

Article

SME Top Management Perception of Environmental Uncertainty and Gender Differences during COVID-19

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Abstract: Environmental scanning has become increasingly crucial for an organisation's existence and a matter of interest for scholars and professionals. This research presents an outline of the situation in the field of multidimensional environmental scanning, focusing on Slovenian micro, small and medium sized organisations during the COVID-19 pandemic. Therefore, the paper aims to examine if top managers perceive the multidimensional (external) environment as uncertain and if there have been gender differences in multidimensional (external) environmental uncertainty perception during the COVID-19 pandemic. We researched the field of ecological, social, technological, economic, and political–legal environments. The nonparametric Mann–Whitney U test and descriptive statistics were used to test the research hypotheses. The results show that top managers are not aware enough of multidimensional environmental uncertainty. They do not perceive the ecological and social environment as unpredictable at all. Among the studied environments, they perceive the political–legal environment as most unpredictable. There are no statistically significant gender differences in perceptions of ecological, social, technological, economic, and political–legal environmental uncertainty. We suggest SME top managers pay more attention to environmental uncertainty and use environmental scanning methods to achieve more sustainable development.

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1. Introduction

The occurrence and persistence of COVID-19 have dramatically changed organisations' external environments and have altered organisational behaviour. Consequently, organisations deal with increased complexity in their environment and experience unprecedented political, social, cultural, ecological, economic and technological change [1,2]. Environmental scanning practices are becoming crucial for strategic choices [2] and, thus, sustainable development, because environmental scanning represents a primary component of strategic planning [3]. Furthermore, environmental scanning is essential for competitiveness and long term organisational success [4]. The main functions of environmental scanning are to gather, interpret and use vital information about (1) events, (2) development trends, and (3) relationships in an organisation's external environment to assist micro, small and medium sized (SME) organisations' owners and/or top managers (in continuation—top management, because we limit our research to the strategic management decision-making level) in sustainable development, i.e., business policy and strategy formulation process [5,6].

Due to globalisation, the environment is becoming more and more complex, competition is very intensive, and changes are expected. In such an environment, dominated by uncertainties, an essential objective of enterprises is to know the potential opportunities

and threats [7]. In today's rapidly changing world, organisations are required to adapt to changes and up to date information to sustain their competitive forces [4]. Authors [4] treat environmental information as a unique resource for organisations, which helps organisations create adaptation, learn new business forms, solve problems and create core competencies. The above mentioned means that organisations must effectively analyse the external environment to respond to customers' changing needs and desires and adapt to the current market conditions towards sustainability [5].

Strategic management has to provide proper tools for external environment analyses. These can be useful in adapting an organisation to the external environment and achieving long term success. The development of appropriate strategies is, thus, needed. However, before organisations formulate a strategy, they have to analyse the current situation in the environment.

Researchers [8–11] believe that top management plays a vital role in strategy formulation. In many cases, although management makes the right decisions and prepares appropriate plans to implement an organisation's strategies, its implementation can fail due to several external factors [12]. Authors [13] are convinced that the cooperation of top, middle, and lower management and other employees is vital for successfully formulating and implementing an organisation's strategies, mainly due to the influence of management on the strategy formulation process. Authors, in their empirical research, examine how top managers perceive changes in the multidimensional ecosystem of the external environment and point out the importance of their perception.

This paper aims to present whether SME's top management (in continuation top managers) perceive the multidimensional environment as uncertain and gender differences in environmental uncertainty perception during the COVID-19 pandemic. The primary purpose of this paper is to highlight the impact of COVID-19 on the sustainability of organisations from an external environmental uncertainty perception perspective. In the field of the external environment, authors focus on the ecological, social, technological, economic and political–legal environment. Further, the purpose of the paper is to identify the environmental uncertainty of environmental dimensions (ecological, social, technological, economic and political–legal dimensions) from top management and their gender differences perspective during the COVID-19 pandemic. We believe that more research focusing on the impact of COVID-19 on sustainability is needed, as concern for sustainability becomes "sensitive" during a crisis, as we are witnessing now with the COVID-19 uncertainty. Therefore, COVID-19 circumstances constitute a highly complex situation for organisations and top managers in terms of the sustainability of organisations. The main research question was:

Do SME's top managers perceive the multidimensional environmental uncertainty, and are there differences in the organisation's multidimensional environmental uncertainty perception during the COVID-19 pandemic from a gender differences perspective?

The research question was tested with hypotheses presented in Section 2 and analysed in Sections 3 and 4, focusing on (1) Slovenian SME top management perceptions of multidimensional environmental uncertainty (that we partially confirmed) and (2) gender differences in Slovenian SME top management multidimensional environmental uncertainty perception (that we did not identify). Figure 1 shows the graphic presentation of the key findings of the research.

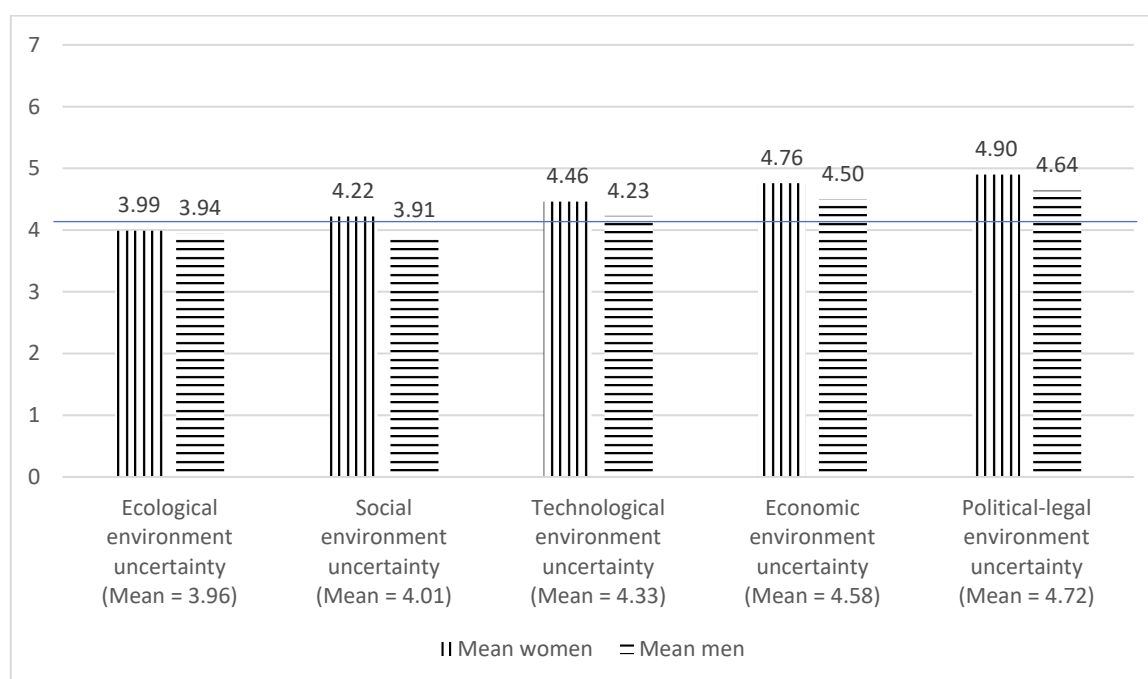


Figure 1. Graphic presentation of key findings of the research. Legend: The horizontal line shows the level of agreement, with 4.2 as the limit between respondents' agreement and disagreement with the uncertainty perception.

2. Theoretical Background and Hypotheses

Organisational success in today's business (external) environment is more demanding than ever before, and the capacity of adapting to the rapid changes is compensatory in order to exist in the market [14]. In that environment, managers struggle daily with increasingly complex problems caused by competition in the market and from the rising demands of customers [15]. From this point of view, for their existence and development, organisations have to adapt their strategic planning to a rapid, changing environment, which requires strategies that are flexible and creative [7]. As organisations face a dynamic environment in which critical external and internal factors often change quickly and dramatically, strategy evaluation is critical [16]. Success today is no guarantee of success tomorrow.

Uncertainty in the environment [5] is part of organisations' development and day to day operations. Due to its complexity, uncertainty needs to be restricted to different aspects. Managers do not know some of them, they do not consciously take others into account, and they focus only on the chosen ones, which, in their opinion, are more critical [5]. Managers try to identify them [17], whether related to the environment, the market and the industry or the characteristics of the organisation, recognise their causal links, and predict their outcomes and consequences, which is even more difficult during the COVID-19 crisis than before. Uncertainties in the environment [18] have been empirically proven to influence organisations' performance negatively. The impact of uncertainty is more negligible when managers have developed appropriate competencies to positively influence organisations' performance and reduce the negative impact of uncertainty in the environment. The development of competencies can be targeted [19], and, thus, managers can manage organisations' performance. To reduce the risk posed by increasing uncertainty in the environment due to the COVID-19 crisis [20], organisations had to innovate their corporate governance, i.e., business policy, strategies and operational operations, all of which needed to be communicated appropriately. Business communication also requires appropriate competencies of managers. Therefore, it is crucial [21] to pay special attention to the fact that an organisation's success is influenced not only by the business environment but also by the appropriate competencies of managers.

The external environment is defined as all the relevant variables considered when making strategic decisions [22]. Therefore, the organisation is not influenced only by internal factors but also by external factors [23,24]. Authors of the MER model of integral management [25] understand the external environment as a combination of ecological, cultural, technological, economic and sociopolitical subenvironments. Subenvironments represent a crucial success factor for an organisation [25]. The external environment is divided into the task (i.e., working) and general (i.e., broader social) environments [22,26]. The task environment represents customers, suppliers, competitors, and regulatory groups. The general environment consists of all the factors affecting the organisation (directly or indirectly) that are not contained in the task environment [25,26].

Authors have identified many different environmental dimensions; three of them are particularly important for environmental uncertainty research: dynamism, complexity, and munificence [27]. Dynamism, complexity, and munificence represent the main characteristics of environmental uncertainty, and organisational strategy is based on management perception of environmental uncertainty [28].

Environmental dynamism represents the level of turbulence or instability in the environment, coupled with the unpredictability of market factors [29]. Environmental complexity and dynamism or volatility represent the significant sources of environmental uncertainty [30] and the concentration of resources in the environment [31]. Environmental complexity refers to the number and diversity of competitors, suppliers, buyers and other environmental stakeholders that organisation decision-makers need to consider in formulating their strategies [22,32,33]. Environmental munificence authors [31,34] define this as the relative level of existing or available resources with which the environment can support sustained growth. Environmental munificence is proposed as an essential variable that significantly affects organisations [34].

Managerial perceptions of their environment in terms of environmental uncertainty form the basis of organisational strategies [28]. Most managers have to cope with increased complexity, uncertainty and turbulence that represent dimensions of the external environment [33]. When the level of managers perceived environmental uncertainty is high, it is more challenging to decide which actions to take. That is why it is essential to identify which environmental dimensions are most important for managers [28]. Environmental scanning is the managerial activity of acquiring and using information about the events, trends, and relationships in an environment to provide early warnings of changing external conditions and represent alerts for decision-makers about external changes. Environmental scanning describes the process of gathering, analysing, and assimilating information about an organisation's external environment [35]. We focus on SME's top management and gender differences in environmental uncertainty perception. One author [36] found no significant gender difference in the frequency of environmental scanning by micro-enterprises. However, we did not find research that focused on gender differences in environmental uncertainty perceptions during the COVID-19 pandemic, which we see as a significant contribution to science.

Sustainability awareness has become increasingly important to society and a matter of interest for scholars and professionals. The triple bottom line (TBL; people, planet and profit) concept has become an effective approach worldwide [37]. This concept set up the vital strategies for organisations transitioning to sustainability, based on the three critical dimensions of sustainable development: environmental quality, social equity, and economic benefits [38]. This article discusses sustainability based on the triple bottom line (TBL) of people, planet and profit in external environmental areas (ecological environment, social environment, technological environment, economic environment and political environment) in conjunction with the SME's top management gender perception of uncertainty.

2.1. Gender Differences and Ecological Environmental Uncertainty Perception

In recent decades, an environmental problem has emerged worldwide [39]. Uncertainty of an organisation's ecological environment occurs because of environmental changes and refers, among other things, to the management of natural resources. There is growing pressure for environmentally friendly organisations, and society demands environmentally friendly products and services. The expectations of an organisation's stakeholders (in addition to the government, we also highlight customers, suppliers, shareholders, etc.), which affect the unpredictability of the organisation's ecological environment, are growing [40]. The level of uncertainty in the ecological environment increased during the COVID-19 crisis; a whole range of influences have emerged that are independent of national borders and that managers should pay attention to [17]. Therefore, the business processes of an organisation, which relate to the unexpected dynamics of resources that occur as a result of global environmental changes, are becoming increasingly important [40]. For their development and existence in this environment, organisations must develop new sustainable technologies and products to influence the burden on natural resources and, consequently, create the sustainable competencies of the organisation [41] that are in line with the principles of sustainable development. Appropriate competencies of managers, such as entrepreneurship, creativity, teamwork and communicativeness, are crucial to the success of organisations during a crisis such as the COVID-19 pandemic [19,21]. Product and process innovations are needed to optimise nonrenewable natural resources use and reduce waste and emissions inside and outside an organisation's borders. Therefore, organisations must act ethically and in a socially responsible manner towards all stakeholders in their business processes [42,43], which indirectly affects their performance [5,44]. Therefore, we find a high level of unpredictability in the ecological environment. From this research point of view, ecological uncertainty influences the planet dimension of the triple bottom line (TBL) model. In the following chapters, we will statistically test whether there are differences in the perception of the ecological environment uncertainty according to the gender of SME's top management.

Thus, we hypothesise that:

Hypothesis 1.0 (H1.0): *SME's top managers perceive the multidimensional ecological environment during the COVID-19 pandemic as uncertain.*

Hypothesis 1.1 (H1.1): *SME's top managers do not perceive the multidimensional ecological environment during the COVID-19 pandemic as uncertain.*

Hypothesis 2.0 (H2.0): *There are no differences between the SME's top management gender perceiving multidimensional ecological environmental uncertainty.*

Hypothesis 2.1 (H2.1): *There are differences between the SME's top management gender perceiving multidimensional ecological environmental uncertainty.*

2.2. Gender Differences and Social Environmental Uncertainty Perception

Organisations today face the increased complexity of the environment caused by many social and cultural changes [1]. Therefore, social environment study has become an essential part of environmental study for effective governance, management, leadership, and decision-making processes in an organisation [45]. Especially in recent years, there has been a growing concern throughout society about the pressure organisations have on the aspects of the social environment [46]. Therefore, society expects that organisations act more and more responsibly [5], i.e., in a way that is socially responsible and sustainable. The positive impact of corporate social responsibility on organisation performance has been recognised by many researchers, e.g., [47,48], who have investigated the relationship between corporate social responsibility and organisation financial performance. Authors [49] link corporate social responsibility with achieving sustainable development. Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs. The concept of sustainable development was developed based on societal pressures for more responsible

behaviour on the part of organisations [49]. The restriction of social contact due to COVID-19 has exhausted public and economic activity and has had severe social, economic and political consequences. Due to restrictions, new rules and social distancing, society changed its habits. People have become restless and society's responses uncertain, even concerning the unpredictability of their demand [17]. The social environment is, therefore, an essential part of studying an organisation's external environment [17,45,46], because it affects many business processes of an organisation [50], as well as its performance [51]. From this research point of view, social uncertainty influences the people dimension of the triple bottom line (TBL) model. In the following chapters, we will statistically test whether there are differences in the perception of the social environment uncertainty according to the gender of SME's top management.

Thus, we hypothesise that:

Hypothesis 3.0 (H3.0): *SME's top managers perceive the multidimensional social environment during the COVID-19 pandemic as uncertain.*

Hypothesis 3.1 (H3.1): *SME's top managers do not perceive the multidimensional social environment during the COVID-19 pandemic as uncertain.*

Hypothesis 4.0 (H4.0): *There are no differences between the SME's top management gender perceiving multidimensional social environmental uncertainty.*

Hypothesis 4.1 (H4.1): *There are differences between the SME's top management gender perceiving multidimensional social environmental uncertainty.*

2.3. Gender Differences and Technological Environmental Uncertainty Perception

If organisations want to operate under the expectations of external forces, they must adapt their business processes to the conditions and expectations prevailing in the organisation's environment [21,52]. The globalisation that characterises today's environment affects organisations' interest in innovation and the introduction of new technologies. Organisations today are looking for new technologies anywhere in the world [53]. The technological environment's unpredictability stems from the industry's unpredictability, the inputs used, the rivalry between competitors and the intensity of demand, which all gained importance during the COVID-19 [17]. Developing technologies are increasing, both in developed and emerging economies [54]. Due to the typical circumstances in the field of technological environment, organisations must follow them [55]. We note that the technological environment of the organisation is characterised by a high degree of uncertainty and unpredictability [1,16,45,46,56], which organisations must consider when making decisions. From this research point of view, technological uncertainty influences the profit dimension of the triple bottom line (TBL) model. In the following chapters, we will statistically test whether there are differences in the perception of the technological environment uncertainty according to the gender of SME's top management.

Thus, we hypothesise that:

Hypothesis 5.0 (H5.0): *SME's top managers perceive the multidimensional technological environment during the COVID-19 pandemic as uncertain.*

Hypothesis 5.1 (H5.1): *SME's top managers do not perceive the multidimensional technological environment during the COVID-19 pandemic as uncertain.*

Hypothesis 6.0 (H6.0): *There are no differences between the SME's top management gender perceiving multidimensional technological environmental uncertainty.*

Hypothesis 6.1 (H6.1): *There are differences between the SME's top management gender perceiving multidimensional technological environmental uncertainty.*

2.4. Gender Differences and Economic Environmental Uncertainty Perception

Globalisation, the expansion of financial (and other) markets, and the past economic and current COVID-19 crises have influenced changes in the economic environment of organisations [57]. COVID-19 caused devastation to the world economy [17]. Epidemics, such as the COVID-19 virus, have already and will continue to impact economies worldwide [17,21,57,58]. Zouaghi and Sánchez [59] emphasised that the problems of economic crises will affect not only the economy but also the purchasing habits of people and the behaviour of organisations. Authors have found out that the economic environment includes various factors that affect the operation, including growth, development, and the existence of organisations, such as deflation, inflation, prices of products and services, interest rates and others. Factors arising from the economic environment represent essential opportunities and threats for organisations [7,13,21,59]. Organisations must adapt to macroeconomic conditions and the development of the industrial structure (the situation in the industry or branch) [60]. From this research point of view, economic uncertainty influences the profit dimension of the triple bottom line (TBL) model. In the following chapters, we will statistically test whether there are differences in the perception of the economic environment uncertainty according to the gender of SME's top management.

Thus, we hypothesise that:

Hypothesis 7.0 (H7.0): *SME's top managers perceive the multidimensional economic environment during the COVID-19 pandemic as uncertain.*

Hypothesis 7.1 (H7.1): *SME's top managers do not perceive the multidimensional economic environment during the COVID-19 pandemic as uncertain.*

Hypothesis 8.0 (H8.0): *There are no differences between the SME's top management gender perceiving multidimensional economic environmental uncertainty.*

Hypothesis 8.1 (H8.1): *There are differences between the SME's top management gender perceiving multidimensional economic environmental uncertainty.*

2.5. Gender Differences and Political–Legal Environmental Uncertainty Perception

Uncertainty arising from the economic environment and the political–legal environment of an organisation is often related [17]. Economic uncertainty causes uncertainty in the political–legal environment. Government officials often pursue policies to improve their credibility and legitimacy, which was observed during the recent recession (2008) and the COVID-19 crisis, in many countries [58]. These two forms of uncertainty (economic and political–legal) are cumulative and interdependent. In this situation, organisations deal with economic uncertainty and the lack of (excessive) policy responses to economic problems [61]. The globalisation of the world economy was particularly obvious during the spreading (i.e., globalisation) of the COVID-19 virus, which has caused uncertainty for individuals, societies, private and public organisations, industries, national economies, and humanity. This health uncertainty has created a great deal of political–legal uncertainty, as governments have reacted differently to the crisis and the closure of state borders [17]. Decisions in political and legal environments can affect organisations through changes in regulations, rules and laws, trade barriers, etc. [61]. In the political environment, the government creates opportunities and threats to the organisation through measures and regulations and, thus, consequently influence decision-making in an organisation [62]. From this research point of view, political–legal uncertainty influences the profit dimension of the triple bottom line (TBL) model. In the following chapters, we will statistically test whether there are differences in the perception of the political–legal environment uncertainty according to the gender of SME's top management.

Thus, we hypothesise that:

Hypothesis 9.0 (H9.0): *SME's top managers perceive the multidimensional political–legal environment during the COVID-19 pandemic as uncertain.*

Hypothesis 9.1 (H9.1): *SME's top managers do not perceive the multidimensional political–legal environment during the COVID-19 pandemic as uncertain.*

Hypothesis 10.0 (H10.0): *There are not differences between the SME's top management gender perceiving multidimensional political–legal environmental uncertainty.*

Hypothesis 10.1 (H10.1): *There are differences between the SME's top management gender perceiving multidimensional political–legal environmental uncertainty.*

3. Materials and Methods

Method: This survey aimed to collect data from organisations in environmental scanning, environmental uncertainty, and strategic management. The survey was addressed to owners and/or top managers in Slovenian organisations, EU state. The data collected examined the following areas: ecological environment, social environment, technological environment, economic environment and political–legal environment.

To study managers' perceptions of an organisation's environmental uncertainty, we used descriptive statistics to measure the level of agreement with some statements relating to the areas of these environments. On the 7-point Likert scale, we took the respondents' level of agreement 4.2 as the limit between respondents' agreement and disagreement with the statement. This level represents 60% of the maximum possible value of the 7-level scale of agreement. The level of agreement 4.2 was thus taken as the breakthrough value in determining the (non-)perception of the unpredictability of a researched multidimensional environment. Several measurement scales were used to identify the survey constructs [40,63,64]. The questionnaire included a total of 53 items that were rated on a 7-point Likert scale (from 1 = strongly disagree to 7 = strongly agree). Eight items were used for "ecological environment", fourteen were used for "social environment", nine were used for "technological environment", ten were used to assess "economics environment", and twelve were focused on "political–legal environment".

The questionnaire included specific questions to collect demographic data (gender, function in the organisation, organisation size). The web survey was an open access opinion survey in which a nonprobability sample of participants was selected to participate through self-selection. Each participant had the opportunity to answer the questions at their own pace. The questionnaire was completed by 378 randomly selected owners and/or top managers from organisations in Slovenia, EU state. We verified the normality of the data distribution with Kolmogorov–Smirnov and Shapiro–Wilk tests. We found that the data were not normally distributed ($p < 0.001$) for any statement describing environmental uncertainty. The Mann–Whitney U test is used to compare two independent groups when the dependent variable is either ordinal or continuous but not normally distributed [65]. Therefore, we verified the differences between men and women using the nonparametric Mann–Whitney U test, which substitutes the parametric t-test of independent samples. The analysis of the data was carried out using Microsoft Excel and SPSS.

Sampling Procedure: For the needs of research work, the database of organisations was obtained from the Agency of the Republic of Slovenia for Public Legal Records and Related Services (in the Slovene language *Agencija Republike Slovenije za javnopravne evidence in storitve*—AJPES). The online survey was conducted so that we randomly selected companies from the acquired database in the SPSS computer program. The selection was made using the function: data, select cases, a random sample of cases, approximately 10%. For such selected companies, we searched the publicly accessible websites for e-mail addresses to which we sent a letter explaining the content and purpose of the research. The letter also contained a web address (link) to the research questionnaire. Thus, the respondents were informed about the research and participated voluntarily. Data collection took place from January to June 2020. Initially, a shorter survey period was planned, but it was extended due to the COVID-19 pandemic. In this way, we could obtain a more significant number of responses. The inclusion criteria were as follows:

- Organisations must be located in the state of Slovenia, the EU.

- Respondents have to be an owner and or top management of the organisation who makes decisions on the strategic management level.

Survey sample: Most respondents were male (69%), and 31% were female. The results show that 39% of respondents were owners of the organisation, 21% were top management, and 40% were owners and top managers. The majority of organisations in this sample are micro-enterprises (77%). Detailed information on the respondents is presented in Table 1.

Table 1. Demographic data.

	SLOVENIA	
	<i>n</i> = 378	
	<i>n</i>	%
Gender		
Male	260	69
Female	118	31
Respondent function in the organisation		
Owner of the organisation	147	39
Top management	80	21
Owner of the organisation and top management	151	40
Organisation size		
Micro-organisations	292	77
Small organisations	54	14
Medium sized organisations	25	7
Large organisations	7	2

4. Results

The Kolmogorov–Smirnov and Shapiro–Wilk tests show that data is not normally distributed ($p < 0.001$) for all items that describe factors of the ecological environment, social environment, technological environment, economic environment, and political–legal environment. Therefore, we used the nonparametric Mann–Whitney U test. Tables 2–6 show descriptive statistics and gender differences in all five constructs’ items, concerning environmental uncertainty during the COVID-19 pandemic.

4.1. Area: Ecological Environment

The results show that a percentage of 38% to 49% of the participants agreed (“more or less agree”, “agree”, “strongly agree”) for the items (1) “Environmental regulations affecting the business sector are unpredictable”, (2) “Ecological restrictions are unpredictable”, (3) “Environmental tax policies are unpredictable” and (4) “Changes in the competitor’s environmental strategies are unpredictable”. The highest level of agreement was that 49% of respondents agreed with the item “Environmental tax policies are unpredictable”. The lowest level of agreement was observed for the item that examined energy supply problems, where 49% disagreed. The results show that a percentage of 40% to 49% of the participants expressed disagreement (“more or less disagree”, “disagree”, “strongly disagree”) for the items “The availability of substitute environmental products is unpredictable”, “Environmental product demand is unpredictable”, and “Location based business opportunities are unpredictable”. Details of the responses collected are shown in Appendix A.

The results in Table 2 indicate that, on average, participants expressed the most significant agreement with items “Environmental tax policies are unpredictable” (mean: 4.36), “Ecological restrictions are unpredictable” (mean: 4.06) and “Changes in the competitor’s environmental strategies are unpredictable” (mean: 4.03). On the other hand, on average, they had the lowest agreement with the item “Energy supply problems are

unpredictable” (mean: 3.50). The results in Table 2 show that participants generally do not agree with the statement that the multidimensional ecological environment is unpredictable. The results in Table 2 indicate that, on average, the ecological environmental uncertainty perception among women during the COVID-19 pandemic is higher than that of men. Both genders agreed the most with the item “Environmental tax policies are unpredictable” (women mean: 4.37; men mean: 4.35). The mean values in Table 2 show that, for women, on average, the highest agreement was also with items “Environmental product demand is unpredictable” (4.04) and “The availability of substitute environmental products is unpredictable” (mean: 4.00). Additionally, in contrast to women, men were the most agreed with items “Ecological restrictions are unpredictable” (mean: 4.10) and “Changes in the competitor’s environmental strategies are unpredictable” (mean: 4.05). On the other hand, the lowest average agreement by women and men was perceived regarding item “Energy supply problems are unpredictable” (women mean: 3.76; men mean: 3.38).

The Mann–Whitney U test shows no statistically significant gender differences in ecological environment uncertainty ($p > 0.05$). It is vital to notice that women, on average, perceive higher uncertainty in the ecological environment than men (Table 2).

Table 2. Descriptive statistics and statistically significant gender differences in ecological environmental uncertainty perceptions during the COVID-19 pandemic.

Item	All	Women		Men		Women–Men Comparison	
	Mean (3.96)	Mean (3.99)	Std. Dev.	Mean (3.94)	Std. Dev.	Mann-Whit- ney U	Asymp. Sig. (2-tailed)
Environmental regulations affecting the business sector are unpredictable. ^{*1}	3.98	3.87	1.672	4.03	1.706	14491.500	0.381
Ecological restrictions are unpredictable. ^{*2}	4.06	3.97	1.601	4.10	1.749	14576.000	0.431
Environmental tax policies are unpredictable. ^{*1}	4.36	4.37	1.748	4.35	1.787	15312.500	0.977
Changes in the competitor’s environmental strategies are unpredictable. ^{*1}	4.03	3.97	1.687	4.05	1.704	15039.000	0.756
The availability of substitute environmental products is unpredictable. ^{*1}	3.92	4.00	1.622	3.88	1.687	14506.000	0.389
Environmental product demand is unpredictable. ^{*1}	3.92	4.04	1.727	3.86	1.673	14413.500	0.340
Location based business opportunities are unpredictable. ^{*3}	3.91	3.97	1.656	3.88	1.886	14835.500	0.603
Energy supply problems are unpredictable. ^{*3}	3.50	3.76	1.777	3.38	1.896	13476.000	0.055

Legend: ^{*1} [40] (p. 302). ^{*2} [63] (pp. 227–228). ^{*3} [66] (p. 22).

4.2. Area Social Environment

The results show that a percentage of 35% to 48% of the participants agreed (“more or less agree”, “agree”, “strongly agree”) for the items (1) “Society’s values are unpredictable”, (2) “Society’s norms are unpredictable”, (3) “Society’s principles are unpredictable”, (4) “Society’s goals are unpredictable”, (5) “Mainstream ideology is unpredictable”, (6) “The ethics of society is unpredictable”, (7) “The demographic development is unpredictable”, and (8) “The cost of living structure is unpredictable”. The highest level of agreement was that 48% of respondents agreed with the items “Society’s norms are unpredictable” and “The cost of living structure is unpredictable”. The lowest level of agreement was observed for the item “The age structure of society is unpredictable”, where 55% disagreed. The results show that a percentage of 41% to 55% of the participants expressed disagreement (“more or less disagree”, “disagree”, “strongly disagree”) for the

items (1) “Society’s habits are unpredictable”, (2) “Society’s culture is unpredictable”, (3) “The ecological orientation of society is unpredictable”, (4) “The quality of education is unpredictable” and (5) “The age structure of society is unpredictable”. Details of the responses collected are shown in Appendix B.

The results in Table 3 indicate that, on average, participants expressed the most significant agreement with items “The cost of living structure is unpredictable” (mean: 4.39), “Society’s principles are unpredictable” (mean: 4.14) and “Society’s values are unpredictable” (mean: 4.10). On the other hand, on average, they had the lowest agreement with the item “The age structure of society is unpredictable” (mean: 3.38). The results in Table 3 show that participants generally do not agree with the statement that the multidimensional social environment is unpredictable. The results in Table 3 indicate that, on average, the social environmental uncertainty perception among women during the COVID-19 pandemic is higher than social environmental uncertainty perception among men. The mean values in Table 3 show that both women and men, on average, mostly agreed with items “The cost of living structure is unpredictable” (women mean: 4.62; men mean: 4.29), “Mainstream ideology is unpredictable” (women mean: 4.39; men mean: 4.18) and “Society’s norms are unpredictable” (women mean: 4.30; men mean: 4.07). On the other hand, the lowest average agreement by women, the same as men, was perceived regarding item “The age structure of society is unpredictable” (women mean: 3.81; men mean: 3.18).

The Mann–Whitney U test results show no statistically significant gender differences in social environmental uncertainty ($p > 0.05$). However, there are statistically significant gender differences in the two items, namely, “The quality of education is unpredictable” and “The age structure of society is unpredictable”; ($p < 0.05$). It is crucial to notice that women, on average, perceive higher uncertainty in the social environment than men (Table 3).

Table 3. Descriptive statistics and statistically significant gender differences in social environmental uncertainty perceptions during the COVID-19 pandemic.

Item	All	Women		Men		Women–Men Comparison	
	Mean (4.01)	Mean (4.22)	Std. Dev.	Mean (3.91)	Std. Dev.	Mann-Whit- ney U	Asymp. Sig. (2-Tailed)
Society’s values are unpredictable. ^{*1}	4.10	4.28	1.778	4.02	1.883	14112.500	0.207
Society’s norms are unpredictable. ^{*2}	4.14	4.30	1.785	4.07	1.803	14185.000	0.235
Society’s principles are unpredictable. ^{*4}	4.06	4.19	1.792	4.00	1.823	14376.000	0.322
Society’s goals are unpredictable. ^{*4}	4.09	4.21	1.853	4.03	1.834	14427.000	0.348
Society’s habits are unpredictable. ^{*1}	3.94	4.12	1.695	3.85	1.788	14041.500	0.182
Mainstream ideology is unpredictable. ^{*1}	4.25	4.39	1.710	4.18	1.825	14378.000	0.322
Society’s culture is unpredictable. ^{*3}	3.97	4.19	1.706	3.87	1.839	13685.500	0.089
The ethics of society is unpredictable. ^{*3}	4.09	4.18	1.833	4.05	1.866	14674.000	0.494
The demographic development is unpredictable. ^{*2}	3.90	4.14	1.734	3.79	1.800	13491.000	0.057
The ecological orientation of society is unpredictable. ^{*2}	3.95	4.14	1.739	3.87	1.660	13856.000	0.126
The quality of education is unpredictable. ^{*2}	3.83	4.36	1.772	3.58	1.781	11563.500	0.000
The age structure of society is unpredictable. ^{*2}	3.38	3.81	1.818	3.18	1.840	12271.000	0.002
The cost of living structure is unpredictable. ^{*2}	4.39	4.62	1.699	4.29	1.774	13787.500	0.110

Legend: ^{*1} [66] (p. 22). ^{*2} [67] (p. 205). ^{*3} [68]. ^{*4} Own source.

4.3. Area Technological Environment

The results show that a percentage of 43% to 50% of the participants agreed (“more or less agree”, “agree”, “strongly agree”) for the items (1) “The share of GDP for research and development is unpredictable”, (2) “The knowledge flow is unpredictable”, (3) “Critical technological breakthroughs are unpredictable”, (4) “The flow of technologies is unpredictable”, (5) “New product introductions are unpredictable”, (6) “Product changes are unpredictable”, (7) “Changes in product quality are unpredictable” and (8) “Changes in the production process are unpredictable”. The highest level of agreement was that 50% of respondents agreed with the item “New product introductions are unpredictable”. The lowest level of agreement (“more or less disagree”, “disagree”, “strongly disagree”) was observed for the item “Critical technological breakthroughs are unpredictable”, where 40% disagreed. Details of the responses collected are shown in Appendix C.

The results in Table 4 indicate that, on average, participants expressed the most significant agreement with items “Critical technological breakthroughs are unpredictable” (mean: 4.52), “Product changes are unpredictable” (mean: 4.49) and “The share of GDP for research and development is unpredictable” (mean: 4.40). On the other hand, on average, they had the lowest agreement with the item “The obsolescence stage of technology used is unpredictable” (mean: 4.04). The results show that participants generally slightly agree that the multidimensional technological environment is unpredictable. The results in Table 4 indicate that, on average, the technological environmental uncertainty perception among women during the COVID-19 pandemic is higher than technological uncertainty perception among men. Women and men agreed the most with the item “Product changes are unpredictable” (women mean: 4.70; men mean: 4.39). Additionally, in contrast to women, men most agreed with the items “Critical technological breakthroughs are unpredictable” (mean: 4.57) and “The share of GDP for research and development is unpredictable” (mean: 4.37). The mean values in Table 4 show that, for women, on average, the highest agreement was also with items “Changes in product quality are unpredictable” (mean: 4.69) and “Changes in the production process are unpredictable” (mean: 4.59). On the other hand, the lowest average agreement by women, the same as men, was perceived regarding the item “The obsolescence stage of technology used is unpredictable” (women mean: 4.07; men mean: 4.03).

The Mann–Whitney U test results show no statistically significant gender differences in technological environmental ($p > 0.05$). However, there are statistically significant gender differences in the two items, namely, “Changes in product quality are unpredictable” and “Changes in the production process are unpredictable”; ($p < 0.05$). It is crucial to notice that women, on average, perceive higher uncertainty in the technological environment than men (Table 4).

Table 4. Descriptive statistics and statistically significant gender differences in technological environmental uncertainty perceptions during the COVID-19 pandemic.

Item	All	Women		Men		Women–Men Comparison	
	Mean (4.33)	Mean (4.46)	Std. Dev.	Mean (4.23)	Std. Dev.	Mann-Whitney U	Asymp. Sig. (2-Tailed)
The share of GDP for research and development is unpredictable. ^{*3}	4.40	4.47	4.37	4.37	1.506	15140.500	0.836
The knowledge flow is unpredictable. ^{*2}	4.19	4.31	4.13	4.13	1.631	14658.000	0.482
Critical technological breakthroughs are unpredictable. ^{*3}	4.52	4.39	4.57	4.57	1.542	14081.500	0.193
The flow of technologies is unpredictable. ^{*2}	4.28	4.31	4.26	4.26	1.605	15165.500	0.857
The obsolescence stage of technology used is unpredictable. ^{*2}	4.04	4.07	4.03	4.03	1.713	15222.500	0.904

New product introductions are unpredictable. ^{*1}	4.42	4.58	4.35	4.35	1.521	14341.500	0.303
Product changes are unpredictable. ^{*1,*2}	4.49	4.70	4.39	4.39	1.532	13967.500	0.157
Changes in product quality are unpredictable. ^{*1}	4.34	4.69	4.18	4.18	1.556	12877.500	0.011
Changes in the production process are unpredictable. ^{*1,*2}	4.34	4.59	4.22	4.22	1.475	13417.500	0.047

Legend: ^{*1} [64] (p. 711). ^{*2} [67] (p. 205). ^{*3} [66] (p. 22).

4.4. Area Economic Environment

Overall, all items in this domain achieved high levels of agreement (“more or less agree”, “agree”, “strongly agree”), ranging from 39% to 59%. The lowest levels of agreement were for the items “The exchange rate is unpredictable” and “The availability of public infrastructure is unpredictable”, from 39% to 46%. In contrast, the highest levels of agreement were for the items (1) “The economic cycle is unpredictable”, (2) “GDP growth is unpredictable”, (3) “The inflation rate is unpredictable” and (4) “Sales growth in major foreign markets is unpredictable” (i.e., “more or less agree”, “agree”, “strongly agree”), ranging from 57% to 59%. Details of the responses collected are shown in Appendix D.

The results in Table 5 indicate that, on average, participants expressed the most significant agreement with items “Sales growth in major foreign markets is unpredictable” (mean: 4.84), “The economic cycle is unpredictable” (mean: 4.80) and “GDP growth is unpredictable” (mean: 4.76). On the other hand, on average, they had the lowest agreement with the item “The availability of public infrastructure is unpredictable” (mean: 4.15). The results show that participants agree that the multidimensional economic environment is unpredictable. The results in Table 5 indicate that, on average, women’s economic environmental uncertainty perception during the COVID-19 pandemic is higher than technological uncertainty perception among men. The mean values in Table 5 show that, for women, on average, the highest agreement was with the items “Unemployment is unpredictable” (mean: 5.01) and “The interest rate is unpredictable” (mean: 4.92). Women and men agreed the most with the item “Sales growth in major foreign markets is unpredictable” (women mean: 4.92; men mean: 4.81). Additionally, in contrast to women, men most agreed with items “The economic cycle is unpredictable” (mean: 4.81) and “GDP growth is unpredictable” (mean: 4.71). On the other hand, the lowest average agreement by women, the same as men, was perceived regarding item “The availability of public infrastructure is unpredictable” (women mean: 4.31; men mean: 4.08).

The Mann–Whitney U test results show no statistically significant gender differences in economic environmental uncertainty ($p > 0.05$). However, there are statistically significant gender differences in the two items, namely, “Unemployment is unpredictable” and “The interest rate is unpredictable” ($p < 0.05$). It is crucial to notice that women, on average, perceive higher uncertainty in the economic environment than men (Table 5).

Table 5. Descriptive statistics and statistically significant gender differences in economic environmental uncertainty perceptions during the COVID-19 pandemic.

Item	All	Women		Men		Women—Men Comparison	
	Mean (4.58)	Mean (4.76)	Std. Dev.	Mean (4.50)	Std. Dev.	Mann-Whitney U	Asymp. Sig. (2-Tailed)
The economic cycle is unpredictable. ^{*2}	4.80	4.78	4.78	4.81	1.581	15054.500	0.768
GDP growth is unpredictable. ^{*3}	4.76	4.88	4.88	4.71	1.615	14561.500	0.421
The inflation rate is unpredictable. ^{*1}	4.54	4.76	4.76	4.45	1.647	13792.000	0.110
Unemployment is unpredictable. ^{*2}	4.73	5.01	5.01	4.60	1.709	13308.000	0.036
The interest rate is unpredictable. ^{*1}	4.65	4.92	4.92	4.53	1.776	13424.500	0.048
The savings rate is unpredictable. ^{*2}	4.53	4.81	4.81	4.41	1.721	13322.500	0.038

The dynamics of personal consumption are unpredictable. ^{*3}	4.47	4.64	4.64	4.38	1.733	14225.500	0.251
Sales growth in major foreign markets is unpredictable. ^{*3}	4.84	4.92	4.92	4.81	1.658	14897.500	0.648
The exchange rate is unpredictable. ^{*1}	4.34	4.60	4.60	4.23	1.794	13505.500	0.059
The availability of public infrastructure is unpredictable. ^{*2}	4.15	4.31	4.31	4.08	1.723	14200.000	0.240

Legend: ^{*1} [64] (p. 710). ^{*2} [67] (p. 205). ^{*3} [66] (p. 22).

4.5. Area Political–Legal Environment

Overall, all items in this domain achieved high levels of agreement (“more or less agree”, “agree”, “strongly agree”), ranging from 37% to 68%. The lowest levels of agreement were for the items “Tariffs on imported goods are unpredictable”, “Public service provision is unpredictable”, and “Patent law is unpredictable”, ranging from 37% to 48%. In contrast, the highest levels of agreement were for the items “Political stability is unpredictable”, “Enforcement of existing laws is unpredictable”, and “Legal regulations affecting the business sector are unpredictable” (i.e., “more or less agree”, “agree”, “strongly agree”), ranging from 65% to 68%. Details of the responses collected are shown in Appendix E.

The results in Table 6 indicate that, on average, participants expressed the most significant agreement with items “The enforcement of existing laws is unpredictable” (mean: 5.10), “Political stability is unpredictable” (mean: 5.07) and “Legal regulations affecting the business sector are unpredictable” (mean: 5.00). On the other hand, on average, they had the lowest agreement with the item “Patent law is unpredictable” (mean: 4.07). The results show that participants agree that the multidimensional political–legal environment is unpredictable. The results in Table 6 indicate that, on average, the political–legal environmental uncertainty perception among women during the COVID-19 pandemic is perceived higher than that of men. Women and men agreed the most with items “Political stability is unpredictable” (women mean: 5.19; men mean: 5.01) and “The enforcement of existing laws is unpredictable” (women mean: 5.11; men mean: 5.09). The mean values in Table 6 show that, for women, on average, the highest agreement was also with the item “Tax policies are unpredictable” (mean: 5.06). Additionally, in contrast to women, men most agreed with the item “Legal regulations affecting the business sector are unpredictable” (mean: 5.02). On the other hand, the lowest average agreement by women, the same as men, was perceived regarding item “Patent law is unpredictable” (women mean: 4.46; men mean: 3.89).

The Mann–Whitney U test results show no statistically significant gender differences in political–legal environmental uncertainty ($p > 0,05$). However, there are statistically significant gender differences in items “National laws affecting international business are unpredictable”, “Tariffs on imported goods are unpredictable”, “Public service provision is unpredictable”, and “Patent law is unpredictable”; ($p < 0,05$). It is crucial to notice that women, on average, perceive higher uncertainty in the ecological environment than men (Table 6).

Table 6. Descriptive statistics and statistically significant gender differences in political–legal environmental uncertainty perceptions during the COVID-19 pandemic.

Item	All	Women		Men		Women – Men Comparison	
	Mean (4.72)	Mean (4.90)	Std. Dev.	Mean (4.64)	Std. Dev.	Mann-Whitney U	Asymp. Sig. (2-Tailed)
Political stability is unpredictable. ^{*2}	5.07	5.19	1.760	5.01	1.916	14696.000	0.503
The enforcement of existing laws is unpredictable. ^{*1}	5.10	5.11	1.743	5.09	1.640	14990.500	0.717

Legal regulations affecting the business sector are unpredictable. ^{*1}	5.00	4.97	1.749	5.02	1.607	15265.500	0.939
Organisation business related law is unpredictable. ^{*2}	4.83	4.92	1.725	4.79	1.708	14630.500	0.463
Monetary policies are unpredictable. ^{*1}	4.69	4.86	1.679	4.61	1.681	13962.500	0.155
Tax policies are unpredictable. ^{*1}	4.98	5.06	1.741	4.95	1.742	14753.500	0.544
Prices controlled by the government are unpredictable. ^{*1}	4.77	5.02	1.754	4.65	1.817	13573.500	0.068
National laws affecting international business are unpredictable. ^{*1}	4.69	5.00	1.612	4.55	1.637	12912.000	0.012
Tariffs on imported goods are unpredictable. ^{*1}	4.37	4.70	1.645	4.22	1.793	12998.500	0.016
Public service provision is unpredictable. ^{*1}	4.28	4.64	1.599	4.12	1.692	12566.500	0.004
Subsidy policy is unpredictable. ^{*2}	4.81	4.88	1.639	4.78	1.799	15068.000	0.779
Patent law is unpredictable. ^{*2}	4.07	4.46	1.556	3.89	1.772	12628.000	0.005

Legend: ^{*1} [64] (p. 710). ^{*2} [67] (p. 205).

5. Discussion

The COVID-19 pandemic increased environmental uncertainty. The world has increasingly experienced technological, sociopolitical and institutional changes. The COVID-19 pandemic produced economic upheaval, altered the trajectories of industries, exceeded the capabilities of experienced managers to respond and tested the resiliency of firms, states, and institutions [69,70]. An organisation's external environments play an important role in selecting and implementing an organisation's strategies. Researchers [27] have found out that organisations' external environments affect firms' resource profiles and the degree of uncertainty in industries, influencing firms' willingness to undertake risks. Risk-taking is crucial in adapting to an unpredictable external environment [71,72]. As sustainability awareness has become increasingly important to society [38], this research has included the sustainability aspect in each area of an organisation's external environment. We discuss sustainability based on the people, planet and profit aspects of the environmental dimensions.

In this paper, we investigated the extent to which top managers of micro, small and medium sized organisations (SMEs) in Slovenia, an EU state, perceive the unpredictability of selected segments of an organisation's environment. The first part of the research explores the perception of the unpredictability of selected segments of the organisation's external environment in general. In the second part of the research, we limit research to identifying gender differences in the perception of the unpredictability of the organisation's external environment. We tested the above with hypotheses.

5.1. Area Ecological Environment

The results show that an average of the researched SME's top management participants generally disagree with the statement that the multidimensional ecological environment is unpredictable (mean: 3.96). Results thus confirm our hypothesis H1.1: SME's top managers do not perceive the multidimensional ecological environment during the COVID-19 pandemic as uncertain. The research results indicate that Slovenian SMEs' top managers are not aware of the importance and benefits of ecological environmental scanning. Mishra and Yadav [73] empirically validate the relationship between environmental capabilities, a proactive environmental strategy and competitive advantage. They note that a positive common understanding about firms' environmental objectives and their support and contribution in achieving those objectives is vital to pursuing an environmentally friendly strategy that, in turn, affects the performance of an organisation. From

this point of view, it is essential to perceive the unpredictability of an organisation's ecological environment and consider changes and trends in the strategic management decision-making of an organisation.

In the field of the ecological environment, we investigated if there are statistically significant differences in perception according to the gender of SME's top management. The Mann–Whitney U test results show no statistically significant gender differences in multidimensional ecological environmental uncertainty perception ($p > 0.05$). Results thus confirm our hypothesis H2.0: There are no differences between the SME's top management gender perceiving multidimensional ecological environmental uncertainty. Multidimensional ecological uncertainty influences the planet dimension of the triple bottom line (TBL) model. Slovenian SME's top managers are not aware of how strong an impact they have with their behaviour on the ecological environment. With their actions and disregard for environmental aspects, they also affect nature. Which hypotheses in the field of the multidimensional ecological environment's unpredictability were confirmed and rejected is clearly shown in Table 7.

Table 7. Hypotheses confirmation: perception of the unpredictability of a multidimensional ecological environment.

Hypothesis	Confirmation
H1.0: <i>SME's top managers perceive the multidimensional ecological environment during the COVID-19 pandemic as uncertain.</i>	✗
H1.1: <i>SME's top managers do not perceive the multidimensional ecological environment during the COVID-19 pandemic as uncertain.</i>	✓
H2.0: <i>There are no differences between the SME's top management gender perceiving multidimensional ecological environmental uncertainty.</i>	✓
H2.1: <i>There are differences between the SME's top management gender perceiving multidimensional ecological environmental uncertainty.</i>	✗

During the COVID-19 crisis, according to experience, people have significantly changed their attitude towards the natural environment, its importance and long term preservation for our health, wellbeing and long term survival. When the “world stopped”, we were shocked to find out how much impact we have on the ecological environment and that we, as a society, are still able to maintain it. This recognition will be reflected in the future as well. Published research highlights the need to deal with unpredictability in the environment of organisations [33,34] and especially emphasises the importance of the ecological environment [5,17,37,39]. On the contrary, this research shows that the ecological environment is the one whose unpredictability is least perceived among top managers. Although pro-environmental behaviour [39] is becoming increasingly important to society, and an organisation in an increasingly competitive market must be changing [14], the top managers studied are not even aware of corporate environmental performance. Thus, they cannot be aware of the importance of their environmental commitment or environmental strategy or competitiveness through differentiation and, thus, more added value [40,41]. The facts exposed are essential findings of this research, vital for organisations' owners (governors), organisations' top (and other) managers, society and policy-makers.

5.2. Area Social Environment

The second environmental area participants do not perceive as uncertain is the multidimensional social environment (mean: 4.01). Results thus confirm our hypothesis H3.1: SME's top managers do not perceive the multidimensional social environment during the COVID-19 pandemic as uncertain. The result surprises us, as many authors (also Slovene) [5], who researched SME's top management draw attention to the unpredictability of an organisation's social environment, emphasising the importance of following the values,

norms, principles, and other aspects of society for the successful operation of organisations. Authors have stated that organisations today face the increased complexity of the environment caused by many social and cultural changes [1]. Therefore, the study of the social environment has become an essential part of environmental uncertainty research because it impacts the organisation's management, leadership and decision-making [45,46,50]. Society expects organisations to act more and more socially responsible and sustainably [42,73]. From this point of view, it is interesting that the top managers of Slovenian SME organisations are not yet aware of the importance of social needs and requirements.

In the field of the social environment, we also investigated if there are statistically significant differences in perception according to the gender of SME's top management. The Mann–Whitney U test results show no statistically significant gender differences in social environmental uncertainty perception ($p > 0.05$). Results thus confirm our hypothesis H4.0: There are no differences between the SME's top management gender perceiving multidimensional social environmental uncertainty. However, there are statistically significant gender differences in the two items in the field of social environment, namely, "The quality of education is unpredictable" and "The age structure of society is unpredictable" ($p < 0.05$). Women perceive them as more uncertain. The multidimensional social environment influences the people dimension of the triple bottom line (TBL) model. Slovenian SME's top managers are not aware of how strong an impact their behaviour has on society. They are also unaware that socially responsible organisations are more successful than those that are not, as many researchers [5,40,44] have found. Which hypotheses in the field of the multidimensional ecological environment's unpredictability were confirmed and rejected is clearly shown in Table 8.

Table 8. Hypotheses confirmation: perception of the unpredictability of a multidimensional social environment.

Hypothesis	Confirmation
H3.0: <i>SME's top managers perceive the multidimensional social environment during the COVID-19 pandemic as uncertain.</i>	✗
H3.1: <i>SME's top managers do not perceive the multidimensional social environment during the COVID-19 pandemic as uncertain.</i>	✓
H4.0: <i>There are no differences between the SME's top management gender perceiving multidimensional social environmental uncertainty.</i>	✓
H4.1: <i>There are differences between the SME's top management gender perceiving multidimensional social environmental uncertainty.</i>	✗

In recent years, society has become increasingly aware of the impact of organisations on the social environment [46]. Experiences show that the foundations of social values, perceptions, and priorities laid before the COVID-19 crisis drastically changed during the COVID-19 crisis. People again value family, health, wellbeing and leisure more. Humans have reconnected more and become aware of how much we mean to each other. Socialisation and society have gained a new meaning. These changes have been and will continue to affect our behaviour. Even though science draws attention to the importance of rapidly changing and growing social demands, especially about their sustainability [5,37,38], top managers of the studied organisations do not perceive rapid changes in the social environment. Still, they believe that this environment is not unpredictable. Thus, they are unaware of the impact of sustainable development on society, how the social environment affects business processes, and how organisations' financial and nonfinancial performance [5,47–51] nor that social leadership is needed [20]. The facts exposed are essential findings of this research, vital for organisations' owners (governors), organisations' top (and other) managers, society and policy-makers.

5.3. Area Technological Environment

The environmental area that researched SME's top management participants first perceive uncertainty is the multidimensional technological environment (mean: 4.33). Results thus confirm our hypothesis H5.0: SME's top managers perceive the multidimensional technological environment during the COVID-19 pandemic as uncertain. Technological uncertainty refers to a situation where an organisation's management cannot accurately predict technological changes in the environment in which it operates [53,54]. Technological uncertainty stems from the high rate of change in an industry, including the development of technologies, increasing customer demands and changing market conditions [52]. These changes can lead to a dramatic reduction in the price–quality ratio of products and lead to a shorter product life cycle. The reason why Slovenian SME's top management only slightly perceive the unpredictability of the multidimensional technological environment can be seen in the size of organisations included in the survey: micro, small, medium sized organisations, where micro-organisations predominate. These are mainly services organisations that are not technically and technologically oriented and are not expected to invest in the development of technique and technology. In the field of the technological environment, we also investigated if there are statistically significant differences in perception according to the gender of SME's top management. The Mann–Whitney U test results show no statistically significant gender differences in technological environmental uncertainty perception ($p > 0.05$). Results thus confirm our hypothesis H6.0: There are no differences between the SME's top management gender perceiving multidimensional technological environmental uncertainty. In the field of the technological environment, there are statistically significant gender differences in two items, namely, “Changes in product quality are unpredictable” and “Changes in the production process are unpredictable” ($p < 0.05$). Women perceive them as more uncertain. The multidimensional technological environment influences the profit dimension of the triple bottom line (TBL) model. Organisations that can respond promptly to changes in the technological environment (in terms of new techniques and technologies, new business processes, socially and other innovations, new products and services, new markets) are also more successful in the development and more profitable [1,30,54,55]. Which hypotheses in the field of the multidimensional ecological environment's unpredictability were confirmed and rejected is clearly shown in Table 9.

Table 9. Hypothesis confirmation: perception of the unpredictability of a multidimensional technological environment.

Hypothesis	Confirmation
H5.0: SME's top managers perceive the multidimensional technological environment during the COVID-19 pandemic as uncertain.	✓
H5.1: SME's top managers do not perceive the multidimensional technological environment during the COVID-19 pandemic as uncertain.	✗
H6.0: There are no differences between the SME's top management gender perceiving multidimensional technological environmental uncertainty.	✓
H6.1: There are differences between the SME's top management gender perceiving multidimensional technological environmental uncertainty.	✗

Technological and nontechnological innovations bring changes in products or services, business processes (governance and management, information, basic implementation process) and interpersonal relationships. Therefore, it is essential that organisations in the time of social, business and other changes during the COVID-19 crisis direct them towards prevailing expectations, i.e., sustainable development [41,52], and thus develop sustainable competencies. The technological environment and its development are among the essential aspects of studying the environment during strategic planning and making critical strategic decisions [1,2,55], of which the studied top managers, according to the

research sample, are almost unaware. By not perceiving the unpredictability of the technological environment, not following sustainable guidelines and not being strategically proactive but reactive, studied top managers are not developing radically enough and are not creating new market niches with original technological and nontechnological innovations. As a result, they lose their existing and future competitive advantages [5,21,41]. The facts exposed are essential findings of this research, vital for organisations' owners (governors), organisations' top (and other) managers, society and policy-makers.

5.4. Areas Economic and Political–Legal Environment

On the other hand, results show that an average researched SME's top management participants generally mostly agree that the political–legal environment is unpredictable (mean: 4.72; results thus confirm our hypothesis H9.0: SME's top managers perceive the multidimensional political–legal environment during the COVID-19 pandemic as uncertain) and that the economic environment is unpredictable (mean: 4.58; results thus confirm our hypothesis H7.0: SME's top managers perceive the multidimensional economic environment during the COVID-19 pandemic as uncertain). The results are also logical, as the government took several measures during the COVID-19 pandemic, which mainly affected the economic and political–legal environment. As a result, organisations perceived the most significant uncertainty in these areas during the COVID-19 pandemic. Uncertainty arising from the political–legal environment and the economic environment of an organisation is often related. For example, during a time of great economic uncertainty leading to uncertainty in the political and legal environments, government officials have pursued policies to improve their credibility and legitimacy, as seen during the recent recession (2008) and the COVID-19 crisis [57,58]. Thus, these two forms of uncertainty (economic and political–legal) are cumulative and interdependent. Currently, organisations are trying to deal with both economic uncertainty and the lack of (or excessive) policy response to economic problems. From this point of view, it is not surprising that Slovenian SME's top managers perceive economic and political–legal as uncertain.

In the field of the *economic environment*, we also investigated if there are statistically significant differences in multidimensional environmental uncertainty perception according to SME's top management gender. In the field of the economic environment, the Mann–Whitney U test results show that there are no statistically significant gender differences in economic environmental uncertainty perception ($p > 0.05$). Results thus confirm our hypothesis H8.0: There are no differences between the SME's top management gender perceiving multidimensional economic environmental uncertainty. The results also show that, in the field of the economic environment, there are statistically significant gender differences in two items, namely, "Unemployment is unpredictable" and "The interest rate is unpredictable" ($p < 0.05$). Women perceive them as more uncertain. The multidimensional economic environment influences the profit dimension of the triple bottom line (TBL) model. As we have found out, the economic and political–legal environments are interdependent. The economic situation results from several government decisions and measures to stem the COVID-19 pandemic. These decisions have strongly influenced the operations of organisations (their existence and development). Which hypotheses in the field of the multidimensional ecological environment's unpredictability were confirmed and rejected is clearly shown in Table 10.

Table 10. Hypothesis confirmation: perception of the unpredictability of a multidimensional economic environment.

Hypothesis	Confirmation
H7.0: SME's top managers perceive the multidimensional economic environment during the COVID-19 pandemic as uncertain.	✓
H7.1: SME's top managers do not perceive the multidimensional economic environment during the COVID-19 pandemic as uncertain.	✗

H8.0: <i>There are no differences between the SME's top management gender perceiving multidimensional economic environmental uncertainty.</i>	✓
H8.1: <i>There are differences between the SME's top management gender perceiving multidimensional economic environmental uncertainty.</i>	✗

By studying the development of the environment, top managers gain critical information for their strategic decisions [35], among which many authors [25,57] include the study of the development of the changes in economic environment. The economic uncertainty caused by the COVID-19 virus had a significant impact on the global economy during the epidemic, due to the closure and downsizing of organisations, economies and the public sectors worldwide [57,58]. These research results expose that top management perceives the unpredictability of the economic environment. Their unpredictability perception is almost as high as the political–legal environment's unpredictability. The recognition of the unpredictability of the economic environment is essential because changes in the economic environment will also affect our future. The development policies and operations of organisations and consumer habits have changed [59], so organisations need to adapt to these sectoral changes [60]. The first step towards these adjustments is to recognise the unpredictability of the economic environment, of which the top managers studied are sufficiently aware. The facts exposed are essential findings of this research, vital for organisations' owners (governors), organisations' top (and other) managers, society and policy-makers.

In the field of *political–legal environment*, the Mann–Whitney U test results show no statistically significant SME's top management gender differences in political–legal environmental uncertainty perception ($p > 0.05$). Results thus confirm our hypothesis H10.0: There are not differences between the SME's top management gender perceiving multidimensional political–legal environmental uncertainty. In the field of political–legal environment, there are statistically significant gender differences in four items, namely, (1) “National laws affecting international business are unpredictable”, (2) “Tariffs on imported goods are unpredictable”, (3) “Public service provision is unpredictable” and (4) “Patent law is unpredictable” ($p < 0.05$). The multidimensional political–legal environment influences the profit dimension of the triple bottom line (TBL) model. The policies and regulations we have witnessed during the COVID-19 situation have strongly influenced organisations' development, operation and survival. Organisations that could adapt to the new legal circumstances came out of this crisis as even more vital. However, many organisations were negatively affected by the new political and legal requirements; they failed to adapt to the new situation, which affected their existence in the market.

Our study contributes to the environmental scanning literature, more specifically to SME's top managers' strategic management decision-making and gender differences in environmental perception. In the field of environmental scanning, there is negligible [36] to no gender differences perception research. Fatoki [36], in his research, found out that there is no significant gender difference in the frequency of environmental scanning. We did not find research that examined differences in perceptions of the unpredictability of the business environment between the gender (of SME's top management). Which hypotheses in the field of the multidimensional ecological environment's unpredictability were confirmed and rejected is clearly shown in Table 11.

Table 11. Hypothesis confirmation: perception of the unpredictability of a multidimensional political–legal environment.

Hypothesis	Confirmation
H9.0: <i>SME's top managers perceive the multidimensional political–legal environment during the COVID-19 pandemic as uncertain.</i>	✓
H9.1: <i>SME's top managers do not perceive the multidimensional political–legal environment during the COVID-19 pandemic as uncertain.</i>	✗

H10.0: <i>There are not differences between the SME's top management gender perceiving multidimensional political–legal environmental uncertainty.</i>	✓
H10.1: <i>There are differences between the SME's top management gender perceiving multidimensional political–legal environmental uncertainty.</i>	✗

Top management should know which environmental uncertainty mainly influences their organisation's development and business [28]. As we found in this research, top managers believe that, during the COVID-19 pandemic, the most unpredictable is the political–legal environment. In response to the unpredictability of the economic environment and to preserve their credibility, governments often try to stabilise economies through political and legal regulation, as we witnessed during the COVID-19 crisis [58]. Governments have changed legislative conditions and rules, reduced barriers to trade, adopted crisis decrees, taken other measures, and otherwise promoted nonfinancial and financial decisions in organisations and the economy [61,62]. The top managers of the studied organisations are aware that such changes in regulations are unpredictable. They assessed the unpredictability of the political–legal environment as the highest unpredictability among all studied aspects of the environment. The facts exposed are essential findings of this research, vital for organisations' owners (governors), organisations' top (and other) managers, society and policy-makers.

5.5. Research Question Confirmation

According to the research findings, we can partially confirm the main research question (Table 12). We found that both male and female top managers perceive the multidimensional environmental uncertainty during the COVID-19 pandemic, depending on the researched aspect of the environment, so this part of the research question can be partially confirmed. However, we cannot confirm the second part of the research question, which is related to gender differences in the perception of multidimensional environmental uncertainty of the organisation. The research did not show such differences.

Table 12. Clarification of the of the research question confirmation.

Research question:
Do SME's top managers perceive the multidimensional environmental uncertainty, and are there differences in the organisation's multidimensional environmental uncertainty perception during the COVID-19 pandemic from a gender differences perspective?
The first part of the research question is partially confirmed: It is statistically confirmed that top SME managers perceive the multidimensional environmental uncertainty based on the technological, economic and political–legal environment research. It is not statistically confirmed that top SME managers perceive the multidimensional environmental uncertainty based on the ecological and social environment research. Mean values are between 3.96 (the ecological environmental uncertainty perceptions) and 4.72 (the political–legal environmental uncertainty perceptions), measured on the 7-point Likert scale (we took the respondents' level of agreement at 4.2 as the limit between agreement and disagreement with the statement). It is crucial to notice that women, on average, perceive higher uncertainty in all researched environments than men.
The second part of the research question is unconfirmed: There are no statistically significant differences in perceptions of the multidimensional environmental uncertainty during the COVID-19 pandemic regarding gender differences among top SME managers.

The key findings of the research (self-explanatory abstract) are shown in Table 13.

Table 13. Research key findings of Slovenian SME top management environmental uncertainty perceptions during the COVID-19 pandemic.

Slovenian SMEs' Top Managers Perception about Environmental Uncertainty (<i>n</i> = 378; 77% Micro Organisations)			
Environment and Perception of Its' Uncertainty	Mean Women (<i>n</i> = 118; 31%)	Mean Men (<i>n</i> = 260; 69%)	Gender Differences in Perceptions of the Multidimensional Environmental Uncertainty?
Rank 5: (unpredictability is least perceived): <i>the ecological environment</i> (Mean = 3.96; scale up to 7). Perception of its' uncertainty: no, ✗.	Mean = 3.99; the highest mean (4.37) = "Environmental tax policies are unpredictable".	Mean = 3.94; the highest mean (4.35) = "Environmental tax policies are unpredictable".	No, ✗. There are no statistically significant gender differences in ecological environment uncertainty perception ($p > 0.05$).
Rank 4: <i>social environment</i> (Mean = 4.01; scale up to 7). Perception of its' uncertainty: no, ✗.	Mean = 4.22; the highest mean (4.62) = "The cost of living structure is unpredictable".	Mean = 3.91; the highest mean (4.29) = "The cost of living structure is unpredictable".	No, ✗, although there are statistically significant gender differences in items "The quality of education is unpredictable" and "The age structure of society is unpredictable" perception ($p < 0.05$).
Rank 3: <i>technological environment</i> (Mean = 4.33; scale up to 7). Perception of its' uncertainty: yes, ✓.	Mean = 4.46; the highest mean (4.70) = "Product changes are unpredictable".	Mean = 4.23; the highest mean (4.57) = "Critical technological breakthroughs are unpredictable".	No, ✗, although there are statistically significant gender differences in items "Changes in product quality are unpredictable" and "Changes in the production process are unpredictable" perception ($p < 0.05$).
Rank 2: <i>economic environment</i> (Mean = 4.58; scale up to 7). Perception of its' uncertainty: yes, ✓.	Mean = 4.76; the highest mean (5.01) = "Unemployment is unpredictable".	Mean = 4.50; the highest mean (4.81) = "The economic cycle is unpredictable" and "Sales growth in major foreign markets is unpredictable".	No, ✗, although there are statistically significant gender differences in items "Unemployment is unpredictable" and "The interest rate is unpredictable" perception ($p < 0.05$).
Rank 1: (unpredictability is most perceived): <i>the political–legal environment</i> (Mean = 4.72; scale up to 7). Perception of its' uncertainty: yes, ✓.	Mean = 4.90; the highest mean (5.19) = "Political stability is unpredictable".	Mean = 4.64; the highest mean (5.09) = "Enforcement of existing laws is unpredictable".	No, ✗, although there are statistically significant gender differences in items "National laws affecting international business are unpredictable", "Tariffs on imported goods are unpredictable", "Public service provision is unpredictable", and "Patent law is unpredictable" perception ($p < 0.05$).

6. Conclusions

In conclusion, we want to emphasise that, in this paper, presented results showed that Slovenian SME's top managers during the COVID-19 pandemic perceived no ecological and social environmental uncertainty, slightly perceived technological, environmental uncertainty and mostly perceived economic and political–legal environmental uncertainty. There are also no statistically significant differences ($p > 0.05$) in any of the researched areas of the multidimensional external environment environmental uncertainty perception among Slovenian SME's top managers by gender during the COVID-19 pandemic, which is in line with Fatoki's [36] findings about micro-organisations. However, it

is right to point out that, in all areas of the researched organisation's environment (ecological, social, technological, economic, political-legal), women, on average, perceive higher uncertainty among external environments, which is an addition to the existing literature. The results reflect the situation in micro, small and medium sized organisations in Slovenia, the EU, during the COVID-19 pandemic.

To the best of our knowledge, this research is the first survey in Slovenia, an EU state, and abroad that examines SME's top management environmental uncertainty perception and gender differences regarding environmental uncertainty perception during the COVID-19 pandemic. We found out that there are no statistically significant differences among SME's top managers, at the strategic management level, environmental uncertainty perception by gender during the COVID-19 pandemic. Another important finding of the research is that Slovenian SME's top managers are not yet sufficiently aware of the importance of organisation environmental scanning. They are aware of the unpredictability of the political-legal and economic environment, slightly aware of the unpredictability of the technological environment. Still, they are not aware of either the unpredictability of the social environment or (and even less) the unpredictability of the ecological environment. This lack of awareness can be caused by the limitation of our research to predominantly micro-enterprises that do not practice environmental scanning frequently. We also found out that respondents in our study do not perceive the ecological, social and technological environments as uncertain. The results of our research are not consistent with the results of other researchers, e.g., [1,45,46,50,73], which highlight the importance of environmental scanning and the high level of external environmental uncertainty. On the other hand, our respondents perceived economic and political-legal environments as uncertain. The results show that, during the COVID-19 crisis, the uncertainty of the political-legal and economic environment has increased. As we have found out, the political-legal environment affects the economic environment, and vice versa.

Furthermore, in all areas of an organisation's environment (ecological, social, technological, economic, political-legal), women, on average, perceive higher uncertainty among external environments. Our research suggests that Slovenian SMEs' top management needs to pay more attention to environmental uncertainty. Environmental scanning is vital for achieving sustainable development and raising awareness, and thus practice, about the necessity of assuring the existence and development of future generations. This sustainable orientation should be a desire of every person, organisation, and country. The uncertainty brought on by COVID-19 requires organisations to recognise new leadership methods in line with the principles of sustainable development. Sharma et al. [17] note that the perception of the risk of the unpredictability of the environment is higher among older organisations, larger organisations and family business organisations. Organisations also perceive higher unpredictability if managers have access to more information.

This paper has several theoretical and practical implications. The main contribution of this paper is the realisation of the importance of environmental scanning due to the high level of environmental uncertainty. As we have found out, uncertainty relates to various aspects of an organisation's environment, industry and markets. In addition, only if organisations are aware of the importance of taking environmental aspects into account when making their strategic business decisions will they be able to be successful in their business operations. We contributed to sustainable literature with insights into organisations' socially responsible behaviour, emphasising an organisation's socially responsible behaviour concerning all participants (owners, employees, shareholders, customers, society, government, nature, etc.). Among the practical implications, we emphasise the importance of an organisation's socially responsible behaviour and the sustainable development of the society. The empirical results in this paper show that SME organisations, in their strategic business decisions, do not consider society as crucial, despite the guidelines of the European Union, which strives for the goals of sustainable development (a development that will not endanger the existence and development of future generations). Similarly, the researched SME organisations see socially responsible behaviour as a cost and

not an opportunity to gain a competitive advantage, although studies [74–76] confirmed the positive impact of socially responsible behaviour on organisation performance. From this point of view, we emphasise the importance of considering societies' values, norms, goals, and other aspects of the organisation's social environment when making strategic business decisions. Therefore, more attention should be given to the interdisciplinary consideration of strategic business planning.

It is necessary to be aware [17] that smaller organisations often have no influence on the development of the environment, so, e.g., they do not even try to influence the economic or political–legal environment. On the other hand, changes and unpredictability in the environment usually affect smaller organisations, their development and existence the fastest. Therefore, they need to approach managing unpredictability, which is possible in two ways, according to the authors Sharma et al. [17]. One is risk management (the risk is reduced), the other is strategic management (coping with risk). Our research is limited to reducing the risk of unpredictability through strategic management.

Strategic decisions integrate decisions about the long term development of an organisation (i.e., an organisation's business policy as a mission, purpose and primary goals) and the medium term development of an organisation (i.e., development opportunities used by the organisation and strategies to implement selected development opportunities). These decisions are made by the owners and/or top managers based on relevant information. Strategic information is information about an organisation's (key stakeholder) values, the organisation itself, and its environment [5,20,48]. Therefore, for strategic management, perceiving the existing state of the environment and recognising its development (including unpredictability) is crucial. It represents one of the three essential pieces of information when making strategic decisions—decisions that can be crucial for an organisation, which can make the difference between the success and failure of the organisation. If top managers do not perceive the unpredictability of the environment and the changes it causes, they can ignore key opportunities or threats to the organisation in their strategic decisions. According to research conducted during the COVID-19 pandemic, a weak perception of the unpredictability of changes in the organisation's environment is possible due to [77] higher occupational stress, lower job satisfaction, lower work engagement and lower work productivity among employees during the COVID-19 pandemic compared to the period before the COVID-19 pandemic.

Therefore [78], systems thinking, compliance with the findings of cybernetics and a sustainable development orientation that considers all essential development aspects are fundamental in strategic management decisions. In this article, we highlight the developmental aspect of the environment and the perception of its unpredictability. The top management included in the research perceives the unpredictability of the environment too poorly. Therefore, one of the critical findings of this research is that SME top managers need to be reminded of the unpredictability of the environment, which (1) economic policymakers can do, (2) interest groups (such as chambers of commerce) and, last but not least, (3) higher education teachers. Teachers educate future managers and take care of the appropriate development of their competencies [19]. As these research results show, no differences in environmental uncertainty recognition competencies according to gender exist. Author Yustian [21] found that properly developed competencies of crucial stakeholders, i.e., top managers, can neutralise the impact of environmental uncertainty on business performance. Moreover, the impact of their competencies on business success is more significant than the impact of the unpredictability of the environment, as competent managers can detect adverse environmental developments on time and respond accordingly. According to the author's findings, if entrepreneurial competencies are not sufficiently developed, business success cannot be increased. In addition, if top management cannot detect the unpredictability of the environment quickly and adequately enough, it will worsen the organisation's performance. Transferable competencies [18,19], such as entrepreneurship, communication, creativity, teamwork, can be developed in a targeted way, also to reduce environmental uncertainty.

It is also interesting to compare the results of this article with the results of other research. Zhang et al. [79] have researched factors influencing environmental uncertainty perception in China. They highlight the external environment and individual factors in the content of policy foundation recommendations. The authors also point out [35], similarly to findings in this study, that top management was unprepared for changes in the external environment during the COVID-19 crisis. Organisations operating in an international, global environment [17] need to pay particular attention to the various dimensions of unpredictability. On the one hand, unpredictability is objective, but the subjective perceptions of managers influence its importance in organisational decisions [17,21]. Moreover, authors [35] have pointed out that top managers' perception of unpredictability is insufficiently focused on essential aspects for strategic decisions. Since the perception of the unpredictability of the external environment is crucial for the appropriate strategic orientations of the organisation [1,5,28], top managers need to pay more attention to them. Zhang et al. [79] mentioned that economic policy-makers could also guide managers. Such global unpredictability, as during COVID-19, namely, affects every country [57,58], its society and economy, which must constantly be considered in the management of organisations. Both managers of the organisations (acting nationally or internationally) and economic policy-makers need to be aware that a way out of a global catastrophe such as COVID-19 requires a comprehensive approach and considering all the essential dimensions that cause uncertainty [17].

The article represents an essential contribution to science in strategic management. Based on the quantitative research analysis findings of a cross-sectional sample, we close the identified literature gap in strategic management literature and warn top managers of the importance of perceiving the unpredictability of the external environment, which must be considered in strategic decisions. The research findings show that, despite clear warnings about the importance of ecological and social responsibility, top managers are not (sufficiently) aware of this responsibility. Namely, as found in previous research [1,2,20], top managers, who perceive the environment uncertainly, more often study the development of the organisation's environment and make better development decisions. The sooner organisations perceive the unpredictability of the environment, the sooner they can start making strategic changes, and the more likely they are to maintain their success. These insights, however, are essential not only for organisations' top management but also for organisations' owners (who determine the organisation's governance) and society. An organisation's business policy reflects the requirements of the organisation's owners, so if owners want top managers to pay more attention to unpredictability in the environment, they must clearly state this in the organisation's business policy (especially in the organisation's vision and mission). They must also control the implementation of the organisation's vision and business policy. On the other hand, society must also be aware of what it means that top management perceives the ecological and social environment as least unpredictable. Therefore, to secure its interests, a society will also have to become less passive and start asserting its interests more intensively on organisations. These described findings also represent vital novel contributions to the literature.

This paper has many limitations. From the theory of sustainability point of view, we limited our research to organisations. We also limited our research to environmental issues; we focused on selected aspects of the organisation's (external) environment. This research is limited to ecological, social, technological, economic, and political-legal environments and thus faces several limitations that represent an excellent possibility for future research. Other aspects of an organisation's (external) environment (industry and markets) remain open for further exploration. Future research could analyse SME's top management gender differences in other external (and internal) environmental areas; in addition, our research is limited to the time during the COVID-19 pandemic. Future research could analyse and compare gender differences in environmental uncertainty perception during and after the COVID-19 pandemic.

35	9	43	11	56	15	99	26	64	17	50	13	31	8		
The availability of substitute environmental products is unpredictable.															
1		2		3		4		5		6		7		Mean	Std. Dev.
n	%	n	%	n	%	n	%	n	%	n	%	n	%	3.92	1.666
34	9	45	12	71	19	96	25	62	16	40	11	30	8		
Environmental product demand is unpredictable.															
1		2		3		4		5		6		7		Mean	Std. Dev.
n	%	n	%	n	%	n	%	n	%	n	%	n	%	3.92	1.690
36	10	48	13	67	18	87	23	68	18	44	12	28	7		
Location based business opportunities are unpredictable.															
1		2		3		4		5		6		7		Mean	Std. Dev.
n	%	n	%	n	%	n	%	n	%	n	%	n	%	3.91	1.816
44	12	55	15	51	13	91	24	53	14	46	12	38	10		
Energy supply problems are unpredictable.															
1		2		3		4		5		6		7		Mean	Std. Dev.
n	%	n	%	n	%	n	%	n	%	n	%	n	%	3.50	1.866
72	19	68	18	47	12	73	19	52	14	41	11	25	7		

Appendix B. Descriptive Statistics—Social Environment

Table A2. Descriptive Statistics—Social Environment.

Society's values are unpredictable.															
1		2		3		4		5		6		7		Mean	Std. Dev.
n	%	n	%	n	%	n	%	n	%	n	%	n	%		
40	11	50	13	48	13	78	21	63	17	53	14	46	12	4.10	1.852
Society's norms are unpredictable.															
1		2		3		4		5		6		7		Mean	Std. Dev.
n	%	n	%	n	%	n	%	n	%	n	%	n	%		
36	10	46	12	58	15	66	17	71	19	64	17	37	10	4.14	1.798
Society's principles are unpredictable.															
1		2		3		4		5		6		7		Mean	Std. Dev.
n	%	n	%	n	%	n	%	n	%	n	%	n	%		
39	10	52	14	50	13	75	20	67	18	58	15	37	10	4.06	1.813
Society's goals are unpredictable.															
1		2		3		4		5		6		7		Mean	Std. Dev.
n	%	n	%	n	%	n	%	n	%	n	%	n	%		
36	10	52	14	58	15	72	19	64	17	48	13	48	13	4.09	1.839
Society's habits are unpredictable.															
1		2		3		4		5		6		7		Mean	Std. Dev.
n	%	n	%	n	%	n	%	n	%	n	%	n	%		
36	10	55	15	66	17	76	20	66	17	43	11	36	10	3.94	1.762
Mainstream ideology is unpredictable.															
1		2		3		4		5		6		7		Mean	Std. Dev.
n	%	n	%	n	%	n	%	n	%	n	%	n	%		
28	7	42	11	63	17	81	21	56	15	56	15	52	14	4.25	1.790
Society's culture is unpredictable.															
1		2		3		4		5		6		7		Mean	Std. Dev.
n	%	n	%	n	%	n	%	n	%	n	%	n	%		
37	10	56	15	61	16	77	20	62	16	44	12	41	11	3.97	1.802

The ethics of society is unpredictable.														Mean	Std. Dev.
1		2		3		4		5		6		7			
n	%	n	%	n	%	n	%	n	%	n	%	n	%		
41	11	48	13	54	14	74	20	60	16	57	15	44	12	4.09	1.854
The demographic development is unpredictable.														Mean	Std. Dev.
1		2		3		4		5		6		7			
n	%	n	%	n	%	n	%	n	%	n	%	n	%		
32	8	66	17	69	18	77	20	49	13	46	12	39	10	3.90	1.785
The ecological orientation of society is unpredictable.														Mean	Std. Dev.
1		2		3		4		5		6		7			
n	%	n	%	n	%	n	%	n	%	n	%	n	%		
33	9	47	12	73	19	80	21	73	19	41	11	31	8	3.95	1.687
The quality of education is unpredictable.														Mean	Std. Dev.
1		2		3		4		5		6		7			
n	%	n	%	n	%	n	%	n	%	n	%	n	%		
46	12	55	15	69	18	71	19	57	15	46	12	34	9	3.83	1.812
The age structure of society is unpredictable.														Mean	Std. Dev.
1		2		3		4		5		6		7			
n	%	n	%	n	%	n	%	n	%	n	%	n	%		
68	18	85	22	55	15	68	18	38	10	36	10	28	7	3.38	1.853
The cost of living structure is unpredictable.														Mean	Std. Dev.
1		2		3		4		5		6		7			
n	%	n	%	n	%	n	%	n	%	n	%	n	%		
22	6	45	12	47	12	81	21	69	18	60	16	54	14	4.39	1.756

Appendix C. Descriptive Statistics—Technological Environment

Table A3. Descriptive Statistics—Technological Environment.

The share of GDP for research and development is unpredictable.														Mean	Std. Dev.
1		2		3		4		5		6		7			
n	%	n	%	n	%	n	%	n	%	n	%	n	%		
13	3	42	11	47	12	104	28	63	17	69	18	40	11	4.40	1.605
The knowledge flow is unpredictable.														Mean	Std. Dev.
1		2		3		4		5		6		7			
n	%	n	%	n	%	n	%	n	%	n	%	n	%		
26	7	42	11	55	15	93	25	73	19	52	14	37	10	4.19	1.675
Critical technological breakthroughs are unpredictable.														Mean	Std. Dev.
1		2		3		4		5		6		7			
n	%	n	%	n	%	n	%	n	%	n	%	n	%		
12	3	29	8	54	14	96	25	77	20	64	17	46	12	4.52	1.566
The flow of technologies is unpredictable.														Mean	Std. Dev.
1		2		3		4		5		6		7			
n	%	n	%	n	%	n	%	n	%	n	%	n	%		
17	4	44	12	55	15	100	26	59	16	70	19	33	9	4.28	1.622
The obsolescence stage of technology used is unpredictable.														Mean	Std. Dev.
1		2		3		4		5		6		7			
n	%	n	%	n	%	n	%	n	%	n	%	n	%		
25	7	63	17	62	16	84	22	46	12	60	16	38	10	4.04	1.759
New product introductions are unpredictable.														Mean	Std. Dev.
1		2		3		4		5		6		7			
n	%	n	%	n	%	n	%	n	%	n	%	n	%		
13	3	42	11	47	12	104	28	63	17	69	18	40	11	4.40	1.605

1		2		3		4		5		6		7		Mean	Std. Dev.
n	%	n	%	n	%	n	%	n	%	n	%	n	%		
17	4	37	10	57	15	79	21	74	20	75	20	39	10	4.42	1.642
Product changes are unpredictable.															
1		2		3		4		5		6		7		Mean	Std. Dev.
n	%	n	%	n	%	n	%	n	%	n	%	n	%		
16	4	41	11	46	12	84	22	71	19	71	19	49	13	4.49	1.677
Changes in product quality are unpredictable.															
1		2		3		4		5		6		7		Mean	Std. Dev.
n	%	n	%	n	%	n	%	n	%	n	%	n	%		
16	4	45	12	61	16	85	22	61	16	63	17	47	12	4.34	1.690
Changes in the production process are unpredictable.															
1		2		3		4		5		6		7		Mean	Std. Dev.
n	%	n	%	n	%	n	%	n	%	n	%	n	%		
17	4	38	10	61	16	90	24	68	18	65	17	39	10	4.34	1.631

Appendix D. Descriptive Statistics—Economic Environment

Table A4. Descriptive Statistics—Economic Environment.

The economic cycle is unpredictable.															
1		2		3		4		5		6		7		Mean	Std. Dev.
n	%	n	%	n	%	n	%	n	%	n	%	n	%		
5	1	33	9	39	10	83	22	77	20	77	20	64	17	4.80	1.574
GDP growth is unpredictable.															
1		2		3		4		5		6		7		Mean	Std. Dev.
n	%	n	%	n	%	n	%	n	%	n	%	n	%		
10	3	25	7	49	13	78	21	79	21	72	19	65	17	4.76	1.604
The inflation rate is unpredictable.															
1		2		3		4		5		6		7		Mean	Std. Dev.
n	%	n	%	n	%	n	%	n	%	n	%	n	%		
8	2	36	10	60	16	92	24	63	17	58	15	61	16	4.54	1.635
Unemployment is unpredictable.															
1		2		3		4		5		6		7		Mean	Std. Dev.
n	%	n	%	n	%	n	%	n	%	n	%	n	%		
8	2	26	7	68	18	75	20	56	15	71	19	74	20	4.73	1.668
The interest rate is unpredictable.															
1		2		3		4		5		6		7		Mean	Std. Dev.
n	%	n	%	n	%	n	%	n	%	n	%	n	%		
11	3	43	11	55	15	59	16	72	19	65	17	73	19	4.65	1.749
The savings rate is unpredictable.															
1		2		3		4		5		6		7		Mean	Std. Dev.
n	%	n	%	n	%	n	%	n	%	n	%	n	%		
12	3	38	10	65	17	66	17	76	20	60	16	61	16	4.53	1.694
The dynamics of personal consumption is unpredictable.															
1		2		3		4		5		6		7		Mean	Std. Dev.
n	%	n	%	n	%	n	%	n	%	n	%	n	%		
18	5	30	8	73	19	67	18	75	20	57	15	58	15	4.47	1.707
Sales growth in major foreign markets is unpredictable.															
1		2		3		4		5		6		7		Mean	Std. Dev.
n	%	n	%	n	%	n	%	n	%	n	%	n	%		

Appendix E. Descriptive Statistics—Political–legal Environment

[illegible]

21	6	51	13	45	12	81	21	56	15	78	21	46	12		
Public service provision is unpredictable.															
1		2		3		4		5		6		7		Mean	Std. Dev.
n	%	n	%	n	%	n	%	n	%	n	%	n	%	4.28	1.679
19	5	44	12	57	15	95	25	61	16	58	15	44	12		
Subsidy policy is unpredictable.															
1		2		3		4		5		6		7		Mean	Std. Dev.
n	%	n	%	n	%	n	%	n	%	n	%	n	%	4.81	1.749
14	4	34	9	36	10	81	21	59	16	68	18	86	23		
Patent law is unpredictable.															
1		2		3		4		5		6		7		Mean	Std. Dev.
n	%	n	%	n	%	n	%	n	%	n	%	n	%	4.07	1.725
29	8	52	14	49	13	107	28	61	16	35	9	45	12		

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