

# Sustainability in work practices

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## Abstract

Sustainability becomes a crucial focus for companies as the ability to support future development and long-term business robustness inherently depends on it. The paper aims to report on examples of weaknesses in business support for sustainable development practices uncovered in empirical studies and discuss possible needed changes in work practices. Previous research focused on the investigation of sociotechnical sustainability in real-world employees' work practices in SMEs. Overall, employees' work practices seem to be lacking when it comes to integration with sustainability practices, and this situation does not support a real, sustainable future for the enterprise. Hence management of sustainability need to be directed on collaboration emphasizing employees' "know-how" and needs in practice, integrating sociotechnical systemic sustainability approach.

## Keywords 1

Sustainability, Sustainable Work Practice, Work Practice Analysis, Sociotechnical Approach, Systemic Sustainability, Information Systems Sustainability.

## 1. Introduction

Over the years, sustainability has taken on a crucial role in companies. Sustainability explicitly had its roots in business practices already before World War 1 [1]. Since 1987 it has been more explicit that sustainability increases its value for enterprises' approach to the future [2]. Small and medium-sized enterprises (SMEs) development should include a sustainability view as intends to support present businesses needs without compromising the ability of future company generation to meet their own needs [2]. The primary triple bottom line (TBL) approach to sustainability suggests integrating sustainability agenda in real work practices of enterprises focusing contemporary on three crucial businesses spheres which are economic, environmental, and social [3]. Over time, TBL sustainability' idea has also been followed by a 2030 agenda for sustainable development [4], and similar ideas have also been integrated into regulations in Europe [5,6]. Sustainability in many European countries is integrated into the rules, becoming a fundamental requirement for many companies [7]. The requirements focus on annual reports which track sustainability in companies [8]. Hence it is becoming obvious that sustainability seems to slowly be more of a requirement and necessity, and less and less of an option.

Due to the innovation progress, nowadays, technologies increase their importance, as they are intrinsically an integral and incorporated crucial pillar of businesses and societies. Technologies intertwined with the social sphere in work practices seem to support the enterprises' sustainability and development. Integration and attention to a changing equilibrium between technologies and employee' knowledge, environmental and economic aspects seem to be crucial to pursue development in practices [9]. Sociotechnical perspective supports this approach as *"provides a new worldview of what constitutes quality of working life and humanism at work. It facilitates organizational innovation [...] with an*

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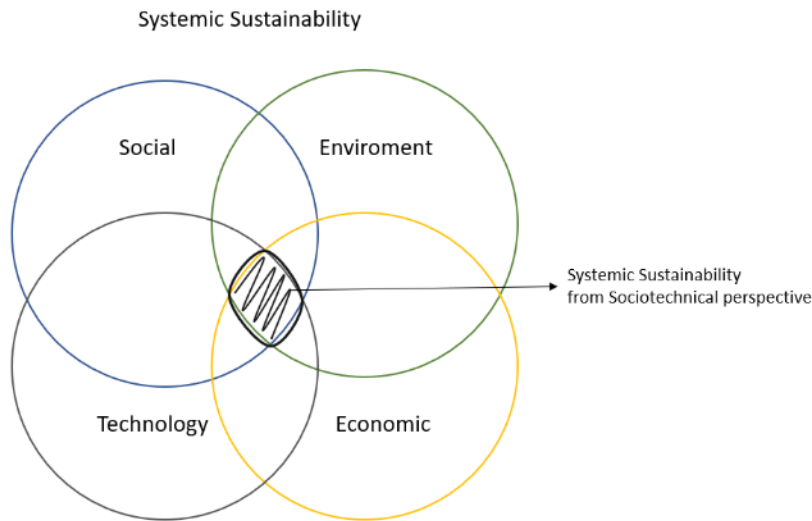


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organization and technology that enhances human freedom, democracy, creativity" [10: 262], collaboration and participation among stakeholders. This approach focuses on human and technological sustainability and how the employee interacts with sustainability in work practices. In this context, new theories tried to integrate technological aspects to sustainability' approach. From a sociotechnical perspective, appreciation of both social and technological aspects is essential to remain flexible and competitive in a continually evolving context [10,11]. Sustainability development in business practices cannot be done in isolation and without the integration of technology in sustainability' agenda. Hence, Pascarella and Bednar proposed a systemic sustainability model which focus on the sustainability' as a study of inter-related and co-dependent economic, environmental, social, and technological areas (see Figure 1) [11].



**Figure 1:** Pascarella and Bednar systemic sustainability model [11].

Therefore, the primary purpose of the paper is to summarise the analysis and results of sustainable work practices of employees in SMEs. Using a sociotechnical approach and discuss practical changes and understanding. Pascarella and Bednar in their previous research [11,12], explored sustainability through empirical studies by emphasising both employee involvement and problems that they face in their work practices in multiple sustainability areas. This paper aims to discuss different understandings gained from past research [11,12] conducted, which could be useful for practitioners on a practical basis. Previous research [11,12] intended to analyse systemic sustainability in work practices which draw on a sociotechnical and a systemic approach in the SMEs. In this context, some examples of the major issues to sustainability' approach have been identified during the analysis of employee work practices. Therefore, the primary purpose of the paper is to summarise the understanding and results from real world snapshots of sustainable work practices of employees in SMEs with a sociotechnical approach and discuss practical changes and understanding.

The next section will describe the background of the previous project and outlines how previous work provided the basis for their empirical study. Subsequently, the authors will show a summary of the empirical studies and analysis of previous research [11,12]. Then, based on the previous background and results section, the authors will discuss of understandings from sustainability to solve the problems that practitioners face in work practice. The paper will then conclude discussing potential research for further work.

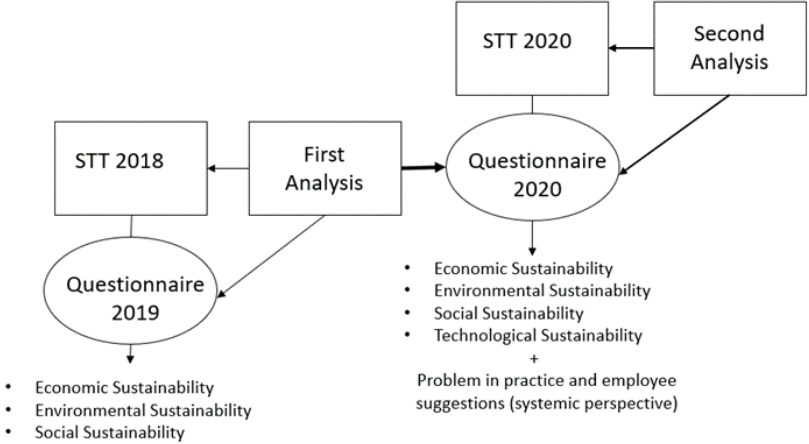
## 2. Background

The research aims to explore sustainability in employees' work practices to uncover issues and examples of weaknesses to sustainable practices. The inquiry is exploring example issues from all four sustainability aspects in real-world work practices. For this purpose, a sustainability' investigation was

conducted using an empirical study analysis in small and medium enterprises (SMEs). The analysis was developed on the dataset gained from directed semi-structural interviews posed to employees based on a pre-set questionnaire that relied on the socio-technical toolbox (STT) [13,14]. The overall study discussed in this paper was done on a total of 235 employees connected to 66 enterprises. The primary purpose was to gain multiple real world snapshots of economic, environmental, social, and technological sustainability in SMEs' business work practices. The paper focuses on the discussion of the snapshots and meaning based on the analysis of the empirical studies done. The analysis conducted aimed to explore real world everyday employee work practices to uncover potential for beneficial change in work practices, including the exploration of sustainability' issues, with the purpose to look for opportunities to change them in orientation to business excellence.

Therefore, to achieve the scope of the project, authors followed STT (Socio-technical toolbox) guideline as offers “a collection of tools, techniques, and methods which can be used to support organizational change in practice” [14:3]. This toolbox consists of Sociotechnical methods to analyze, discuss and document understandings of work-systems. Purposeful re-design and change of work-system is the primary concern of intentional organizational change. STT has been used on many different organizations over the years including a large number of SMEs, which are the core of this analysis, and other types of businesses over two decades. The STT has approximately 30 variety of method analysis to support the exploration of work-systems (Sustainability Analysis is one of these). Additionally, to support the methods of the analysis, STT comprises five main areas of study each of them has its questionnaire of interest [interaction, sociotechnical, sustainability, change-potential, information, and cyber-security]. The empirical study discussed in this paper relies only on the sustainability part of the toolbox.

Previous research in this sustainability focused project was conducted in two different periods following different STT versions. The first one relied on 2019 STT which focused on the exploration of sustainability following a traditional TBL approach. The second research developed on STT's sustainability questionnaire and analysis modified after the first sustainability analysis done in 2019, which relates to the new 2020 version of the toolbox. The graph (see Fig.2) shows the process described above, which concern the sustainability questionnaire 2020' creation that is the base of second research' empirical study. The main changes concern the introduction of technological sustainability and systemic perspective in sustainability analysis and related questions in the questionnaires upon which the semi-structured interviews were based. One reason to make technological sustainability explicit was that we had previously experienced that analysts, employer and employees tended to take the sustainability of the technology aspect for granted and thus also often forgot about it.



**Figure 2:** Previous research focus and development process 2019-2020 [11].

Following the sociotechnical approach, technological sustainability should be an essential focus as it concerns "how work practices in a Human Activity System are related to and influence use and change of technological resources" [13:38]. Technology which is not appropriate and integrated into work could create an issue in practice to the whole work system [13,14]. Therefore, not just development of

technology but in particular development of technology use, must be integrated into the social employee and business context, if they are intended to support work in practices and systemic sustainability [11,12]. Systemic perspective in sustainability analysis emphasizes the importance of taking into consideration (integrated) interaction and interconnection of different sustainability areas related to employee' work (in context of the actual work practice). Systemic perspective highlights the need to understand the problematical situation of sustainability in employee' everyday work practices, to change them to improve the whole (work) system starting from employees' point of view. Hence, the sustainability questionnaire includes questions that investigate the problems in employees' work practices and their suggestions on solutions in each of sustainability' area.

The main result of the empirical study relates to what appears to be a disconnection between employees work reality and sustainable work practices. The study focuses on employee' perspective as an employee seems to be the smallest part of the enterprise. The investigation on employees' knowledge of sustainability practices and behaviour in everyday work uncovered the disconnection of sustainability aspirations to real world work practices. Employees do not show involvement in each sustainability sphere in practices, and this highlights the lack of integration and interconnection of sustainable development in enterprise. Hence, the study highlighted that enterprises work practices do not in practice prioritize or pursue and integrate any of the sustainability areas. Additionally, none of the enterprises simultaneously actively pursue all of the four sustainability areas in actual work practices. The table below (see table 1) aims to summarize examples of the main weaknesses that the empirical study highlighted concerning employee relation to sustainability in work practices.

**Table 1**  
Summary of weaknesses for each sustainability area.

Sustainability Area	Weaknesses
Economic	Employees do not show knowledge concerning local budget surplus. Even though employees believe to have the proper grade of freedom and responsibility in their job, they have low freedom on the financial and resource. Hence, employees seem to be passive as they do not want responsibility concerning the economics sphere, as they are used to receiving orders and passively using the information and resources received. Overall, economic sustainability area seems to be the least pursued in practices.
Environmental	Employees seem to do not have any specific environmental consideration even though they confirm to receive training/advice in environmentally friendly practices. This area seems to be problematical as employees think that their job does not need specific environmental considerations. However, employees also assert to conduct their job respecting the environment. In this case, there could be a double problem deriving from enterprise and context. Overall, environmental sustainability area seems to be low pursued in practices.
Technological	Technological area does not seem integrated in sustainability vision. Although employees do not show knowledge concerning technology used in their work practices, they affirm to use those technological tools do not experience any issue. Therefore, enterprises seem to give intuitive technology tools but not the proper knowledge to use it.
Social	There seems to be a high involvement of employees in only a part of social sustainability work practices. Accurately, employees receive personal mentoring from an expert and are involved in training others; however, enterprises do not seem to include employees to external-stakeholder collaboration. This miss collaboration could underline the lack of attention of the enterprise to collaborate in the whole business vision.

### 3. Discussion

During the research, employees were able to point out the problems that they face in work practice concerning each sustainability area, although they do not give any suggestions to solve them. Employees seem to be passive actors in the enterprise as they are used to receiving orders and implementing them instead of being integrated into a proactive and collaborative business and work vision. This employees' reaction could be linked to a managerial approach which does not explicitly provide evidence that they in practice value employees' experience and knowledge in context of their work. Thus not enabling or provide resources to their employees to develop job satisfaction and proactivity in the development of excellence in real world work practices. Employees' satisfaction is a key factor in achieving sustainability as increase the level of involvement with the business. The satisfaction of employees seems to depend not only on an economic factor but significantly also on being provided with relevant resources and supported in the right use of their skills and knowledge [11,12].

Employees suggest that there is low attention from managers to appreciate their abilities and knowledge in core work practices. Knowledge sharing in particular seems to be overlooked in enterprises vision, and this is clear especially in the economic and environmental aspects. The employee' quote below supports is an example of the lack of support. In this case, the employee was explaining the modalities of training given by the enterprise concerning environmentally friendly practices.

*"Handbook to refer to but otherwise self-taught"*

Such a practice does not support employees with proper training and it highlights the low attention to both knowledge sharing and development of employees' knowledge to preserve environmental values in practice. Create value for the future is essential to pursue sustainability. In this context, there is a disconnection between environmental value and employee work in practices. This disconnection is potentially critical because if an enterprise does not spread knowledge on the environmental theme, employees will be going to think and act independently as they do in their life context. This scenario do not always is favourable as context could not transmit environmental knowledge either (see Tab.1). Furthermore, the employee' comment below on the economic sphere, underlines the detachment between management and employee.

*"Resources managed for us. Would be nice to be asked what's needed"*

The lack of consideration of employee experience and knowledge is evident in this case and could lead to multiple potential issues. For instance, management could give employees resources which are not in line with their job and lose not only profit but also, employees' collaboration and passion for their job practices. In contrast, exchange of opinions could benefit the whole system enabling the integration of sustainability in practices.

Missing communication, explicit resources and lack of delegation of decision making, hinder integration of sustainable work practices of the employee, and also knowledge sharing, which are essential to developing cohesion and collaboration into work into the respect of sustainability. Therefore, from a holistic perspective, difficulties in practices could potentially arise from the lack of priority given to integration of vision of sustainability in the entire enterprise, as from employees' point of view, there is no integration and interconnection of sustainable development in practices. Bateson suggests that knowledge is not a sum, rather a multiplication as knowledge generates knowledge [15]. In this context, it is essential to support knowledge sharing and creation to sustain and develop the contextually relevant work practices. Knowledge sharing is necessary to generate evolution and progress, leading to the integration of real world sustainability aspects as part of work practices. Clearly there is a need to allow employees to integrate key sustainability practices in their work and life context behaviours. Furthermore, it is essential to provide resources and delegation to truly prioritize and appreciate employees' knowledge and experience as they face and learn to work in practices. The inclusion of the employees is supported by Mumford' participative approach, which could integrate and

highlight an emergent property of human systems enhancing sustainability. Mumford highlights the importance of the involvement of participants in the system development process [16]. She explains that when there is the involvement of participants, they will be more satisfied and the system will be more effective [17]. Therefore, it seems to be crucial to involve employees and make them active participants in the decision making within their own work context. In this scenario, the sociotechnical perspective suggests adopting a participative approach. Instead of imposing directives, managers should combine individual and organizational needs, understanding their employees, and learning about how positively involve them [18]. This however requires empowerment and trust. Consequently, leading to competitive advantage and sustainability because a business is not sustainable if it cannot be competitive and it is not competitive if there are disconnection and lack of collaboration between their stakeholders.

If skill and experience is not explicitly appreciated as valuable; the interface with employees also decrease participation, genuine engagement and pursuit of excellence. Collaboration and knowledge sharing are crucial factors, but most of all, the inclusion and empowerment of employees within their work and professional space. If employees feel included in the business reality, they are more engaged with the business context and needs, so they could emotionally afford to pay more "brain and heart" in their job. Participatory decision making give managers and employees an opportunity to support the transformation to real business excellence while at the same time overcome gynarchic and other, barriers and develop a fairer and sustainable way to work. According to sociotechnical theory and practice, there should be more communication and exchange of information in the form of real dialogue between employees and management. To overcome communication' difficulties within organizational culture, the latter could be simplified through mediated meetings or with an analyst acting as a facilitator [17]. The facilitator would make communication constant, more comfortable, productive and more effective. Without the engagement and desire of the employees, real change for the better cannot be achieved.

#### **4. Conclusions**

In future research, it could be interesting to understand how and at what level employees feel involved in sustainability practices directly from their point of view, introducing new questions. For instance, it could be useful to understand in what way employees would like to be involved in each sustainability areas. For this purpose, a question aiming to explore the level of involvement, for instance, could be "How much do you feel involved in the economic sphere to a scale from 1 to 5? And How?". Other questions of interest would be related to how different how the four sustainability areas interact with each other in work practices. Overall, from the perspective of work practices, the pursuit of sustainability could be a way to achieve competitive advantages and long-term success. From a sociotechnical point of view focus on the respect of the environment, the well-being, and professionalism of employees, technological support, and enterprise profit could lead to long term success. Attention to systemic sustainability is intended to support enterprises to reach business excellence towards competitive and in continuous evolution context. The factors that support business excellence are complex and not static [19].

From a systemic and sociotechnical perspective, value creation for companies is based not only on their intellectual capital and on "know-how" but also to the desire and the ability of their employees [19]. Following this perspective, practitioners should act to abandon micro-management and isolation of employees as professionals and instead pursue integration under a collaborative and participative approach. A perspective which involve and empower employees as competent and valuable professionals and facilitate collaboration and knowledge sharing in practices. This agenda is supported in discussion about smart working practices which suggests that attention needs to be put on developments from the perspective of unique, individual understandings of work roles and sustainability [19].

Today however, sustainability seems to mainly be pursued in the content of policies and as a theoretical possibility, our evidence would suggest that these policies are not integrated into real world work practices [11,12]. In this context, to overcome the detachment between theory and practice, the sociotechnical approach should be explicitly integrated and prioritized as part of a sustainability' agenda

and approach, as all social aspects are related to the technical ones, and all technical aspects are also social. Therefore, practitioners should pay attention to the integration and interaction of those aspects in practices emphasize both human and technical aspect in the pursue of future development. Systemically sustainable excellence in human endeavor could not exist without it.

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