields of the final destination. Kotter (2007) warns that managers might be tempted to declare victory with the first performance improvements after a few years of transformation work. Interpreting short-term wins as the ultimate success in transformation might lead to failure; hence, such a misunderstanding undermines change-related activities (Stouten et al., 2018). According to Kotter (2007), declaring victory too soon is one of the eight mistakes in a transformation. Thus, raising awareness about the difference between short-term yields and long-term expectations is critical for sustainability transformation strategies (TS 43).

3.9. Monitoring and strengthening the change process (change step 9)

Organizations are making sustainability commitments, but are they truly achieving them? Eighty-five percent of Fortune 500 companies have bold sustainability commitments, but less than 30% of them are on track to fulfill those commitments (Engie Impact, 2021). Transformation for business organizations means an entirely new set of processes, requiring continuous monitoring and periodic assessment, both from inside and outside (TS 44). In the way of sustainability transformation, attention can be paid to changes in change commitment, competency, and efficacy over time, as well as the implementation of new practices (Stouten et al., 2018). Monitoring and assessing sustainability performance at this phase mean going back to the first change step, particularly to the transformation steps 7 and 8 (identifying key performance indicators, or KPIs, and setting up target values). Equally, evaluating compliance with regulatory requirements and industry standards is also an essential step in this phase (TS 45). In the sustainability realm, new rules and regulations emerge year by year. Thus, adjusting sustainability compliance work to regulatory requirements is a part of sustainability transformation.

Internal and external monitoring might have different results and reliability levels, addressing bias-minimizing solutions. At this point, another step might be to engage with a third-party ESG-alignment assurance firm or consider an ESG rating agency to obtain third-party evaluations (TS 46). ESG ratings are calculated by third-party experts and might be a useful instrument for eliminating internal evaluation biases for organizations. However, there are significant divergences among ESG ratings calculated by different rating agencies (Berg et al., 2022). An alternative here might be implementing a global sustainability taxonomy, such as IFRS Sustainability Taxonomy, as announced by the IFRS Foundation.

Monitoring and performance evaluations should strengthen sustainability transformation processes (TS 47). This step might entail updates and changes for some dimensions of transformation plans that were misaligned with the new vision or not identified in the initial change effort (Stouten et al., 2018). On the other hand, monitoring activities and adjusting change progress should be shared among both the guiding coalition and other important stakeholders (Stouten et al., 2018).

Organizations should always keep the big picture, primarily the ESG factors and, more broadly, the SDGs, in mind in monitoring, adjusting change progress, and further developing the transformation program. Moreover, truly sustainable organizations ask themselves challenging questions, such as "*What are the benefits and contributions of our products and services to society and the environment?*" and "*How can we transform our operations to provide solutions (products or services) in a direct and measurable way to the burning issues in nature and society?*" (Dyllick and Muff, 2015, p. 11).

3.10. Institutionalizing change in company culture, practices, and management succession (change step 10)

The final steps in a transformation are related to institutionalizing the change in organizational culture, practices, and management succession (Stouten et al., 2018). Institutionalization involves deploying enabling structures, which help maintain new practices and improve their efficiency and effectiveness (Stouten et al., 2018). Kotter (2007) points out "*not anchoring changes in the corporation's culture*" as one of the eight mistakes causing failure in transformation efforts. Thus, anchoring changes in the organization's practices, culture, and management succession is one of the main strategies in this phase (TS 48). Sustainability transformation for business organizations means integrating sustainability features, particularly ESG factors, into the organization at all levels and in all dimensions, including culture. Kotter (2007) states that new behaviors should be rooted in social norms and shared values in a transformation.

The study of Linnenluecke and Griffiths (2010) focuses on the issue of whether organizations can become more sustainable through cultural change. There might be a number of important barriers and limitations to sustainability-related cultural change, including organizational rigidity and the existence of organizational subcultures (Linnenluecke and Griffiths, 2010). In other words, implementing a sustainability program has organizational culture implications with accompanying resistance to change, which means that organizations must be prepared to overcome major barriers, such as employee resistance and eccentricities associated with organization-wide culture change (Bateh et al., 2014). However, changes at the surface level, for example, through the publication of corporate sustainability reports, the integration of sustainability measures in employee performance evaluation, or employee training, can provide a conducive context for changes in employees' values, beliefs, and core assumptions (Linnenluecke and Griffiths, 2010).

Kotter (2007) addresses two factors that are particularly important in institutionalizing transformation: attempting consciously to convince people how the new approaches, behaviors, and attitudes have helped improve performance and ensuring that the next generation of management personifies new approaches. Kotter (2007) points out that one bad succession decision at the top of an organization can destroy a decade of hard work, referring to the importance of the integrity of the board of directors in transformation efforts. In this context, Stouten et al. (2018) state that if future (top) management does not embrace the behaviors that have been implemented, transformation efforts are in vain.

Institutionalizing the change in organizational culture, practices, and management is also tied to organizations' approaches to addressing new risks and opportunities (TS 49). At this stage of the transformation, the organization might face new risks different from those perceived in the initial steps. Risk management is not a one-time work; the business world is dynamic, and risks continuously change by magnitude and content. Transformation periods require more cautious risk management approaches. By the final stages of transformation, business organizations will face new types of risks. Reaching a sustainability level does not necessarily mean that every activity is seamlessly sustainability-compatible. At this phase, new concerns arise about greenwashing risk. Greenwashing is a type of manipulation that signals false or untrue impressions or disseminates misleading information about a product, service, or firm considering sustainability dimensions. It can be and should be a severe concern for business organizations in the sustainable world.

On the other side of the coin, by approaching the final stage, new opportunities might arise. The approaches toward the change affect the capturing capacity of opportunities. Several key shifts characterize companies that take transformative approaches to sustainability, for example, taking sustainability as an opportunity instead of a source of risk (Kerrigan and Kulasooriya, 2020): some companies see

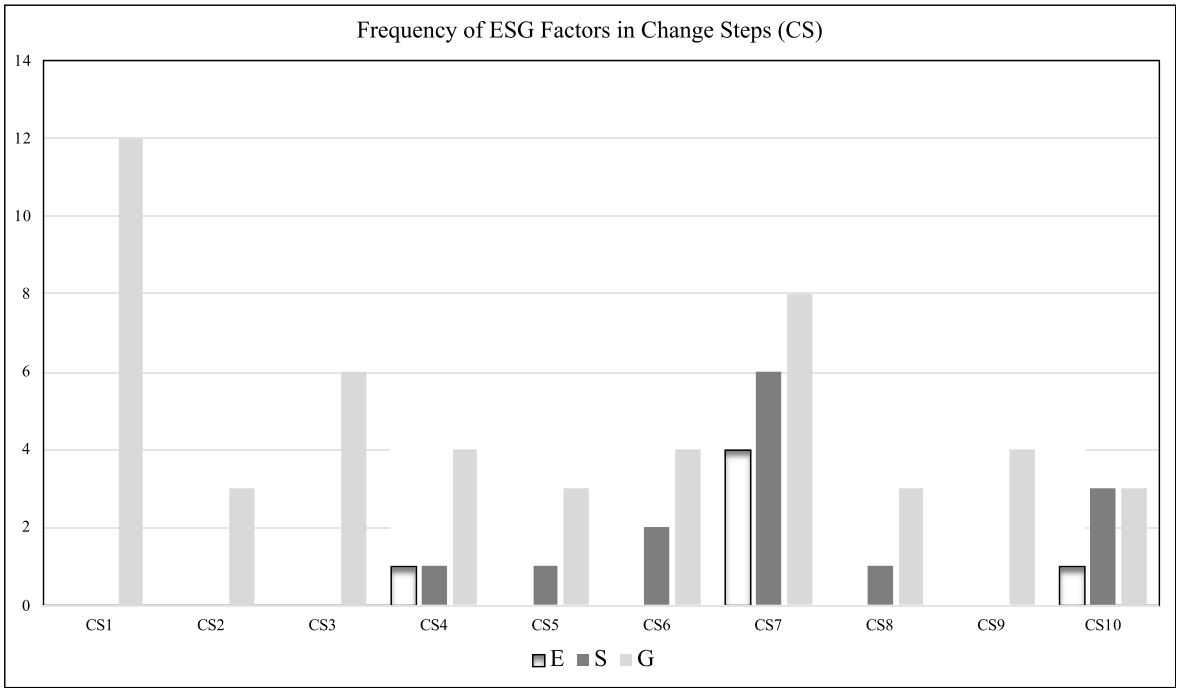

Fig. 1. Frequency of ESG factors in change steps (CS).
Source: Developed by the Author based on Table 1

sustainability through the lens of disruption and risk, and some others through the lens of growth and opportunity. Therefore, success also depends on the perception and handling of sustainability; hence, how to see and manage sustainability risks and benefit from sustainability opportunities. Seeing this period as a refreshing and regenerating window might yield innovations in numerous fields. According to Eccles and Serafeim (2013), in the absence of substantial innovation, firms' financial performance declines as their ESG performance improves. To improve both kinds of performance together, firms deploying sustainability strategies need to develop new products, processes, and business models (Eccles and Serafeim, 2013). Matos and Clegg (2015) point out that to create shareholder value, managers can focus not only on reducing cost and fortifying risk management but also on fostering innovation, enhancing corporate reputation among external stakeholders, and establishing a credible growth path for the future.

The last step in sustainability transformation is to reorient the organization from the transformation phases to an actual sustainability level (TS 50). Sustainability transformation is mostly about a special transition period for organizations. Unless organizations institutionalize sustainability, they stay only in the transformation phases, and this situation cannot be sustained forever. Transformation requires higher energy, cost, and effort, and it should be converted to a normal phase via institutionalization. At this phase, sustainability transformation ends with a transition to an actual sustainability level. University of Cambridge Institute for Sustainability Leadership (2020) predicts that today's pioneers might realize their institutionalization between 2025 and 2030, and they can be part of the new normal in the desirable net-zero economy.

4. Classification of change and transformation steps based on E, S, and G factors; findings, and implications

By deploying Stouten, Rousseau, & Cremer's model of ten key evidence-based steps in managing planned organizational change as an anchor, the following table comes out with the transformation steps in terms of E, S, and G factors.

The findings of this study indicate that out of 50 sustainability transformation steps, the governance (G) factor comes forward. In other words, in building step-by-step an avenue for business organizations toward sustainability, it becomes more apparent that the governance factor plays the most critical and dominant role among ESG factors. Fig. 1 picturizes the frequency of ESG factors in change steps.

Fig. 1 indicates that the governance (G) factor has a dominant role in the whole transformation and is the sole driving factor at the beginning. Even though environmental (E) factors and risks might be considered the core drivers of sustainability, governance factors dominate the entire transformation of business organizations.

Patterson et al. (2017) highlight that governance is the central factor in understanding and analyzing transformations for organizations. Temel et al. (2021) assert that better governance can help a more holistic implementation of sustainability in organizations. Similarly, our study shows the importance of governance in sustainability transformation. Our findings are parallel with the evidence that governance is the key factor of sustainability implementation in organizations as Jaimes-Valdez and Jacobo-Hernandez (2016), Patterson et al. (2017), Hedstrom (2019), Lozano and Garcia (2020), and Temel et al. (2021) addressed. A limited number of studies have focused on how and where the organizational change should start and how it permeates throughout the organization's system elements (Lozano and Garcia (2020). However, neither of these studies or others thus far handled ESG-oriented sustainability transformation under a planned organizational change model to show the change and transformation steps and their roles.

Lozano and Garcia (2020) show that, in sustainability change and its institutionalization in organizations, the key focus, at the start and during the changes, has been on governance, management, and strategy. Our study conveys similar results to the study of Lozano and Garcia (2020) and shows a step-by-step sustainability transformation roadmap. Stouten et al. (2018) point out that organizational change, or sustainability transformation, is likely to be more readily implemented when the transformation strategy targets multiple stakeholders' needs in its goals and interventions. In other words, theoretically, the success of a sustainability transformation is tied to the success of governance, the G factor of ESG. Considering the previous studies, we conclude that the findings of our study on the frequency, dominance, and role of ESG

factors in sustainability transformation are parallel with theoretical tenets and practical evidence.

This study indicates that the governance factor among ESG factors dominates sustainability transformation programs. On the other hand, there is evidence that ESG ratings barely capture 20 percent of governance, and governance (G) is by far the most important of the ESG factors (Hedstrom, 2019). Another study shows that ESG ratings diverge drastically; measurement contributes 56% of the divergence, scope 38%, and weight 6%, calling for greater attention to the data underlying ESG ratings (Berg et al., 2022). In addition to the core findings, our study highlights the importance of developing more robust metrics to gauge governance factors, addressing a crucial gap in ESG ratings.

Sustainability transformation has significant implications for business organizations. According to studies conducted in the past ten years, companies with above-average ESG scores have outperformed their competitors in terms of both operating performance and stock market returns (Kotsantonis et al., 2016). Companies with above-average ESG performance tend to trade at higher valuation multiples in equity markets and have lower credit default swap (CDS) spreads (Kotsantonis et al., 2016). In the investment world, successfully aligning with ESG factors implies more attraction, a more substantial investor base, a broader financing capacity, and many other opportunities. According to the PRI's annual report, some 97% of signatory asset owners and investment managers out of 3286 signatories representing collective assets under management of over $121 trillion incorporated ESG factors into their listed equity investments in 2021 (Principles of Responsible Investment, 2022). The findings also have numerous policy implications for decision-makers, researchers, self-regulatory industry organizations, ESG rating agencies, sectoral, national, and global sustainability standard setters, and regulatory bodies regarding their sustainability approaches, particularly in ESG-alignment.

The sequential sustainability transformation model, or STM, has both theoretical and practical value and is open to future development as sustainability science deepens with new studies. Any practical implementation of STM might shed light on an extended version of this model by fine-tuning each step and the sequence of change and transformation steps. As a probable future research topic, it is worth focusing on a joint model of sustainability and digital transformations. It is also worth analyzing the interrelated, negating, and supporting factors of both transformations. Moreover, the studies focusing on the interactions of E, S, and G factors, for example, how and why E factors affect S or G factors and vice versa, or how to balance sustainability components can further illuminate the ESG-oriented sustainability transformation field.

Finally, it is worth noting that our study is applicable to other organizations, including public sector organizations, and the validity of our findings can be tested under firm, sector, and jurisdiction-specific considerations. Furthermore, a different planned organizational change model might yield different results; therefore, the same research questions may be tested with other organizational change models.

5. Conclusion

Sustainability, as a megatrend, forces business organizations to transform from business-as-usual to sustainability level. This study configures a sustainability transformation model for business organizations. The research zooms in on sustainability transformation processes deploying Stouten, Rousseau, & Cremer's model of ten key evidence-based steps in managing planned organizational change as an anchor to develop a sequential sustainability transformation model (STM) classifying transformation steps in terms of environmental, social, and governance (ESG) factors.

ESG factors are the foremost criteria in sustainability transformation. However, implementing ESG factors in a planned organizational change is not crystal clear for business organizations. This study casts light on ESG-based sustainability transformation under the guidance of change management language. Specifically, our study illuminates the main

Table 1
Organizational change steps (CS), transformation steps (TS) of the sequential transformation model (STM), and corresponding ESG factors.

Organizational Change Steps (CS) Stouten et al. (2018)	Sustainability Transformation Steps (TS)	Primary Corresponding ESG Factor (s)
CS 1: Assess the opportunity or problem	TS 1: Get consultancy from scientists and experts	G
	TS 2: Understand sustainability (PennState-Sustainability Institute, 2019)	G
	TS 3: Gather facts to assist in a diagnosis of whether a change is needed (Stouten et al., 2018)	G
	TS 4: Assess the current state (PennState-Sustainability Institute, 2019), and the organization's readiness for change (Stouten et al., 2018)	G
	TS 5: Identify the kind(s) of change needed and ways to improve readiness (Stouten et al., 2018)	G
	TS 6: Identify which ESG issues are most critical in the sector or for a particular business (Eccles and Serafeim, 2013)/Draw an ESG materiality map for the organization	G
	TS 7: Identify key performance indicators (KPIs)	G
	TS 8: Set up target values and establish a base year (Science Based Targets, 2020)	G
	TS 9: Identify regulatory and compliance requirements (Nidumolu et al., 2009)	G
	TS 10: Identify sustainability risks	G
	TS 11: Identify sustainability opportunities	G
	TS 12: Promote a common sustainability language (KPMG, 2020)	G
CS 2: Select and support a guiding change coalition	TS 13: Develop effective change leadership (Stouten et al., 2018)	G
	TS 14: Form a sustainability committee	G
	TS 15: Form a sustainability unit	G
CS 3: Formulate a clear and compelling vision	TS 16: Consider global sustainability anchors, mainly the SDGs and the Paris Agreement targets	G
	TS 17: Align with global sustainability standards for business organizations	G
	TS 18: Align with national or regional sustainability guidelines, principles, and regulations	G
	TS 19: Align with sectoral sustainability guidelines, principles, and regulations	G
	TS 20: Develop a strategy document reflecting the vision and mission	G
	TS 21: Develop a new vision statement in line with sustainability	G
CS 4: Communicate the vision	TS 22: Communicate with stakeholders about innovations in products, processes, and business models (Eccles and Serafeim, 2013)	G
	TS 23: Broadcast via multiple channels, including newsletters,	G

(continued on next page)

Table 1 (*continued*)

Organizational Change Steps (CS) Stouten et al. (2018)	Sustainability Transformation Steps (TS)	Primary Corresponding ESG Factor (s)
	social media, and workshops (Stouten et al., 2018)	
	TS 24: Promote integrated reporting and better disclosure	G
	TS 25: Communicate via walking the talk (Kotter, 2007)	E, S, G
CS 5: Mobilize energy for change	TS 26: Declare a roadmap	G
	TS 27: Define and declare new roles and responsibilities	G
	TS 28: Mobilize proper resources	S, G
CS 6: Empower others to act	TS 29: Assign relevant responsibilities, titles, and powers to employees, committees, units, departments, and branches	S, G
	TS 30: Eliminate obstacles to change (Kotter, 2007)	G
	TS 31: Change systems or structures that undermine the vision (Kotter, 2007)	G
	TS 32: Encourage risk-taking and nontraditional ideas and activities (Kotter, 2007)	S, G
CS 7: Develop and promote change-related knowledge and ability	TS 33: Develop sustainability knowledge among stakeholders	S, G
	TS 34: Promote learning sustainability skills	S, G
	TS 35: Arrange training programs, workshops, coaching, and user groups on sustainability	S, G
	TS 36: Undertake major innovation in products, processes, and business models to achieve improvements (Eccles and Serafeim, 2013)	E, S, G
	TS 37: Update personnel management policy in line with the vision	S, G
	TS 38: Start in-house sustainability transformation	E, G
	TS 39: Develop circularity and support circular economy	E, G
	TS 40: Encourage and promote the "walk the talk" among stakeholders (Kotter, 2007; Stouten et al., 2018)	E, S, G
CS 8: Identify short-term wins and use them as reinforcement of change progress	TS 41: Identify short-term wins (Kotter, 2007)	G
	TS 42: Use short-term wins as reinforcement of change progress (Kotter, 2012)	S, G
	TS 43: Raise awareness about the difference between short-term wins and long-term expectations	G
CS 9: Monitor and strengthen the change process	TS 44: Monitor and assess sustainability transformation progress (Stouten et al., 2018)	G
	TS 45: Evaluate compliance with regulatory requirements and industry standards	G
	TS 46: Engage with an ESG-alignment assurance firm or consider an ESG rating agency to obtain third-party evaluations	G
	TS 47: Strengthen the transformation processes (Stouten et al., 2018)	G
CS 10: Institutionalize change in company culture, practices, and management succession	TS 48: Anchor changes in the organization's practices and culture, and management succession (Kotter, 2007; Stouten et al., 2018)	S, G
	TS 49: Use new opportunities and beware of new risks	E, S, G
	TS 50: Reorient organization to actual sustainability level and "sustain" sustainability	S, G

Source: Developed by the Author

transformation processes and answers the following questions: "How can organizations start and manage a successful sustainability transformation?" Furthermore, this study answers another relevant research question: "Which ESG factor plays the biggest role in a sequential sustainability transformation model for business organizations?"

Building step-by-step an avenue for business organizations toward sustainability makes it apparent that the governance factor plays the most significant and dominant role among ESG factors. Moreover, governance factors fully dominate the initial phases in the sustainability transformation of business organizations. The results are parallel with theoretical tenets and practical evidence.

The findings address the importance of the governance factor in sustainability transformation. In addition to the core findings, this study also addresses the importance of developing more robust metrics to gauge governance factors for stakeholders, considering the previous evidence that ESG ratings barely capture 20% of governance. The findings also have numerous policy implications for decision-makers, researchers, self-regulatory industry organizations, ESG rating agencies, sectoral, national, and global standard setters, and regulatory bodies regarding their approaches to sustainability, in particular, ESG alignment.

The model (STM) itself, organizational change steps, transformation steps, and the findings convey vital takeaways for business organizations planning a full-fledged sustainability transformation.

Although our findings suggest that the governance factor reserves its dominance in sustainability transformation projects for business organizations, this study can be applied to other organizations, and the validity of our findings can be tested under firm, sector, and jurisdiction-specific considerations. Moreover, the studies focusing on the interactions of E, S, and G factors, for example, how and why E factors affect S or G factors and vice versa, or how to balance sustainability components can further illuminate the ESG-oriented sustainability transformation field.

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Data availability

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