



Systemic Sustainability as Multiple Perspective Analysis

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Abstract. A systemic perspective could support an enterprise to integrate multiple organizational aspects to facilitate the implementation of sustainability in work practices. The study explores sustainability in SMEs work-practices from multiple stakeholder' perspectives following a systemic approach to developing a systemic sustainability model proposal. This model intends to investigate sustainability' relationships to uncover the business's level of interactions, which results in a sustainability real-practice approach. In this context, the sociotechnical approach is essential for integrating sustainability in work-practices as it aims to balance technical and human systems to improve the quality of work context. Furthermore, an empirical study supports the creation of the model, which emphasizes the possible failure of the current sustainability approach implementation in practice. Overall, the systemic sustainability model intends to explore a systemic perspective to understand and decrease systems' complexity in enterprises' context to develop sustainability in work-practices. The analysis' result emphasizes the importance of interactions to achieve sustainable development goals in a work-practices context.

Keywords: Sustainability · Work practices · Systemic perspective · Sociotechnical perspective · Interactions

1 Introduction

This research intends to develop an integrated approach to sustainability, drawing upon an empirical study based on an ongoing three-year project started in 2019. The investigation aims to uncover the crucial point to individuate sustainability areas interactions. Therefore, this study focuses mainly on understanding the current situation to gather the third dataset through a new systemic sustainability questionnaire that will focus on sustainability interactions.

The sustainability questionnaire is one of the themes of the information gathered by trainee analysts and is only one part of the overall project based on the Socio-Technical Toolbox [STT]. STT "is a collection of tools, techniques, and pragmatic methods which can be used to support organisational change" [1:3]. The main focus of STT is the work system, which is the core of organisational change [1]. This toolbox helps change organisational practices to reach business excellence [1].

The STT questionnaire focused on sustainability is the basis of this research. Open and closed questions are included in the sustainability questionnaire. This research focuses on observing the analysis of sustainability interactions in practices is the sustainability questionnaire 2021. The latter questionnaire results from the analysis of the previous studies, each of them rely on a specific sustainability questionnaire version (see Fig. 1). After the analysis path, the sustainability questionnaire 2021 has 35 questions divided into the following parts: economic sustainability, social sustainability and environmental sustainability and sustainability interaction. This version aims to investigate the essential critical sustainability points and the integration and impact that each area has on the other. Overall, the 2021 analysis is intended to understand “how the different sustainability areas are linked, and dependent on each other. The explanation of sustainability interaction and aims to explore the impact that each area has on the other. That helps uncover the interaction between sustainability areas and investigate the critical points in the specific area but overlapping between them to achieve sustainability understand interconnections is crucial” [2].

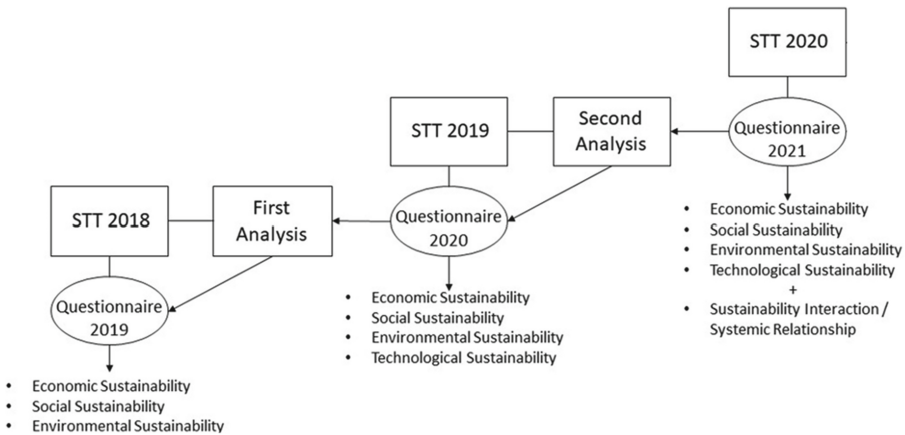


Fig. 1. Overview of the empirical studies.

The systemic sustainability model suggests integrating technological areas in the analysis subsequently first dataset analysis. Therefore, the shared data available with the three datasets are the Triple Bottom Line sustainability investigations areas. The 2018/2019 and 2019/2020 analysis aim to include a comprehensive overview of sustainability and investigate how enterprises integrate sustainability issues into their work practices and their interconnections. Hence, this comprehensive research intends to understand stakeholders’ sustainability behaviours to provide an overview of examples of sustainability integration in work practices.

The following section will describe the project’s background and outline how previous work provided the empirical study. Following the methods section, the methodological approach will be presented. The authors will then describe the internal and external stakeholder analysis to gather an overview of the whole enterprise context identifying possible sustainability problems and interactions in practices. Subsequently, the study

focuses on multiple perspective context analysis to investigate sustainability following a systemic approach. Finally, the authors will propose a new 2020/2021 questionnaire to support the systemic sustainability model supported by an empirical study on the current sustainability situation; therefore, the paper will discuss the current analysis and key findings. The conclusion will provide an overview of future analysis and final thoughts.

2 Background

The systemic sustainability model discussed in this paper is based on a sociotechnical foundation and explicitly integrating sustainability interactions and technological areas in the overall analysis and inquiry. The joining of 2018/2019, 2019/2020 aims to include a comprehensive overview of sustainability. The purpose is to delineate the investigation foundations to uncover how enterprises integrate sustainability issues into their work practices and interconnections. Through the years of the study discussed in this paper (2018–2021), the attention to sustainability has been increasing, and the concept of sustainability has radical changes, and the systemic aspect has been made more explicit and expanded.

In recent years, guidelines on sustainability are integrated into regulations in Europe [3]. National requirements and legislation focus not only on the environment, energy use but also, in particular, on the rising demands and legal requirements on non-financial reporting. Sustainability in many European countries is integrated into the rules, becoming a fundamental requirement for many companies [4]. The requirements focus on annual reports which track sustainability in companies [3, 4]. Regulations suggest guidelines on what large companies should follow, ignoring small and medium-sized businesses there is a need that any solution and company must involve enforced mandatory requirements.

The sustainability perspective is evolving, going beyond the traditional triple bottom line (TBL) concept, which relied on the integration of corporate social responsibility to pursue economic goals and environmental and social [5]. The introduction of system thinking takes to develop the sustainability' TBL concept further to systemic sustainability. Laszlo defined systemic sustainability as “a process of development (individual, organisational, or societal) involving an adaptive strategy of emergence that ensures the evolutionary maintenance of an increasingly robust and supportive environment” [6]. This perspective highlights that the individual is at the center of sustainability, creating present and future value for himself and the organisation.

The integration of people, communication, knowledge sharing enables collaboration which is the basis of evolution and progress. The latter is essential to develop a competitive advantage and long-term robustness, making it sustainable. Hence, enterprises need to work together and collaborate with their stakeholders for sustainability. The systemic sustainability model aims to include the social, technological, economic and environmental issues in the business agenda to achieve sustainability in work practices following a sociotechnical approach to emphasise technical and human value [7].

Not integrating sustainability practices into the company can lead to loss of competitive advantage, resulting in long-term vision loss [8]. To integrate sustainable development into the company requires a significant change in tools, practices, technologies, enterprise's vision, and management approach [9].

2.1 Methodology

An enterprise context is a complex adaptive holistic system since its component, by definition, can change its behaviour and learn from experience [10]. The Soft System Methodology (SSM) is a systemic approach that helps to address complexity in practice [11, 12]. This methodology is a flexible process that aims to understand the complexity generated by the interaction of multiple parts of the system in problematic social situations.

One of the methods that can support the application of SSM methodology is the Appreciative Inquiry Method (AIM). AIM's primary purpose is to trigger the cycle of learning, understanding the situation and the complex problem that facilitate decision-making [13]. This method is "based upon the ideas of holism and subjectivity that might be used collectively to support the process" [12:50] of knowledge elicitation and a manager's understanding of complex situations [13]. In this context, the use of integration and a system perspective could trigger learning [14]. Bednar and Welch suggest: "a social system as an emergent property of the interactions between unique individuals whose social relations are of interest" [15:4]. Therefore, a focus on human activity systems is essential to achieve the knowledge that is beneficial and creative processes to generate business changes to an organization [15]. Furthermore, Checkland and Holwell 1998 argue that enterprises' stakeholders' inclusion helps achieve a successful change, and Bednar and Welch support this in 2009 [15, 16]). This perspective highlights the importance of individual interaction and integration to overcome reductionism views and encourage system thinking [14].

From Bernd Carsten Stahl's perspective, management "is essentially problem-solving in a complex and changing environment" [17:159]. Successful changes usually should "be accepted by the participants" [18:148] and should create fluidity in a dynamic context in order to achieve a goal [19]. Therefore, management should consider the inclusion of employee participation in decision making. Employee participation in technology design could positively affect their work and job satisfaction [19]. The shift of focus from technology to people and technology could help identify problems in work practices and change them by redesigning the system following the users' needs [20]. Therefore, a sociotechnical approach could help enterprises to improve sustainability and its interactions in practices.

The study aims to explore sustainability in employee work practices in enterprises context from multiple perspectives. The research includes systemic and sociotechnical perspectives following the systemic sustainability model to understand the practical sustainability dynamics and uncover the problematic interaction that hinders collaborative, sustainable development.

3 Empirical Study

The primary scope of the datasets aims to explore sustainability from employees' points of view and how it is implemented in their work practices. In order to achieve that information, the authors focus on the characteristics of the employee open-ended answer. Exploring the completeness and coherency in the responses, we try to understand the level and characteristics of employee involvement and implement sustainable practices in their

everyday work practices. Subsequently, stakeholders and multiple perspective context analysis are intended to describe the existing sustainability practice to outline future systemic sustainability practices under a sociotechnical perspective. Internal and external stakeholder analysis aims to explore the whole enterprise context to uncover issues that could hinder systemic sustainability in practices and highlight possible advantages from its implementation in practice. Subsequently, multiple perspective context analysis through rich pictures aims to understand complex relations in the enterprise context and systemic sustainability.

The methodology which supports the multiple context analysis is SSM and AIM. Following those methodologies, the authors aim to understand the situation and problems in practice to decrease its complexity and understand the interactions that could favour sustainability practices [11]. The resultant perspective supports the systemic sustainability model proposal. An empirical study was developed on the analysis of 2018/2019 and 2019/2020 datasets. The datasets contain all the open and closed answers of the employees involved from trainee analysts divided for each company included in the research. Based on the content of the raw dataset, to support the analysis, the enterprise and sustainability reports were also created. The enterprise report contains the type, size, and economic activity for each company. The “NACE” standard was followed to connect each company to its economic activity [21]. The Sustainability Report, which is the base for this study, contains all the categorized answers of the employees related to and supporting sustainability. This report is based on the elaboration of the enterprise report and raw 2018/2019 and 2019/2020 datasets; hence it is the final dataset at the center of this empirical study. The conclusions of the interpretation of sustainability report data support the systemic sustainability model proposal.

3.1 Stakeholder Analysis

Human activity systems and understanding their context are essential to developing knowledge that supports business changes [15]. It seems essential to include and analyze enterprises’ stakeholders to achieve a successful organizational change [15, 16]. The comprehension of the business stakeholder’s interaction is essential to delineate how sustainability areas interact. The investigation of stakeholders’ interaction will lead to having a systemic multiple perspective overview of enterprise context. Therefore, to gain a systemic understanding of business interaction, the following tables (see Table 1 and Table 2) aim to describe internal and external stakeholders’ enterprise contexts in which systemic sustainability could address changes that bring potential advantages and solve possible problems. The analysis in the table below (see Table 1) focuses on the main internal stakeholders. The process making of the table starts understanding the main sustainability problems in context from each internal stakeholders’ point of view. Subsequently, previously identified problems help to describe the possible advantages arising from the application of systemic sustainability. Furthermore, contextualized examples facilitate the understanding of the benefits of systemic sustainability. Overall, Table 1 aims to facilitate the analysis and the comprehension of internal stakeholders’ context and their possible sustainability’ relations and interactions from integrating a systemic perspective.

Table 1. Internal stakeholder context.

Internal stakeholders	Advantages/Problems	Examples
Owner	<ul style="list-style-type: none"> • Long-term success business • Development of environmental and corporate social responsibility • Enterprise reputation 	<ul style="list-style-type: none"> • Social: loyal customers for high long- term reputation • Environmental: companies environmentally responsible could develop the employee' voluntary environmental responsibility • Technological: companies which have technological and well-integrated innovations could higher their reputation and relations with costumers • Economic: long-term revenue
Management	<ul style="list-style-type: none"> • Delegation of decision making • Development of guidelines and policy • Development of trust and collaboration with employee • Understanding of problems and solutions in practices (AIM) • Development of more efficient problem solving 	<ul style="list-style-type: none"> • Social: delegation of decision making could develop an integrated system in which employee feel appreciated • Environmental: safe and healthy natural environment could increase employee' trust in the company • Technological: delegation of decision making on technological tools could develop a more efficient problem-solving environment • Economic: delegation of small economic decisions could lead to more work-practices coherent decisions and increase employee's responsibility and freedom
Employee	<ul style="list-style-type: none"> • Development of knowledge and skills • Value experience (AIM - PEArL) • Work with efficient and well integrate tools/technologies • Follow management policy and guidelines • Development of voluntary problem work- related solution and responsibility 	<ul style="list-style-type: none"> • Social and technological: develop employee' knowledge could lead to an efficient, effective and voluntary work-related problem solving • Environmental: green and integrated technologies could facilitate work in practices • Economic: could lead to less problems economic impact on the business

The following table (see Table 2) focus on external stakeholders from internal stakeholders' point of view. After the identification of the possible external stakeholders, the potential internal stakeholders' problem was identified. Subsequently, the possible advantages deriving from the application of systemic sustainability were highlighted. Furthermore, Table 2 intend to contextualize the internal stakeholders' benefit, which could arise from the external context and the integration of systemic sustainability.

Table 2. External stakeholders.

External stakeholders	Advantages/problems	Examples
Competitors	<ul style="list-style-type: none"> • Development of competitive advantages 	<ul style="list-style-type: none"> • Social: a loyal employee with developed skills • Environmental: high attention to the environment could lead to achieving customer loyalty • Technological: a well-integrated innovative technology • Economic: revenue advantages due to innovations and integrations in business context
Regulators	<ul style="list-style-type: none"> • Compliance with laws and in specific cases gain bonuses 	<ul style="list-style-type: none"> • Social: employees could feel safe to work with an enterprise in compliance with regulations • Environmental: a company could gain bonus using recyclable packaging • Technological: a company could gain bonus using green technology, efficiently control its energy usage • Economic: stay in compliance with laws leads to no penalties and gain economic bonus to invest in the business development

(continued)

Table 2. (continued)

External stakeholders	Advantages/problems	Examples
Supplier	<ul style="list-style-type: none"> • Development of strong relationship based on the reputational increment 	<ul style="list-style-type: none"> • Social and environmental: some companies do not work with companies with poor social and environmental practices and reputation • Technological: strong relationships could lead to knowledge sharing and technologies innovation • Economic: strong reputation leads to client loyalty and constant incoming
Neighbors	<ul style="list-style-type: none"> • Development of social and natural good environment and community support 	<ul style="list-style-type: none"> • Social and technological: if the companies have a good relationship with neighbors it is easy to collaborate and cooperate • Environmental: if the company pays attention to the local environment it is more likely the collaboration with neighbors' businesses
Collaborators	<ul style="list-style-type: none"> • Develop new business and knowledge 	<ul style="list-style-type: none"> • Social, environmental and technological: companies are more likely to collaborate and share knowledge with a company which has a good reputation and does not damage its own image
Customers	<ul style="list-style-type: none"> • Business/product technological efficient and sustainable 	<ul style="list-style-type: none"> • Social and environmental: if the company is not respectful of its workers such as bullying, misogyny, racism and child labor and with the environment such as harmful materials and pollution customers are not likely to buy the product • Technological and economic: if the company has not efficient technology supporting a positive customer experience and requirements customers are not likely to buy the service

Overall, combining the analysis from these two tables could support a better understanding of the benefits of systemic sustainability application for SMEs. Therefore, the combined analysis of Table 1 and Table 2 perspectives aims to overview the whole enterprise context and its integration with a systemic sustainability perspective.

3.2 Multiple Perspective and Contextual Analysis

The following analysis aims to understand systemic sustainability and its context situations in practices from multiple perspectives. In this context, it is crucial to understand the human system and its relationships with sustainability in practices. A flexible approach is essential to deal with the uniqueness of human systems to manage problematical situations [11]. The SSM methodology is “an action-oriented process of inquiry of problematical situations in the everyday world” [11:22]. This methodology includes rich pictures which aim to capture and understand complex human situations highlighting their relationships [11]. The study also drew upon some rich pictures (see example Fig. 2) to explore sustainable work practices from different perspectives.

The rich picture below (see Fig. 2) describes an example of an enterprise context and its relationship to systemic sustainability. One of the analysis results is that systemic sustainability is poorly integrated into work practices, as shown in the rich picture. The main insider stakeholders seem to act in isolation and therefore hinder participation. The participative approach could help knowledge sharing and better identification of possible problems that hinder sustainability in practice. To develop sustainability, integration of a systemic perspective is essential. The rich picture also shows stakeholders’ discontent and inefficiencies due to the lack of sustainable practices within the system. As system parts are interconnected, a lack of a sustainability sphere could affect the internal and external systems. For example, improper use of or the type of technology could increase employee stress and inefficiency, affecting collaborations with other businesses. The consequent lack of collaboration could lead to a decrease in reputation and less profit. Therefore, a problem in the human system could affect the whole business. In this context, it is essential to perceive the business as an integrated whole in which systemic sustainability could bring benefits and, as a consequence, competitive advantages.

The following analysis focused on SMEs and management of the business and problems on the relationship between management and employees. The isolation of stakeholders permeates the internal context of the enterprise. Isolation could derive from the imposition of guidelines from management. In addition, isolation and imposed guidelines hind communication between manager and employee. For example, managerialism could be a hinder for employees to voluntarily solve work-related problems increasing the inefficiency. Furthermore, the decontextualization of a manager’s policy could lead to unsuccessful work practices [22]. This situation could result from hard systems thinking as problems are well-defined, but this is not valid in work practices [23].

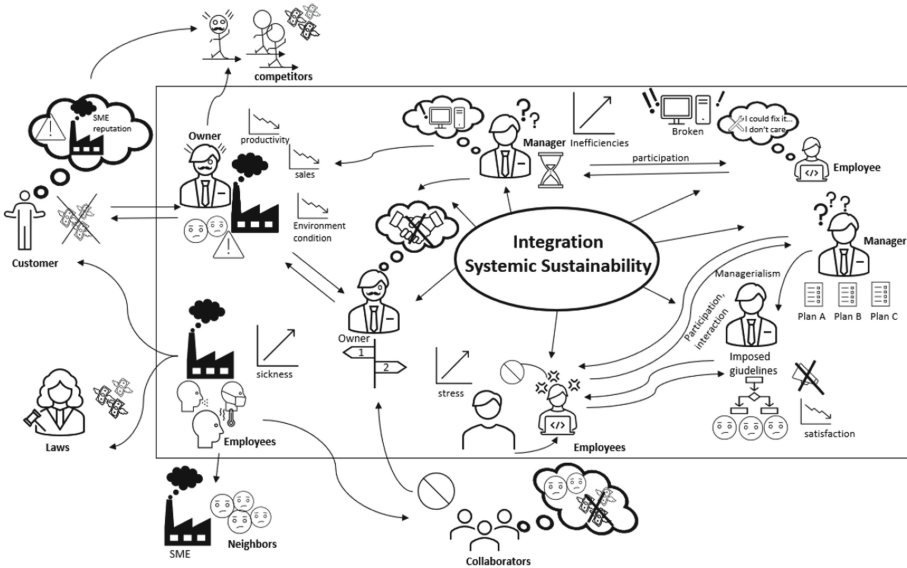


Fig. 2. Rich picture - Integration systemic sustainability.

Further analysis also explored example situations where employees are frustrated, unhappy, and unengaged due to unsustainable work practices. From a sociotechnical perspective, this contrast could derive from different management approaches and the quality of working life, which could impact employee satisfaction [24]. Employees’ experience and knowledge are essential for an enterprise; therefore, it should be valued, and employees’ suggestions and ideas should be integrated. In addition, the level of challenge of the work should fit the knowledge and skills of the employees. If an internal environment is comfortable and employees are involved and integrated into the workplace, this could increase employees’ creativity and voluntary collaboration. Furthermore, it could be helpful to focus on the impact of technology as it could enable communication, information and knowledge sharing, which are essential factors for both an integrated environment and good quality economic, social and environmental of work-life. Furthermore, employee integration could achieve long-term sustainable competitive advantages and systemic sustainability (this is also supported in works by Adams & Lamont) [25].

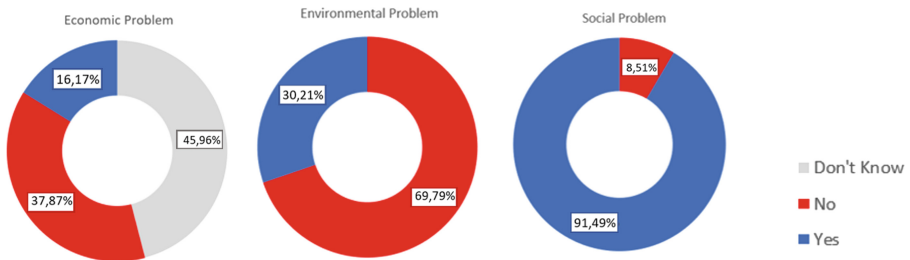
3.3 Sustainability in Practice

The following analysis aims to uncover the sustainability in work practices resulting from implementing the classical TBL approach, which tries to achieve sustainability by investigating environmental, social and economic sustainability areas in employee work practices. The authors focused on specific questions in the STT sustainability questionnaire to uncover information regarding sustainability in employee work practices. The following questions identified the implementation of sustainability in employee’ work-practice (see Table 3).

Table 3. Implementation of sustainability practice.

Sustainability Area	Implementation in practice
Economic	Is local budget surplus carried over to next year?
Social	Is there someone else who can do employee's job if he/she is away?
Environmental	Does the job require specific environmental considerations?

The implementation of sustainability (see Table 3) emphasises the integration of sustainability in work practices. The graphs below (see Fig. 3) show the percentage of problems in implementing sustainability practices from the employee' point of view. Employees show higher uncertainty regarding the economic field; this underlines the miss inclusion of employees in the economic sphere. Additionally, the employees who do not show uncertainty in economic areas highlight that even if money surplus is the fundamental pillar of each business, employees do not implement any practices to ensure surplus for the future development of the enterprise.

**Fig. 3.** Implementation in practice.

In the past, the first issues on which arise the sustainability' concept concern environmental area. However, employees show that businesses do not adequately care about the environment as they do not involve employees under this aspect of practices. If employees believe that their work does not need environmental consideration, we can assume that the enterprise does not pay attention to it and does not share environmentally friendly knowledge. Furthermore, the area which has the slightest problem with 8,51% is the social one. The employees attest that there are employees who could do their job if they are away. In this case, businesses valorize knowledge sharing and competencies between employees. However, going deep, it seems that, in general, businesses do not focus attention on the external stakeholder social sustainability as employees show low local community and business neighbours collaboration and integration. The authors then focused their attention on exploring the implementation of practices to create value for the future, which seems essential in business preservation. Hence, the implementation of future value in employee work practices was identified through the following questions (see Table 4).

Table 4. Implementation of practice to create future value

Sustainability Area	Implementation of practice to create future value
Economic	Is the employee expected to keep spare financial reserves/resources?
Social	Does the employee get personal mentoring by an expert in his job?
Environmental	Does the employee get training/advice in environmentally friendly practices?

The graphs below (see Fig. 4) show the percentage of implementation in practice to create value for the future in employee’s work-practices. In a specular way, the attention level to create future value is mainly the same as the problem in sustainability areas.

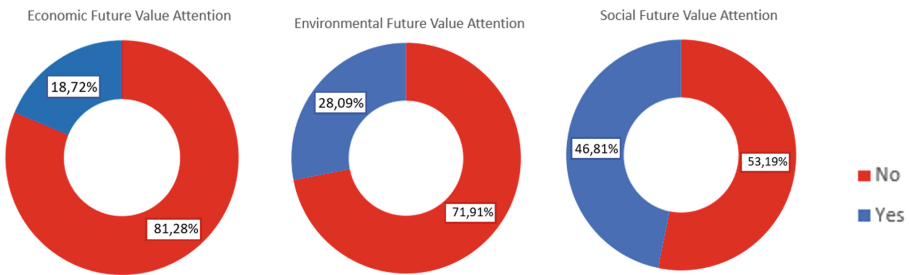


Fig. 4. Implementation of practice to create future value.

Economic future value is the least to be pursued in employee work practices. This result emphasizes that businesses seem to do not perceive the economic sphere as a fundamental pillar to sustain the ability for the future of enterprises. Additionally, employees do not seem to know environmentally friendly practices, highlighting the lack of attention that enterprises give to the environment. Furthermore, by comparing the social value in practice with practices to create future social value from the employee’s point of view, we can highlight a discrepancy between them. Most of the employees stated that they feel underappreciated and treated as easily replaceable even if they are not, as their experience suggests that their knowledge and competencies are not widely shared or appreciated in the business or work situation.

4 Discussion and Conclusions

From the sociotechnical perspective, if a company develop corporate responsibility (CS) under social, environmental, technical, and economic aspects, it is more likely to develop a good, motivating and creative working environment. A good environment supports and motivates stakeholders to develop work practices and go out of their way to support their business for the better. However, results from our empirical study suggest that not even the essential aspects of the classical TBL approach are implemented in organisational

practices. Hence, the attention to sustain and preserve the ability for the future generation following sustainable development is not perceived as essential for the businesses. Some studies emphasise the systemic nature of CS, highlighting the importance of the inter-organisational network in the context of business operations [26]. In this context, relations with stakeholders and their interactions seem to be the focal point for achieving business goals. The relevant stakeholder's integration in the work system would be a valuable albeit intangible resource for the enterprise as it allows the creation of shared value and cooperative advantage triggered by the knowledge process. From an organisational perspective, it is important to promote as an intangible asset for the company that creates shared value and cooperative advantage through knowledge. In our findings, however, it is obvious that the interaction between stakeholders in the dominant theory in organisational practices takes a back seat since the latter are perceived and acted upon. Furthermore, the dominant stakeholder theory suggests that workers are something to 'manage' and 'control', ignoring the importance of their interactions [26]. These aspects are evident also in the analysis previously carried out.

Multiple perspective context analysis highlights that stakeholder are still perceived as a resource to be managed as there is no communication and integration between them thought the whole business. This lack of integration between the main stakeholders within the business could lead to poor collaboration, which hinders sustainable development.

Collaboration is a crucial point of sustainable development as a stakeholder in context can urge/drive each other to work in a more CS-oriented way as it enables to combine and share knowledge which is "a key success factor to develop the firm's resources and legitimacy in sustainable development" [26]. Learn and act changes build on the level of interaction between business actors. So even world leaders have agreed on the importance of interactions, especially when it comes to promoting them as an essential aspect of sustainable implementation as they "are likely to have a profound influence on efforts to achieve the goals" as the latter all interconnected [27]. The United Nations' 2030 Agenda for sustainable development support this concept highlighting the crucial aspect of positive interaction. "Understanding possible trade-offs, as well as synergistic relations between the different goals, is crucial for achieving long-lasting, sustainable development outcomes" [28]. In this context, transform negative to positive interaction could trigger sustainable innovations as they result from constructive interaction of corporate, political, and social leaders in multi-partite stakeholder cooperation efforts [29]. Innovation is a complex process that depends on constant organisational and technological changes requiring feedback and interactive relations [30]. Therefore, the innovation process cannot be developed in isolation; instead, they need to include multiple stakeholders and businesses focusing on their interaction to achieve goals. The improvement process of interaction is not linear and fixed as it is dependent on different aspects such as governance, technology, and context, which are in constant evolution [28].

The interdependencies and interactions seem to increase their importance to deal with complexity in the context of Sustainable Development Agenda 2030 [31]. Lawler suggests a need to create and integrate a new model to achieve organisational effectiveness as no single model seems to give appropriate guidance [32]. He sustains the necessity to focus on multi-stakeholders relationships, underpinning the "responsible

progress” [32]. Hence, it seems fundamental to pursue an approach more inclusive than the classical TBL, which perceives the business as an integrated whole involving all its parts focusing on integration and interaction. Therefore, it could be essential to accelerate cultural change by encouraging a systemic vision to maximise the sustainable development progress in practice [31, 33]. Following the systemic perspective, to deal with the complexity of problematical social situations, the main concerns are interactions between the whole [11]. This concept is also supported by the Socio-Technical Systems approach, which leads to holistic optimisation giving attention to interaction to develop a value-creation process [34]. We all must learn from each other; therefore, enterprises should perceive their organisation as an “integrated whole” also focus on the organisational design, which should evolve in parallel with its context following STS [35].

Interactions between work systems on multiple stakeholder’ levels contribute to having a broader view of an enterprise contributing to their success. System interactions directly affect enterprise development as they could be essential in coordinating work systems being cohesive, maximising their goals and being obstacles as observed in the rich picture (see Fig. 2). Alter supports this thesis pointing out that “system interactions are essential for the operation of any enterprise, organisation, or IT-reliant system” [36]. Furthermore, interactions seem to be an essential characteristic of systems’ innovation approach, which sustains that the inclusions of innovations in system context are determined both from their elements and their relations [30]. In this context, it seems necessary to change the leadership approach to face multiple sustainable systemic challenges stated out. The World Economic Forum highlights system leadership as a pillar of an institutional strategy focusing on multi-stakeholder leadership for tackling critical global challenges [37]. System leadership aims to understand the system in depth, engage stakeholders more meaningfully and take new initiative” [37]. “Together, these interactions create new forms of collaboration and impact within the system, generating a wide-reaching multiplier effect” [37:13].

As a result of this analysis, authors individuated specific questions to understand and evaluate sustainability interactions and systemic relationships in employees’ work practices. The following table is the sustainability interaction/systemic relationships section added in the sustainability questionnaire of STT 2020 [2]. In future research, a new sustainability questionnaire aims to uncover the problems in the sustainability areas overlapping and systemic relationships highlighted through interactions (Table 5).

Overall, interactions seem to be a crucial concern to achieve sustainable development under a systemic and sociotechnical perspective in practice. Multiple perspective context analysis highlights that negative interaction hind sustainability in practice. Instead, positive interactions can trigger innovation in the enterprise and integrate them into practices, as suggested from stakeholder analysis. Additionally, interactions seem to be the core of knowledge sharing and value creation, leading the enterprise to sustain the ability for the future. The authors suggest perceiving the different parts of the enterprise and their goals as an integrated whole and broader the approaches and views integrating systemic perspective. In this context, aiming to maximise results in all areas is a utopian aim but finding a balance point could lie in the interactions of the sustainability

Table 5. Sustainability interactions/Systemic relationships questionnaire

Questions
<p>Do economic work-practices and decisions seem to respect the following?</p> <p>a. All stakeholders? If yes - how? /If not - why?</p> <p>b. Environment? If yes - how? /If not - why?</p> <p>c. Technology updated which best fit the job? If yes - how? /If not - why?</p>
<p>Do environment-imposed work-practices and decisions seem to respect the following?</p> <p>a. All stakeholders? If yes - how? /If not - why?</p> <p>b. Your professionalism and effective work practices? If yes - how? /If not - why?</p> <p>c. Your work without causing delays and obstacles and at the same time support enterprise growth? If yes - how? /If not - why?</p> <p>d. Technology updates? If yes - how? /If not - why?</p>
<p>Do social work-practices and decisions seem to respect the following?</p> <p>a. Support to enterprise growth? If yes - how? /If not - why?</p> <p>b. Environment? If yes - how? /If not - why?</p> <p>c. Use of technology without work delays? If yes - how? /If not - why?</p>
<p>Do technology-imposed work-practices and decisions seem to respect the following?</p> <p>a. Support enterprise growth? If yes - how? /If not - why?</p> <p>b. Support your professional growth? If yes - how? /If not - why?</p> <p>c. Environment? If yes - how? /If not - why?</p> <p>d. All stakeholders' interfaces and work in practice? If yes - how? /If not - why?</p>

areas. Each single sustainability area's goal could potentially be in contrast with the others. For instance, economic goals are in contrast with environmental or technological could potentially affect the social or environmental sphere in some contexts. Hence, pursuing a balance point between those areas in work practice could not reach the maximum goals of each sustainability area however could lead to positive interactions which could improve the enterprise sustainability level in practice. The systemic sustainability model [7], which highlights the importance of a systemic perspective integrated with a sociotechnical approach focusing on technology, environment, economic, and social sphere, develops further integrate interactions. Interactions seem to be positioned in the center (see Fig. 5) of sustainable development as they connect and concern the relations between internal/external stakeholders and business and the multiple inter-related sustainable development goals that are all interconnected. Furthermore, the increment of positive interactions could lead enterprises to include all stakeholders, particularly employees, and give proper attention to employee work practices where sustainable goals realise.

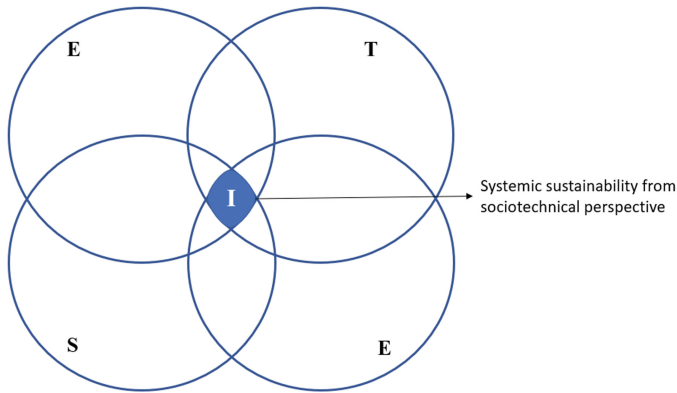


Fig. 5. Systemic sustainability model.

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