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**Author(s):** Lemmetty, Soila; Glăveanu, Vlad Petre; Collin, Kaija; Forsman, Panu

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Article

# (Un)Sustainable Creativity? Different Manager-Employee Perspectives in the Finnish Technology Sector

Soila Lemmetty <sup>1,\*</sup> , Vlad Petre Glăveanu <sup>2</sup> , Kaija Collin <sup>1</sup> and Panu Forsman <sup>1</sup> 

<sup>1</sup> Department of Education, University of Jyväskylä, Alvar Aallon katu 9, 40140 Jyväskylä, Finland; kaija.m.collin@jyu.fi (K.C.); panu.forsman@jyu.fi (P.F.)

<sup>2</sup> Department of Psychology and Professional Counselling, Webster University, 15 Route de Collex, 1293 Geneva, Switzerland; glaveanu@webster.ch

\* Correspondence: soila.j.lemmetty@jyu.fi

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**Abstract:** The importance of creativity for working life and in organizations has increased in recent years. At the same time, the theme of sustainability has been intensely debated in research, society, and organizations. Together, creativity and sustainability have sometimes been described as a contradictory phenomenon: they are described in ways that place them in opposition to each other. To better understand creativity and sustainability and their differences from the perspective of people in different positions, we take advantage of a sociocultural approach in which we do not focus only on creative individuals but also on the impact of creativity on both organizational stakeholders and society at large. We aim to explore manager and employee descriptions of creativity and its relationship with sustainability at work in the Finnish technology sector, with a particular focus on how they relate to the sustainability of the creative processes and to workplace activities more generally. Based on a thematic analysis of 56 interviews, we found that the managers and employees in Finnish technology organizations described creativity in different ways, looking at the phenomenon from the viewpoints of clients, businesses, society, or colleagues, and had different perspectives on what it means to create, with the former treating creativity as huge innovations and the latter as daily problem-solving. We also found that sustainability in relation to creativity appears either as applying old solutions and thus recycling previous ideas or outcomes or as destroying old products and replacing them with the new (creative destruction). We discuss these partly conflicting discourses at the end of the article and present suggestions for future research.

**Keywords:** creativity; sustainability; Finland; technology sector; qualitative analysis

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## 1. Introduction

The importance of creativity for working life and in organizations has increased in recent years. Creativity is seen as a competitive asset but also as a means for employees to cope with increasingly demanding expert tasks. Discourses about creativity have often been positive, with creativity being seen as a phenomenon that enhances the motivation for innovation and learning among individuals working in organizations. Creativity has also been proposed as a tool for sustainable development [1]. Examining the relationship between creativity and sustainability is important in order to make different forms of creativity and their outcomes visible, and to evaluate creative processes and outputs also from the perspective of sustainability. By gaining a greater understanding of the relationship between creativity and sustainability, we can prevent the unsustainable outcomes of creativity and, on the other hand, promote the role of creativity in increasing sustainability.

Currently, the concept of sustainability is widely discussed in both the political and business arenas. The United Nations Agenda 2030 contains 17 sustainable development goals that are linked to the development of an economically, socially, and environmentally sustainable world. What underlies the origin of these goals is a serious concern about unsustainable resource use [2] and environmental destruction. Meeting these goals requires sustainable action in all areas of working life. Creativity and innovation, the processes leading to the creation of something new and valuable as part of problem-solving [3], are described as promoting the competitiveness of organizations but not necessarily their sustainability. Research on how the simultaneous expectations of creativity and sustainability can be realized in organizations has been scarce so far.

To better understand the descriptions of creativity and sustainability and their differences from the perspective of people in different positions, in this study we take advantage of a sociocultural approach. It means that we are not focusing only on creative individuals but also on the impact of creativity on both organizational stakeholders and society at large [4]. We aim to explore the managers' and employees' descriptions of creativity and its relationship with sustainability at work in the Finnish technology sector, with a particular focus on how they relate to the sustainability of the creative processes and to workplace activities more generally. The study is comparative in nature, contrasting manager and employee perspectives, as the two groups have different responsibilities within a company. Our assumption is that not only will their perspectives on creativity differ but also the implications these perspectives carry for sustainability. Our research provides insight into employee and managerial descriptions of (un)sustainable creativity in the workplace and, thus, could help organizations reflect on and create more sustainable work environments.

Finland is known worldwide for its innovative solutions and technological know-how [5]. Finland is one of the most developed countries in the world. Despite the good development, there are also challenges for public economy, as the economy is in strong deficit and the aging population will lead to an increase in expenditure in the future. However, Finland invests heavily in research and development, which enables, among other things, technological innovations [6]. Growing information in the technology sector in Finland is currently suffering from a labor shortage which has caused competition between different companies for the best employees. The information and industrial technology as well as construction technology industry is well placed to explore the relationship between creativity and sustainability described above, as it is at the forefront of technological development, generating new innovations and solutions for current problems [3].

In this study, we approach creativity and sustainability using qualitative interview-based research. Our intent is to detect different descriptions of the discourses produced by managers and employees and to categorize the similarities and differences observed. We use qualitative thematic analysis [7], which in this case is guided by an analytical framework inspired by existing theories of creativity and sustainability.

First, we present the definitions of creativity that guide our analysis and discuss the ambivalent nature of the relationship between creativity and sustainability. Then, we highlight some recent empirical findings in the field of organizational research in Finland and in the technology sector in particular. We continue by outlining the purpose of the research and the research questions and explain our methodological choices and the stages of research implementation. Finally, we present the results of the study and consider them in relation to our previous understanding of the research topic and the existing literature.

## 2. Creativity and Sustainability: Some Intersections

### 2.1. Creativity

Creativity is typically examined as a process, an outcome, or a process that leads to a creative end [8]. The creative process is described either as individual idea generation [8] or as a collective and activity-based process [9,10]. Often, creativity is associated with problem-solving and the process

moves from perceiving the problem to evaluating the result [8,11,12]. According to Mednick [13], in the creative process the relevant elements are brought together to form new combinations that fit the requirements of the task.

In addition to the process aspect, creativity has been evaluated from the perspective of its outcomes [8,14]. These outcomes can range from ideas, processes, and products to various physical objects [15–20]. Eteläpelto and Lahti [10] have described the outcomes of creativity as new ideas, a shared understanding of the issue, a new way of approaching a problem, or a new way of working.

Numerous researchers have stated that the environment, both physical and social, is important for creativity [21]. Studies have shown that the characteristics of the social environment have a significant influence on whether and how creativity becomes manifest [22–24]. For example, freedom and autonomy have been described as a prerequisite for creativity. On the other hand, it has been found that creativity also requires collectivity, interaction with others, and coaching leadership [25,26]. According to the collaborative approach to creativity, creativity arises through interaction [27].

In addition to the perspectives attached to the creative process or the outcome, the study of creativity presents us with various dichotomies. One of the most common ways of categorizing creativity is to describe it as either Big-C creativity [22] or as little-c creativity [28]. Big-C refers to the creativity used to produce something new historically or within a wider culture [29]. Big-C-level creativity can be described, for example, as a situation in which a scientific or technological breakthrough is created—one that affects the lives of more than just the developers themselves. In this way, creativity comes closer to the concept of innovation and the understanding of creating meaningful new not only for oneself, but more broadly for groups of people. Kaufman and Beghetto [28] criticized the Big-C perspective on creativity because it creates the illusion that creativity should always lead to products that are big and significant for a large group or that only certain individuals can be creative.

In contrast, the concept of little-c creativity focuses on everyday innovations, everyday creativity [28], and the view that anyone can act creatively [30]. Little-c creativity can be described, for example, as a situation in which an individual feels that he or she is working creatively in everyday life, for example by creating a new kind of application from previous solutions. In the context of working life, small creative moments are typical, when the work itself is problem solving or developing something new [26]. What is essential in little-c-creativity is that the solution may not be significant socially or even at the organizational level, but it provides a solution to the challenge faced by the creative actor and thus has novelty value for the actor himself or herself. Between these extremes, the term Middle-c creativity intends to describe creative acts that are of medium size and important for a small community, such as an organization [31]. Unpacking these differences further, the Four-C model of creativity adds, in addition to the Big-C and the little-c creativity, the levels of “mini c” and “Pro c” [28], with the first being focused on personal insight and the second on professional creativity.

Whether creativity is described as Big-C or little-c, as a process or as an outcome, there is a consensus that this phenomenon brings something new in relation to the old [32–34]. Besides novelty, there have been calls to define creativity in terms of wisdom, purpose [33,34], and usefulness [15–19]. The problem with these standard definitions is that they do not consider from whose perspective creativity is being evaluated [35].

In recent decades, creativity has generally been treated as central to the competitiveness of individuals, companies, and societies. Based on the Big-C perspective, in the midst of major changes and renewal in companies and societies across the world [36,37], creativity is seen as connected to innovation [38], economic productivity, and well-being [28]. Instead, according to the little-c and Middle-c perspectives, creativity should be evaluated from the viewpoint of those individuals or groups concerned by the respective creative processes or outcomes [31].

However, what is essential about creativity seems to be that, whether creativity refers to everyday changes or innovative breakthroughs, its effects and processes should be viewed using a sociocultural approach, one that integrates the individual and the collective [39]. For instance, Glaveanu’s perspectival model [4] postulates that changing one’s perspective is essential for the emergence of creativity.

Perspectives are developed from given positions in the world (physical and social) and exist in relation to the perspectives of others. Therefore, the creative process can be conceptualized in terms of dialogues between perspectives—taking place both within the person and between different people—that lead to the multiplication, integration, or emergence of completely new points of view.

## 2.2. *The Sustainability of Creative Processes*

The concept of sustainability has gained momentum in recent years in numerous political and business arenas. Sustainability is usually discussed in the context of resource depletion, climate change, and the preservation of humanity [40,41]. Generally, sustainable development is grounded in the conservation of resources and materials, renewable and non-polluting processes, and recycling and maintenance [42,43]. Sustainable development is not just about maintaining existing resources but also about resource development cycles and processes that allow a natural or a social system to benefit [44].

There are very few studies that describe creativity as a tool for sustainability [2,45,46]. By directing creativity and development work toward sustainable solutions, we collectively gain the power to tackle the challenges of sustainability at different levels (society/business). Although, by definition, creativity has been described as an opportunity for sustainable solutions, a positive phenomenon that generates well-being for groups and individuals alike, sustainable development itself is a paradoxical concept, given that development is often unsustainable [1].

At the same time, the negative effects of creativity have been largely ignored in research [39,47]. Creativity is not inherently good or bad, but the intention of the creative actor and the consequences of creativity determine whether it is positive or negative [39,47]. Indeed, Kamyliis and Valtanen [39] argued that creativity should be considered from the point of view of consequences and that attention should be paid, in addition to the immediate consequences for individuals, to the social and long-term consequences. The perspective of consequences serves as a first connection between creativity and sustainability.

From a consequence perspective, it has been noted that the forms of creativity, linked to wasting human or material resources, are not necessarily responsible but may produce social and ecological harm [48]. Creativity and innovation, at least in the West, often relate to creative destruction [39,47,49]. According to Glaveanu [49] (p. 559), “the engine of capitalism is not creative production as much as creative destruction, the repeated replacement of the old with the new.” In creativity, we can see this expressed in the process in which “we take natural resources—turn them into valued products and, after a while, consider them trash” [50] (p. 181). This examination of the relationship between creativity and sustainability is lacking in research, although Sternberg [51] has argued that creativity is the cause of many global sustainability challenges, such as climate change, which is why creativity should always be related to wisdom. According to Sternberg [51], wisdom largely means finding common sense and convincing others of its applicability. It involves action through intelligence, knowledge, and creativity based on ethics.

In addition to the aspects of creativity and creative destruction, it is also necessary to highlight the positive potential of combining creativity and sustainability. Creativity can be seen as a phenomenon that involves leveraging resources from the past to find better alternatives for the future [31]. Indeed, it is questionable whether creativity actually produces something new because much of what is easily perceived as new is actually a reorganization of old elements in a different way [52]. Therefore, creativity often means reusing or recycling the old rather than replacing it altogether.

In this context, Wegener [50] (p. 181) introduced the concept of upcycling, which she defined as the “mix between upgrading (add value) and recycling (reuse).” Whereas recycling means adding something new to the existing product or idea or utilizing something that exists in a completely new context, upcycling is associated with re-evaluating and reviewing an existing product from a different perspective [50]. As such, the main idea behind upcycling is to revive old material by placing it in a new environment or context and suggesting new ways to use or approach it.

By combining creativity with sustainability, Wegener [50] suggested that we should partly abandon the definitions of “new” and “old” and move on to thinking about creative processes from the viewpoint of relevance. In such a context, creativity would not be as much about the new itself but about transferring resources and connecting them to other resources or new contexts where “they become novel for their unfamiliar origins and valuable for these established elements” [50] (p. 187). Thus, in the name of sustainability, we should think about creativity less from the point of view of novelty and more from the point of view of upcycling and reuse [2,50]. Therefore, we can define sustainable creativity as a process that deliberately takes advantage of past outcomes, applying existing solutions to new problems. Thus, the main practical advice could be given related to defining creativity and sustainability, especially in industries interested in creativity. Such definitions are based on re-use, recycling, and up-cycling rather than definitions based on creative destruction. Moreover, these definitions value the utility and application part more than radical novelty (or novelty for novelty’s sake) and the rupture with the old or the existing. Sustainability in creativity is reflected in those outcomes that do not adversely affect the environment or do not burden the human beings [2].

### 2.3. Studying Sustainable Creativity in the Finnish Technology Sector

In the context of work, creativity and innovation are often explicit goals. In Western societies, such as Finland, creative work is increasing as routine work decreases. Although the benefits of creativity for working life have been described extensively, there is today a growing trend to associate creativity with negative consequences like burden of individuals and the emergence of obligatory creativity [53]. Jobs that require constant creativity and development are mentally demanding and pose new challenges when it comes to coping with work. Societal pressure requires the employee to be able to add value through creativity in order to secure a place in the labor market [53].

From this perspective, creativity can be linked not only to environmental and economic sustainability but also to the dimensions of social and human sustainability. We usually see creativity as a positive phenomenon, which is strongly related to well-being of individuals and society, yet “it is not only that the new always displaces the old, but in doing so, it creates anxiety, frustration, and even misery for the people whose lives depended on the old way of doing things” [49] (p. 560). The latter defines is what we envision here as unsustainable creating.

There has been some research in Finland on creativity in the context of working life. Previous studies have also focused on the technology sector in particular. This is important because in the field of software engineering [54,55], work is highly problem-driven and creativity has been described as a sustainable problem-solving tool [56,57].

In her research, Parjanen [58] examined the creativity experiences of staff in a telecommunication organization. Earlier studies have found that many types of work can involve creativity. In Parjanen’s [58] study, all but one of the interviewees in the telecommunication organization described the creative aspects of their work. A common observation from research conducted in Finland is that creativity in the work life always responds to the needs of other people, such as customer demands [25], and is described in terms of small-scale, everyday development, or problem solving [3,58].

In Finland, the technology sector is a strongly growing industry that has changed considerably in recent years. The low power distance and high individualism that characterize Finnish working life are particularly evident in the technology sector, where expert work requires both autonomy and flexibility [3,59,60]. Technology work in Finland has been considered to be highly creative, making it important to change organizational cultures and practices to support creativity [26].

In the end, it is important to note that, in Finland, the technology sector is currently suffering from a labor shortage, which has caused competition between different companies for the best employees. This has resulted in increasing the organizations’ contribution to employees and their well-being [26].



### 3. Materials and Methods

#### 3.1. Aim and Research Questions

In this study, we aim to explore the managers' and employees' descriptions of creativity and its relationship with sustainability at work in the Finnish technology sector, with a particular focus on how they relate to the sustainability of the creative processes and to workplace activities more generally. The research is comparative in nature, contrasting manager, and employee perspectives as the two groups occupy different positions and have different responsibilities within a company. Our assumption is that not only will their understanding of creativity differ but also the implications these understandings carry for sustainability.

We examine the following research questions:

1. How is creativity described by managers and employees working in the Finnish technology sector?
2. What can we infer about the sustainability of creative practices from managers' and employees' descriptions of creativity?
3. What are the similarities and differences both among and between managers' and employees' descriptions when it comes to the issues above?

#### 3.2. Participants

The study involved two Finnish organizations from the technology sector. One of the organizations ("Tech") is a fast growing and internationalizing information and industrial technology company employing 400 experts in digitalization and industrial design. The goal of the company is to assist its customers in digital transformation and industrial renewal. The company is divided into business areas and business units operating below them. Employees in the organization work as software developers, automation and electrical designers, business managers, technical experts, and project managers. In addition, the largest business units include CEOs, business managers, a marketing manager, and a human resource manager.

Another organization ("Build") involved in the study is active in the construction sector. The company has long been aiming to modernize the construction industry using technology, and traditional construction has already expanded into technology development, testing, and sales of technology solutions. The company has created its own ICT department, which develops solutions for the construction industry not only for the company itself but also for other construction companies, domestically and internationally. The construction company employs about 300 experts in construction and technology management and engineering positions. In addition, the company has a number of executives responsible for the different sectors of the business, including the CEO, the business director, the innovation director, and the HR director.

Information and industrial technology organization as well as construction organization were chosen as the target organizations for this study because, in Finland, they are typical technology organizations. Both organizations also pursued continuous development and innovation as well as economic growth. Thus, from the point of view of creativity, they appeared to be interesting subjects for research.

#### 3.3. Data Collection

The study was conducted using a qualitative approach. The implementation of the study began in spring 2018 by first getting acquainted with the target organizations and their managers. Three researchers participated in this phase. A total of 56 interviews were conducted with the target organizations. The interviewees operated at different levels of the organizations. The interviewees were randomly selected, but still in such a way that they represent diverse people in different positions. In addition, we wanted the interviewees to be from different teams and locations. All those requested for the research interview participated in the interview.

The interviews themselves were semi-structured and thematic, collected by two researchers. The topics of the interview were divided under the headings of “Creativity and Creativity Activity” and “Development and Change.” In the interviews, participants were given the opportunity to first describe their perceptions of creativity freely. The purpose of the study was to approach the subject area in a data-driven manner, which is why the interview questions were not completely predetermined. However, some focused questions were framed using the creativity theory presented earlier, for instance: “What do you think creativity involves?”; “what limits/promotes creativity at work?”; “what does creativity bring to you or to others?”; and “describe some creativity-related situations in your work.”

The interviewees answered the questions by presenting their own views, discussing their own and their organization’s practices, giving concrete examples of situations related to creativity, the nature of their work, and the needs of their clients. The interviews lasted between 30 and 45 minutes. Participation in the interviews was voluntary. Participants were informed about the study, its objectives, and targets both at the initiation phase by the key officers of the organizations and at the interview stage by the researchers.

The data was pseudonymized after data collection. The interview materials were transcribed word for word prior to the analysis. We divided the material into two categories: “managers” and “employees.” The managers included the top management in the organizations: CEOs, HR managers, innovation and development managers, business directors, and marketing managers. Designers and developers were considered to be employees. Project managers were included in the employees’ category because most of their work was seen to be more about project implementation rather than the senior management of the organization. In the end, the dataset included 11 interviews with managers and 45 interviews with employees. The unequal number of employees and managers is due to the fact that the target companies had significantly more employees than managers. This also resulted in more employees than managers being interviewed.

#### 3.4. Data Analysis

Our analytical framework draws on the perspectival model of creativity put forward by Glăveanu [4,26,61]. It is based on the sociocultural approach to creativity and methodologically it prefers qualitative approaches, case studies, and ‘rich’ data [62]. This model assumes that people occupy different positions in the world in physical, social, and symbolic terms and that, based on these positions, they develop particular perspectives on reality. Perspectives are developed in relation to each other and often enter into dialogues—within the person and between different people—that lead to their multiplication, integration, or the emergence of altogether new perspectives. In this study, we considered that managers and employees are two different positions that afford specific perspectives on creativity and the sustainability of (creative) activities at work. Our aim in thematically analyzing the material was thus to distinguish these perspectives, paying particular attention to the occasions when the perspectives of other people become part of the dialogue and also focusing on the consequences of these perspectival dialogues. As such, instead of considering that each position comes with a singular, distinct perspective on creativity as sustainable or unsustainable, our aim was to show the diversity of perspectives both within and between the group of managers and employees.

On a practical level, our analysis followed the stages of thematic analysis proposed by Braun and Clarke [7]: exploring the data, identifying themes, examining the relationship between phenomena, looking at the observed themes in relation to the entire dataset and the pre-understanding formed in the first stage, defining and naming the themes, and reporting on the themes.

In the first phase of structuring the material we utilized the Atlas.ti software, which gave us access to all the material related to the descriptions of creativity. We used, for example, the key words “crea\*” and “develop\*” and “innov\*” in Atlas.ti for finding relevant sections from our data. During and after the first structuring of the data, we also read through the data many times to get a comprehensive overview of the whole picture. We made comments and notes regarding the data, which served as a



preliminary mapping of the themes and parsing of the material. We were inspired by the perspectival model [4] in our analysis by paying particular attention to the employees' and managers' positions and perspectives on creativity. We also formed a number of subcategories guided by the model of levels of creativity (Big-C–little-c;) [22,31] and creative processes [8], relating these back to the different positions identified. Key themes identified in this analysis phase were, for example: “creativity as problem solving”, “creativity as innovations”, “socially significant creativity”, “individually significant creativity”, “Creativity as application”, and “creativity as new creation”. Next, we looked for themes related to sustainability in managers' and employees' discourses. Here, we were guided by the concepts of sustainability [43], creative destruction [49], and upcycling creativity [50]. Finally, we created a summary of how the similarities and differences between the managers' and the employees' descriptions of creativity. The four researchers took part in the first phase of the analysis (exploring general themes around creativity and sustainability). The thematic analysis itself was conducted by the first two authors and discussed with the entire research team.

#### 4. Results

In this section, we first present our findings on the managers' and employees' descriptions of creativity. Then, we analyze on how sustainability appears in these descriptions. In the final discussion, we present the similarities and differences found in the two groups of participants.

##### 4.1. Managers' Descriptions of Creativity

###### 4.1.1. The positions of Business, Society, and Customers

Managers approached creativity not only through their own work but, more broadly, from the position of the organization and its business goals. In line with the socio-cultural standpoint, it became clear from the managers' discourse that, when discussing creativity, it is important to take into account the perspectives of the target groups that will be influenced by the creative process and its outcomes. Managers often approached creativity from the perspective of clients but also from the perspective of people in society at large.

“The creativity is that it makes people's lives easier, because the information system shouldn't make people's lives more difficult, but it should make people's lives easier” (CEO, Tech).

In addition, creativity was perceived from a business point of view and its value was strongly determined by the kinds of solutions that could be developed in Finland, and sold more broadly throughout the world. The following quotation shows how a manager sees the importance of understanding international needs in order to grow the business through creativity:

“When I talk about innovation and that development, we are specifically trying to find solutions that could be sold elsewhere in the world. Therefore, it is important that we understand what the world needs and whether there are similar needs to those in Finland” (Innovation manager, Build).

###### 4.1.2. The Perspectives of Big-C Creativity and Innovation

From the interviews with the managers, we found that they strongly associate creativity with organizational-level innovations. Managers' descriptions of creativity seemed to be strongly in line with the Big-C theory of creativity. From their point of view, creativity in organizations should produce socially significant outcomes, including major innovations:

“Creativity is easy to find in these new services like Uber, they are so easy, I think it is the creativity of our time, to come up with these kinds of services” (CEO, Tech).

In the managers' discourse, creativity was strongly associated with continuous organizational change, growth, and the need for development and renewal. This discourse emphasized the internal development programs of the organization and the related issue of digitalization:

"Theoretically, we have three development programs, within all three there is a belief that this industry is changing and that we can scale ourselves larger by combining new technology [for the construction industry] and bringing new ways of working for people" (HR manager, Build).

#### 4.2. Employees' Descriptions of Creativity

##### 4.2.1. The Positions of Customer, Employee, and Colleague

According to the employees, creativity appears to be valuable either to themselves or to the customer to whom they deliver the results. Thus, creativity in employees' portrayals is linked to little-c creativity, which applies to everyday creations and their value for individuals and small groups. The customer's perspective was reflected in the work of both developers and consultants:

"Consults are needed when a customer has a problem that needs a solution and if we go there with a ready patent solution, well, that is not necessarily a good option, and one [consult] must be able to apply and adapt different things" (Consultant, Tech).

"It is typical that the customer comes to us with the problem, sometimes they even come up with a solution that, 'Hey, we have a solution to our problem here and we want you to take it and' ... then we usually want to take a couple of steps back and go back to the problem" (Software developer, Tech).

##### 4.2.2. The Perspectives of Little-c Creativity and Daily Problem-Solving

In the employee interviews, we found that they describe creativity mainly through their everyday work. They strongly associate creative expression with everyday problem-solving:

"It is a constant problem-solving, and creativity is like two things: A, that you can solve the problem and B, that you can solve it in a way that someone else understands what you have done, and it's like somebody else can sometimes maintain it" (Software developer, Tech).

During the interviews, the employees described concrete creative problem-solving processes and their stages. The quote below illustrates how employees see creative problem-solving as a technical process, as breaking down a big problem into smaller ones and finding appropriate solutions for these smaller problems:

"But in the technical sense, first, we break down that big problem into smaller problems, and those smaller problems typically have existing solutions, or at least a similar problem from which to apply its new solution" (Software developer, Tech).

#### 4.3. Sustainability in Managers' Creativity Descriptions

##### 4.3.1. Creative Destruction or Saving the Environment through Digitalization

Several aspects of sustainability were found in the managers' descriptions of creativity. As managers spoke of high-level innovation and business development, they strongly emphasized technology and digitalization. Added to this was the idea of "making people's lives easier" by trying to save the resources of the environment, as the following quote about paper tickets suggests:

"It is a very simple creativity in my mind that we converted that old way of doing, and we do things with the computer. It's digitalization—that is, doing things in a new way,

then being creative, forgetting old processes. A simple example is admission tickets: first, there was always a paper ticket, bought from a kiosk, then so that some printer could print it somewhere, at some point they could be ordered on a computer but still had to get the paper. Nowadays, those paper tickets and stickers and others have been ignored, much of that process has been dropped, and all it took was that someone in our field was creative” (CEO, Tech).

At the same time, however, descriptions of the rejection of the old—that is, the idea of “creative destruction” mentioned before—were also reflected in the managers’ discourses. As is evident from the previous quote, managers tend to: a) emphasize the abandonment of the old when it comes to creativity and b) describe the creative process as a big developmental process in which a new approach or invention replaces an existing practice. From a creativity perspective, the managers saw the abandonment of the old as a valuable practice. However, from a sustainability standpoint, this seems like unsustainable creativity—the development of new technological tools by replacing the previously developed products requires new knowledge and resources from users and creators alike.

#### 4.3.2. Big Changes and Continuous Development as Challenges for Sustainability

The continuous innovation-oriented operation and development of the two organizations was also described as causing practical problems for workers. Too strong a development orientation from a senior management perspective may be good for the business, but poor change management can cause problems for the personnel:

“We are constantly changing our organizational structures that do not exist, so nobody knows what that change is about and what it meant, that is, everyone’s perception of how to do it are a bit different, in a way it makes it really interesting but also super consuming. Each person has his or her own development project, and no one knows what they are or if they are still running. I just want to ask, is there someone in this organization who knows in what direction is this company going? My fear is that we are trying to change everything except leadership, and thus all our developing and everything is just ‘beautiful speech’” (HR manager, Build).

Based on the above quotation, it is possible to interpret the concern of the HR manager as to whether continuous improvement will eventually produce the necessary results. Working time is allocated to development activities, but it does not seem sustainable unless the results can be used.

#### 4.4. Sustainability in Employees’ Creativity Descriptions

##### 4.4.1. Creative Recycling—Applying Old Solutions

The employees’ creativity descriptions could also be interpreted as expressions of sustainability. The employees saw creativity almost always as an application of the old, a creative kind of recycling from the point of view of sustainability:

“In my opinion, it’s a kind of a creativity to combine those earlier solutions. Or there may be a solution to a problem that is quite different, but you can apply it to other and different ways, but it is a work of definition that when it is found what the problem is, what it solves, how it moves to how it is solved. It is very difficult in this world to come up with something completely new” (Software developer, Tech).

“I may have this kind of idea of some application, but very rarely is it unique” (Developer, Build).

What was essential in utilizing the old was not copying the old solution to the new situation as such, but rather examining the previous outcome from a new perspective and considering what aspects of the old could be utilized or which steps in a process that is familiar would apply to the new problem.

#### 4.4.2. Long-Lasting Solutions and Consequences

In addition to portraying creativity as an application of the old and not seeing the outcomes as entirely new innovations, the employees' discourses also reflected on the long durability of the solutions. In terms of creativity, the employees saw it as essential for the solution to be workable and exploitable for as long as possible:

"Software design is somehow creative . . . I would argue . . . that many times you could do something a million different ways, but that . . . would figure out how to do it so it's quite effective and long lasting, it solves and works as desired" (Software developer, Tech).

The consideration of others was also regarded as essential in producing sustainable results. The following quote from an interview illustrates that, in their creative work and solutions, developers should take into account the potential of the outcome for further development. Essential for coding work is the ability of the coder to make their solutions clear and simple from the perspective of those who might use and develop them in the future. This enhance the future application of creative outcomes:

"When someone else reads your solution, they understand how you did it, and they can continue or change it and understand what has happened there before" (Software developer, Tech).

In terms of creative processes, in employees' descriptions the issue of sustainability appeared also as a reflection on the impact that a single solution can have on the whole:

"You should take into account the effects of a possible change in their solution. That even if this fixes this point right now, will it break something else?" (Software developer, Tech).

The key to development is to consider the "big picture," which is not only to solve the problem at hand but to consider how it affects the whole, including users, the organization, and potentially the environment.

## 5. Discussion

When examining managers' and the employees' descriptions of creativity, we noticed both similarities and differences. In terms of their distinct positions, both the managers and the employees highlighted the needs and perspectives of the client. However, while the managers strongly associated creativity with the organization's business and financial success, the employees approached it from the perspective of their own, daily work. Some employees also took the colleagues or other people in the organization into account when defining creativity. Differences were also noticeable within the discourses of the managers. Some of them described creativity from the point of view of the employees in the organization, but this was not by and large typical.

Managers' and employees' conceptions of creativity differed not only in terms of whose perspectives they used to assess creativity, but also in the way they described creativity more generally. Whereas the employees saw that creativity "does not always mean that one has to invent the world again but to produce good enough and know how to priorities, that's creativity in my mind," the managers mostly described creative outcomes as "significant innovations." Thus, it can be said, that managers describe creativity as innovation. This reinforces the view that managers do not distinguish between the phenomena of creativity and innovation but see creativity precisely as a process that produces innovation and is therefore an important issue in the business environment.

Because the descriptions of creativity differed widely between the employees and the managers, the elements of sustainability they captured also looked very different. When managers portrayed great innovation and the destruction of the old, the image of creativity produced by their discourses can be broadly interpreted as unsustainable from the point of view of the environment and even of well-being [40,43]. However, this is not a black and white picture. Some managers specifically aimed

at saving resources in development work, being closer to what we call here sustainable creativity. What matters is how we ultimately define sustainability: in terms of goals or actual outcomes? If the outcomes of an action contribute to environmental sustainability but the process itself is unsustainable (i.e., wasteful in terms of personal and organizational resources), can we label this sustainable creativity?

As we observe from Figure 1, the positions of the employees and the managers are in dialogue while their perspectives on both creativity and sustainability differ. Managers focus on the customers and on the business and think about creativity’s possible impact on society. Meanwhile, the employees are more oriented toward their immediate environment, including the colleagues, other employees, and, of course, customers. From these different types of focus emerge two discourses about creativity. The managers’ point of view aligns mostly with the Big-C creativity in as much as they prioritize innovation and the development of new products that leave a mark on society [28]. In contrast, the employees concentrate much more on creativity as daily problem-solving and as discovering the simplest solutions for complex problems [28]. Both groups refer to creative processes and to outcomes in their discourses. Thus, creativity was described in the same way as in previous studies of creativity [see, e.g., 3,8,28]. As expected, the resulting perspectives on sustainability also have different foci, with managers more likely to encourage replacing the old, while the employees strive to creatively recycle the old solutions. The former attitude to sustainability is closer to the traditional idea of creative destruction [49], even if there are some sustainability concerns when it comes, for example, to the benefits of digitalization. The latter aims to reuse and reapply ideas in creating long-lasting solutions that can be easily understood by others.

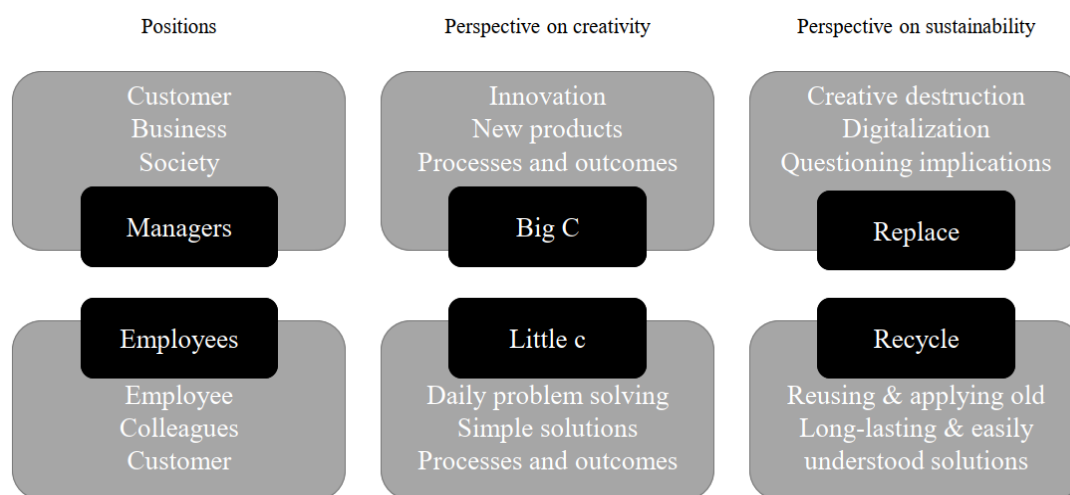


Figure 1. Summary of findings.

The aim of the study was not to compare the differences between the target organizations, but some differences were also found in the data between the organizations. It is noteworthy, for example, that in the construction industry, the views of managers and employees on creativity were clearly further apart than in the information and industrial technology organization. On the other hand, work in the construction industry also highlighted the fact that some workers work on construction sites, which means that they are also physically in a different location than managers.

Our study represents a first investigation into the relationship between creativity and sustainability in the technology sector. Building on a sociocultural approach [4], it considers the participants’ different perspectives on these phenomena as emerging out of social interaction and broader societal discourses. It is beyond the scope of this paper to examine social representations of creativity and sustainability in Finland as a whole, but we assume there are correspondences between the managers’ and the employees’ views and broader debates within the Finnish society. A hypothesis we can launch due

this study, is that a focus on sustainability will necessarily require creativity so sustainable solutions tend to have an intrinsic creative quality. Still, every creative solution will not actually be sustainable.

Some practical suggestions can be made based on this research. First, the partially contradictory perspectives of the managers and the employees that appear in the study seem to be hidden in the activities of the organizations. The employees may not be aware of the goals of management, and the managers may not grasp the perspective of the employees. From a sustainability perspective, openness and clarity in organizational interaction and communication could increase understanding in both directions. On the other hand, the business world should consider more sustainable forms of innovating, seeking to use the employees' existing expertise and their previous solutions. Contradictory views of managers and employees can lead to conflicts between expectations and goals between management and employees, which can cause problems for the performance of work and for the operations of organizations more broadly. If the common understanding between management and employees, and thus the commonality of views, could be increased, it could enable a clearer goal setting and thus more efficient work and the achievement of goals.

In order to promote sustainable development globally, it would be important to understand the perspectives that different actors attach to creativity and to make visible what kind of unsustainable features these perspectives on creativity may contain. This could also identify the backgrounds and causes of practices that are detrimental to sustainability and prevent creative activity that is itself unsustainable or produces unsustainable results.

In this study, we sought to understand the implications of different perspectives on creativity for the sustainability of its processes and outcomes. As such, the participants were not asked directly about sustainability issues and we did not focus primarily on the environment either. On the contrary, we considered this phenomenon at a broader level in terms of saving resources, reducing waste, and finding a balance between contributions and outcomes at the workplace. In this sense, we defined sustainable creativity as those creative processes that deliberately reuse, recycle, or upcycle the old in developing practical, long-lasting, and economical solutions. Of course, there are other sides to sustainable creativity, for example, focusing specifically on environmental sustainability. Future research could explore this second issue more directly and distinguish between "sustainable creativity," understood as the sustainability of the creative process, and "creativity for sustainability," which concerns sustainability not as a means but as an end in itself. Managers and employees can engage in both, only one, or neither of these two goals, and it would be particularly interesting to explore any tensions between their practices (e.g., engaging in creativity for sustainability but through unsustainable creative processes) and also their beliefs and practices (e.g., claiming to support sustainable processes while embracing creative destruction).

A total of 45 people in the role of employees and 11 people in management positions participated in this qualitative interview study. In particular, the reliability and comparability of the results related to managers' descriptions would increase if there were more interviewees. The small number of respondents reduces the chances of generalizability of the results. Nevertheless, the relatively consistent view of managers about creativity and its sustainability, as well as the discrepancy between managers' and employees' descriptions, appear to be so strong from the data that the results suggest a conflict between managerial and employee views in technology companies. However, more research is needed, especially on managers' understandings of creativity, but also on discourses of creativity and sustainability in different industries.

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