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The evolving role of organisational foresight: Implications for the food service industry☆

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ABSTRACT

This article examines the evolving role of organisational foresight (OF), by integrating economics of innovation and managerial economics perspectives. The analysis investigates the interplay between foresight practices, coordination of routines and innovation, and how OF can be adopted to address mounting environmental and social challenges in the underexplored context of Small and Medium-sized Enterprises (SMEs) of the food service industry (FSI). Hypotheses were tested using partial least squares structural equation modelling on data collected from 204 managers of Brazilian FSI firms via an online questionnaire, complemented by a subsequent qualitative investigation. The results reveal that OF positively affects coordination of routines and innovation of firms. Innovation also positively affects green corporate social responsibility (GCSR) and sustainable performance (SP) of firms. Coordination of routines plays a mediating role that strengthens the association between OF and innovation. Furthermore, innovation mediates the relationship between OF and GCSR, as well as between OF and SP. In the context of FSI SMEs, foresight appears as a more informal, experiential sense-making capability. Although OF is a systematic process of thinking strategically about the future, OF per se is not enough. Firms should integrate a selection of dynamic capabilities into OF to strengthen their innovation, GCSR, and sustainable performance. The formalisation of additional management capabilities related to the coordination of routines, can make this process more effective. OF can shift from a theoretical exercise towards more socially- and environmentally-oriented actions which should be embedded into the culture of FSI firms.

1. Introduction

Organisational foresight (OF) has become crucial for industries and companies in uncertain and complex environments which are characterised by rapid technological shifts, more frequent economic, financial and political crises (Fergnani, 2022; Fergnani and Sweeney, 2021; Moqaddamerad and Murad, 2024). The statement attributed to Henry Ford, "patience and foresight are the two most important qualities in business", has never been more timely or relevant for firms seeking to understand swift changes, unlock opportunities, and manage threats. This is especially evident in the food service industry (FSI) where the consequences of the COVID-19 pandemic, wars and geopolitical tensions have exacerbated the need for firms to get prepared for unexpected shifts and innovate (Gavilán et al., 2021), to maintain their business and to manage supply chain disruptions (Aljuneidi et al., 2023). Along with exerting growing pressure on natural resources (Sadraei et al., 2023), the FSI also deals with increased environmental awareness among consumers (Liu et al., 2022) and their changing preferences (Harrington and Ottenbacher, 2013). This emphasises the urgent need for micro-, small- and medium-sized firms to plan, implement, check and refine their strategies and tools (Rosa et al., 2023).

The literature has extensively investigated the historical, institutional, and intellectual contexts within which foresight practices shape industries and business initiatives (Sarpong et al., 2019). OF is traditionally considered as a technical exercise which is determined by two drivers. First, organisations seek to understand the potential

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implications of new business models and emerging technologies to strengthen their ability to anticipate the future. Second, OF could contribute to developing adaptive learning, strategic agility and innovation (Sarpong et al., 2013a). Although previous studies have examined both OF methodologies and tools, there is little empirical evidence about how firms arrange and manage their OF processes (Battistella, 2014; Iden et al., 2017). In particular, it is unclear how companies integrate OF within their strategic planning processes and operational activities to foster innovation and value contribution (Gordon et al., 2020; Iden et al., 2017). It is important to understand how these capabilities, especially those related to coordination routines, enable firms to translate foresight signals into innovative products, services and processes (Calof et al., 2020; Gordon et al., 2020; Müller-Stewens et al., 2020) and new business models (Moqaddamerad and Murad, 2024).

Previous research has emphasised the need to investigate to what extent foresight can be implemented to address growing societal and environmental issues (Cook et al., 2014; Lang and Ramirez, 2017; Mao et al., 2020). On the one hand, large companies usually coordinate foresight practices and techniques (Rohrbeck and Schwarz, 2013; Vishnevskiy et al., 2015), demonstrating that a higher level of green corporate social responsibility (GCSR) tends to promote innovation (Yuan and Cao, 2022). On the other hand, little attention has been dedicated to how OF and innovation can support micro-, small- and medium-sized enterprises in boosting both their GCSR (Broadstock et al., 2020; Sun et al., 2023) and sustainable performance (Le, 2022) in the FSI.

This article examines the evolving role of OF (Adegbile et al., 2017; Gordon et al., 2020), by adopting a cross-disciplinary approach which combines economics of innovation and managerial economics perspectives. We focus on the interplay between foresight practices, coordination of routines and innovation, and on how OF can be adopted to contribute to addressing mounting environmental and social challenges. The article considers the underexplored context of Small and Medium-sized Enterprises (SMEs) that operate in the FSI. To do so, hypotheses have been tested by applying partial least squares structural equation modelling (PLS-SEM) on data collected through an online questionnaire administered to 204 managers of Brazilian FSI firms. Complementary qualitative investigation was then performed by interviewing FSI managers. This investigation enabled us to enrich the interpretation of the quantitative results by explaining the organisational mechanisms underlying the observed relationships, particularly those which diverged from theoretical expectations.

The article is organised as follows. Section 2 presents the theoretical background and hypothesis development. Section 3 describes data and empirical strategy. Section 4 illustrates the results. Discussion follows in Section 5. The final section presents the conclusion, theoretical contributions, implications for the industry, limitations of the study and, a selection of avenues for future research.

2. Theoretical background and hypothesis development

2.1. Organisational foresight, coordination of routines and innovation in FSI SMEs

The terms organisational, strategic, business or corporate foresight, have been used somewhat synonymously in research (Liebl and Schwarz, 2010). Organisational foresight (OF) is broadly defined as "the application of futures and foresight practices by an organisation to advance itself; that is, to fulfil its purpose and achieve success on whatever terms it, itself, defines such success" (Gordon et al., 2020, p. 1). OF can also be understood as the ability to identify, monitor, and interpret the drivers of change, to assess their potential implications for the organisation, and then trigger appropriate organisational responses (Schwarz et al., 2020).

However, foresight only translates into innovation when the organisation is able to interpret, absorb, and then use external signals as strategic knowledge. To achieve this, the knowledge generated through foresight should be translated into the organisational context (Major and Cordey-Hayes, 2000), embedded in strategy (Savioz and Blum, 2002), and absorbed by the individuals involved in innovation processes (Enkel et al., 2017). However, this process seems particularly challenging in the context of SMEs because traditional planning and technology intelligence tools, such as software platforms, were originally developed for larger firms with greater availability of resources (Savioz and Blum, 2002). As regards SMEs, in their analysis of the UK Foresight Programme, Major and Cordey-Hayes (2000) found that these firms often struggle to make use of foresight-generated knowledge because foresight tends to produce strategic, abstract, and future-oriented knowledge. Whereas SMEs typically value operational and short-term actionable knowledge. Thus, to generate innovative outcomes in SMEs, foresight-generated knowledge should be contextualised in the light of the practical needs of these firms.

Drawing on Wack (1985), Burt and Wright (2006) identified three intertwined factors that lay the foundations of foresight: exploring and recognising the underlying structure of the business environment; the impact of heuristics and biases on managerial judgment; and the development of organisational capabilities. These authors emphasise the need to investigate the interconnectedness of the business environment and to detect patterns of change. These factors enable firms to create an environment for exploring challenging situations and potential disruptions in a structured and safe manner (Bezold, 2010). Furthermore, OF can assist SMEs in adapting to changes, both internal and external. Internal changes involve, among others, shifts in employee values, aspirations, and behaviours, as well as adjustments to processes, strategies, practices, and systems. Whereas external changes usually encompass a broad array of heterogeneous dimensions, including technology, politics, regulations, market competition, societal needs and customer behaviour (Öner et al., 2014).

Rohrbeck and Schwarz (2013) developed a four-dimension framework for assessing the value contribution of OF. First, foresight helps firms to identify and understand signals and emerging trends, enabling them to anticipate future challenges and opportunities. Second, foresight activities contribute to promoting knowledge sharing, challenging assumptions, and to fostering a future-oriented mindset. Third, OF can be involved to influence external actors, shape industry dynamics, and to create competitive advantage. Fourth, OF enhances the capacity for organisational learning. However, Adegbile et al. (2017) emphasised that OF objectives and methods have changed over time, shifting from a narrow focus on technological forecasting and quantitative methods, to scenario planning and qualitative approaches and, more recently, to the integration of foresight into organisational learning and decision-making (Gordon et al., 2020).

In the light of the above, for the purpose of this article, foresight is intended as a set of (i) environmental scanning capabilities, (ii) strategic selection capabilities, and (iii) integration capabilities (Paliokaitė and Pačėsa, 2015), that help managers to identify emerging trends, ideas, and weak signals (Gordon et al., 2020; Zhang et al., 2024). These capabilities are needed to perceive opportunities, to leverage resources, enhancing firms' competitive advantage, and to adjust capabilities so as to capture changes in the business environment (Paliokaitė et al., 2014; Paliokaitė and Pačėsa, 2015; Zhang et al., 2024). By exploring alternative futures, OF enables managers to be better prepared for unexpected events (Paliokaitė and Pačėsa, 2015; Rohrbeck et al., 2015).

Regarding environmental scanning capabilities (i), these involve systematic examination and learning activities that help both to identify strategic factors and to gain valuable knowledge (Paliokaitė and Pačėsa, 2015; Rohrbeck et al., 2015; Zhang et al., 2024). By identifying and interpreting external information on both short- and long-term time horizons, firms can respond faster to technological and market opportunities (Paliokaitė and Pačėsa, 2015; Zhang et al., 2024).

As regards strategic selection capabilities (ii), these refer to the organisational abilities that enable the company to gather knowledge of

the business environment in order to pursue an idealised future (Haarhaus and Liening, 2020; Paliokaitė and Pačėsa, 2015). Furthermore, strategic selection provides the firm with a clearer overview of future challenges and opportunities amid growing uncertainty and complexity (Haarhaus and Liening, 2020).

Integration capabilities (iii) refer to the ability of organisations to acquire, retain, and use external and internal knowledge to create value and to increase their competitive advantage (Paliokaitė and Pačėsa, 2015). This capability enables managers to integrate resources across strategies and business environments, and among several different stakeholders, in order to support the conditions that foster innovation (Zhang et al., 2024).

However, to identify, interpret, select, retain and use internal and external knowledge, it is essential to integrate and monitor OF practices through established routines within the firm. Coordination is important for managing interdependencies between activities and for aligning objectives across different departments and organisational levels (Teece et al., 1997). Coordination routines can be conceptualised as formal management capabilities that facilitate a more efficient and effective execution of foresight activities (Müller-Stewens et al., 2020). For example, coordination enables firms to integrate and harmonise diverse OF actions and activities both across organisational units and according to a given order and methodology, through conflict management, distributing and defining responsibilities, and aligning tasks (Lacombe and Heilborn, 2006).

Although the literature associates the ability to anticipate with more effective organisational processes, the transformation of anticipatory knowledge into effective coordination mechanisms does not occur automatically. Gordon et al. (2020) argue that the benefits of foresight depend on its integration into decision-making processes, while Pihlajamaa et al. (2025) demonstrate that different organisational arrangements can restrict the circulation and application of foresight-generated knowledge. In the case of SMEs, foresight-generated knowledge is often perceived as abstract, strategic, and distant from day-to-day operations (Major and Cordey-Hayes, 2000). Thus, organisational mechanisms are needed to translate and integrate anticipatory insights into decision-making and operational activities. The ability to carry out environmental analysis, strategic selection, and integration provide mechanisms that will favour the acquisition, interpretation, and use of information relevant to organisational action (Paliokaitė and Pačėsa, 2015; Rohrbeck and Gemünden, 2011).

Since coordination routines depend on articulation between resources, activities and different organisational functions (Müller-Stewens et al., 2020), one would expect that anticipation capabilities, namely environmental analysis, strategic selection, and integration, could favour the development of these routines. Thus, we propose the following hypothesis:

H1a. Organisational foresight (environmental scanning capabilities, strategic selection capabilities and integration capabilities) positively affects coordination of routines of FSI SMEs.

Previous studies have suggested that OF exerts a positive effect on innovation. For example, Paliokaitė and Pačėsa (2015) recognise the contribution OF makes to both explorative and exploitative innovations in manufacturing companies. In particular, Zhang et al. (2024) showed that environmental scanning capabilities, strategic selection capabilities and integration capabilities, do positively influence exploratory innovation in high-tech companies in multiple industries and sectors. However, Yoon et al. (2018) suggest that a vision of the future alone may not be enough to generate innovation if organisations do not possess the necessary learning mechanisms to transform prospective perceptions into innovative results. Although the literature has broadened the understanding of the relationship between OF and innovation, further research should investigate the effect of OF on different types of innovation, such as product innovation, technology-based service innovation, experiential innovation, and promotional innovation. These effects may vary given the characteristics of both the SMEs, and the FSI.

On the one hand, the FSI has historically been considered relatively slow to innovate (Gazdecki et al., 2021). Indeed, the FSI industry has long been challenged by the need to balance innovation and customer preferences (Bombaywala and Riandita, 2015). Although innovation is recognised as a key driver of growth and competitiveness in the FSI (Gazdecki et al., 2021), customer preferences and demand will evolve over time, thus driving firms to adapt to changes in order to remain competitive (Harrington and Ottenbacher, 2013). On the other hand, innovation in the FSI encompasses a broad range of aspects, including the creation of unique products, the implementation of technology-based services, the development of innovative dining experiences, and the introduction of new marketing initiatives (Filimonau et al., 2022; Kim et al., 2018; Tsaur et al., 2024). FSI firms also enact OF practices to differentiate themselves, and establish innovative brands and value propositions (Tsaur et al., 2024). By fostering collaborations and exchanging knowledge, FSI firms can gain deeper insights into emerging trends and opportunities for innovation (Fortuin and Omta, 2009).

Promoting OF practices and turning them into successful innovations poses several critical challenges (Harrington and Ottenbacher, 2013), including addressing complex stakeholder relationships, managing the innovation process, and overcoming cultural resistance (Bombaywala and Riandita, 2015). Nevertheless, environmental scanning enables rapid strategy adjustment, while strategic selection improves decision-making. Moreover, integration capability is important for updating knowledge and differentiating firms from their competitors (Filimonau et al., 2022; Kaman et al., 2024). Thus, further attention should be devoted to the mechanisms underlying the association between OF and innovation. This would help inform managers on how to implement OF practices in an effective and efficient manner. Thus, the following hypothesis is proposed:

H1b. Organisational foresight (environmental scanning capabilities, strategic selection capabilities and integration capabilities) positively affects innovation of FSI SMEs (product, technology-based service, experiential, and promotional innovativeness).

2.2. Coordination of routines and innovation in FSI SMEs

Along with aligning the need for various resources and capabilities, the formalisation of coordination routines can facilitate innovation (Teece et al., 1997). By adopting a systemic view of the diverse stages of innovation, the coordination of routines is important to ensure innovation processes are developed in an effective manner, through integration and supervision (Müller-Stewens et al., 2020). By formalising routines, organisations can guide employees towards focusing on key factors that enhance productivity and personal motivation. Furthermore, formalising the coordination of routines in a project is also beneficial for product innovation (Müller-Stewens et al., 2020).

Although the literature has shown a positive relationship between the coordination of routines and product innovation, there is little evidence regarding their association with other types of innovation, such as technology-based services, experiential, and promotional, innovation (Filimonau et al., 2022; Kim et al., 2018; Tsaur et al., 2024). While a firm's needs may differ, it may be that all these innovations require formal management practices that facilitate their development (Teece et al., 1997; Zollo and Winter, 2002). This is because the organisation of activities eases the understanding of the role of each individual or team, and both aligns and synchronises energies to achieve innovation objectives. Coordinating routines directs behaviour and strengthens motivation by focusing on employee's attention and reducing the time and resources spent on activities that do not add value (Müller-Stewens et al., 2020). Thus, we propose the following hypothesis:

H2. The formalisation of coordination of routines positively affects innovation in FSI SMEs (product, technology-based service, experiential, and promotional innovativeness).

2.3. Innovation, green corporate social responsibility and sustainable performance in FSI SMEs

Innovation offers FSI firms the opportunity to create unique customer experiences, thereby generating new revenue streams (Tweneboah-Koduah et al., 2020). Service innovation requires firms to put increased effort into introducing new dining experiences, which enhance customer satisfaction (Tsaur et al., 2024). The literature has revealed that innovation contributes to increasing consumer loyalty (Kim et al., 2018), and to gaining competitive advantage (Chen et al., 2017). According to Sun et al. (2023), innovation is also associated with the adoption of organisational practices aligned with the principles of sustainability, including green corporate social responsibility (GCSR) and sustainable performance. Similarly, Nisar et al. (2026) show that innovation is associated with strengthening sustainable performance. Furthermore, Haider et al. (2026) highlight the role of innovation in achieving positive environmental results. By promoting new solutions, processes, and ways of creating value, innovation can help firms to integrate economic, social, and environmental objectives into their strategies and operations.

Building on Carroll's (1991) foundational conception of corporate social responsibility (CSR), that it encompasses economic, legal, ethical, and philanthropic dimensions beyond profit generation, scholars have extended CSR to GCSR, to include environmental protection via sustainable practices and technologies (Sun et al., 2023), with innovation enabling the development of products, services, and processes aligned with such environmental objectives (Le, 2022; Sun et al., 2023). The dimensions of innovation proposed by Kim et al. (2018) offer several mechanisms through which companies can strengthen their GCSR practices, including developing more sustainable products, adopting technologies that seek to achieve an efficient use of resources, promoting experiences that encourage conscious consumption, and communicating social and environmental initiatives to stakeholders. Furthermore, innovation strengthens compliance with GCSR by enabling the development and adoption of solutions for the sustainable management of organisational resources (Broadstock et al., 2020). Among the most important solutions, we can acknowledge the initiatives that aim to reduce water and food waste, improve energy efficiency, reuse resources, and implement recycling and composting practices (Broadstock et al., 2020; Sun et al., 2023).

In the light of the above, we would argue that as FSI SMEs face socioeconomic changes and mounting environmental challenges, innovation promotes their ability to develop sustainable solutions, and to strengthen their social and environmental responsibility. Thus, we propose the following hypothesis:

H3a. Innovation in FSI SMEs (product, technology-based service, experiential, and promotional innovativeness) positively affects their green corporate social responsibility.

As regards sustainable performance, this refers to an organisation's ability to simultaneously achieve environmental, economic, and social results (Henri and Journeault, 2008). In particular, it is "the organisation's ability to achieve its business objectives and increase shareholder value, while taking into account long-term economic, environmental, and social responsibility" (Al-Abbadi and Abu Rumman, 2023, p. 3). Within the FSI, sustainable performance can be strengthened by leveraging on innovation that enables firms to integrate new knowledge, resources, and technologies (Nisar et al., 2026; Sun et al., 2023). Furthermore, innovation allows companies to differentiate their strategies, which, in turn, provide customers with unique products and services, thereby improving their financial performance (Inthavong et al., 2023). In this way, innovation incorporates practices that benefit both business and the environment, reinforcing sustainable competitive advantage and enhancing sustainable performance (Le, 2022). While innovation is recognised as a driver of organisational performance, evidence from the hospitality industry suggests that its effects may vary according to the existing organisational context and capabilities (Tajeddini et al., 2020). In addition, Inthavong et al. (2023) argued that organisational knowledge generates better results when it is effectively converted into innovative practices. Similarly, Nisar et al. (2026) suggest that the benefits of innovation depend on the existence of organisational capabilities that permit firms to transform new ideas and initiatives into sustainable results. Thus, we propose the following hypothesis:

H3b. Innovation in FSI SMEs (product, technology-based service, experiential, and promotional innovativeness) positively affects their sustainable performance.

2.4. Green corporate social responsibility and sustainable performance in FSI SMEs

GCSR integrates environmental concerns into both firms' operations and stakeholder interactions (Sun et al., 2023), contributing to sustainable performance by strengthening long-term value creation mechanisms. Earlier evidence indicated that legal, ethical, and environmental responsibilities enhance reputation, competitiveness, and customer satisfaction (Khương et al., 2021). Socially responsible green initiatives increase stakeholder trust and legitimacy, reduce business risks (Sun et al., 2023), and enable the transformation of green strategies into economic, social, and environmental benefits (Le, 2022). Thus, we would argue that GCSR favours the sustainable performance of firms by strengthening their organisational legitimacy and relationships with stakeholders, as well as promoting effective environmental practices. Thus the following hypothesis is proposed:

H4. Green corporate social responsibility positively affects the sustainable performance of FSI SMEs.

2.5. The mediating role of coordination of routines

The dynamic capabilities approach suggests that firms with valuable resources, such as foresight capabilities, are more effective in their innovation efforts (Teece et al., 1997). This is because effective foresight involves identifying and interpreting information, gathering and selecting knowledge, and then acquiring, retaining, and utilising this knowledge to foster different types of innovation. Based on the development of forecasts, scenario planning, and strategies (Gordon et al., 2020), coordination of activities, and alignment of skills and resources are important to achieve innovation objectives (Müller-Stewens et al., 2020; Teece et al., 1997). Indeed, both integrated resource management and supervision with schedules, and daily execution, turn foresight and scenario planning into action.

In the FSI, the coordination of routines is important to simultaneously manage the diverse plans into activities that aim to increase efficiency and a firm's ability to introduce innovations (Müller-Stewens et al., 2020) in response to market changes (Filimonau et al., 2024). When their processes are coordinated (Teece et al., 1997), FSI firms can anticipate, or foresee, shifts in consumer preferences and then implement any necessary adaptations in order to introduce innovations more rapidly (Filimonau et al., 2022; Filimonau et al., 2024).

Coordinating routines can also facilitate the integration of signals obtained from the foresight practices, enabling continuous adjustments (Zhang et al., 2024). This organisational learning contributes to building stronger foundations for innovation over time (Marinković et al., 2022). Furthermore, coordination routines can contribute to incorporating insights from foresight into innovation (Müller-Stewens et al., 2020), thus enhancing customer experience by implementing improvements and new features which meet their expectations (Tsaur et al., 2024). This means that coordination of routines contributes to aligning and synchronising foresight efforts to achieve a firm's objectives in terms of innovation (Müller-Stewens et al., 2020). Thus, we propose the following hypothesis:

H5. Coordination of routines mediates the positive association between organisational foresight and innovation in the FSI.

2.6. The mediating role of innovation in the FSI

OF allows firms to monitor changes in the external environment, anticipate emerging trends, and identify strategic opportunities (Gordon et al., 2020). According to Mishra et al. (2025), companies that are able to anticipate changes in the business environment tend to identify new market opportunities, to adapt more quickly to stakeholder demands, and to develop innovative solutions aligned with economic, social, and environmental challenges. Similarly, Filimonau et al. (2024) argue that foresight-oriented firms are better positioned to anticipate changing consumer preferences and emerging sustainability demands, thus creating favourable conditions for innovation and organisational adaptation.

However, the knowledge generated by the "idealised" vision of the future does not automatically produce organisational effects. Instead, this knowledge should be translated into initiatives and actions that are able to achieve a firm's environmental objectives (Le, 2022). This means that a green strategy, by itself, is not enough to promote sustainable performance. Rather it requires initiatives and actions in the field of green innovation that represents a mechanism to promote the incorporation of environmental concerns into business operations (Le, 2022). Sun et al. (2023) have also shown that sustainability-focused organisational practices strengthen GCSR and improve sustainable performance.

We argue that OF provides strategic information on emerging trends, regulatory changes, and future expectations of stakeholders, thereby reducing uncertainties and fostering innovations. These enable firms to implement new processes and solutions aligned with environmental and social objectives, ultimately strengthening their GCSR initiatives. Thus, the following hypothesis is proposed:

H6a. Innovation mediates the relationship between organisational foresight and green corporate social responsibility of FSI SMEs.

Innovation transforms strategic knowledge into new products, services, processes, and organisational practices that generate economic, social, and environmental value (Inthavong et al., 2023), thereby promoting sustainable practices, reducing resource consumption and environmental impacts (Broadstock et al., 2020; Sun et al., 2023). This can improve both operational efficiency and sustainable performance (Le, 2022; Sun et al., 2023), and then serve as the mechanism through which anticipatory knowledge from OF is converted into sustainability outcomes. In the light of the above, we propose the following hypothesis:

H6b. Innovation mediates the relationship between organisational foresight and sustainable performance of FSI SMEs.

3. Data and empirical strategy

3.1. Sample and data collection

The initial population of our research consists of 2002 Brazilian FSI firms registered with Cadastur, which is an official government registry (Ministério do Turismo, 2024). We selected those firms classified under the activity "restaurant, cafeteria, bar and similar" that had complete contact details, including name, address and telephone. We classify these firms as micro, small, and medium-sized enterprises (SMEs)[1] on the basis of the number of employees. Around 98% of the sample was composed of micro and small FSI firms with less than 49 employees (Table 1b).

The sample was chosen for the following reasons. OF is particularly relevant for FSI companies: forecasting errors can lead to overproduction and important losses of natural resources such as food raw materials, energy and water. Inaccuracies in the implementation of OF practices can even affect the competitiveness of firms by increasing production costs and reducing profits. Furthermore, the FSI is undergoing a profound transformation which includes, among others, the implementation of digital technologies, the introduction of new delivery methods, customers' changing preferences, and increased awareness of both environmental and social sustainability throughout the entire process of food production (Tsaur et al., 2024).

The data were collected through an online questionnaire (see Appendix A) drawn from the literature (Gelhard and von Delft, 2016; Kim et al., 2018; Müller-Stewens et al., 2020; Sun et al., 2023; Tsaur et al., 2024; Zhang et al., 2024). The questions were translated from English to Portuguese by a bilingual translator in order to ensure correct wording of the questions. The initial questionnaire was pre-tested by four experts: 2 in the field of management and 2 in FSI. The comments were integrated into the questionnaire to enhance the relevance of the content and its alignment with the literature.

Initial contact was made via telephone calls with firms' managers: chief executive officers, general managers, and senior directors. While OF can be beneficial at different organisational levels, previous research has shown that it is most effective when used by top management. Thus to encourage OF implementation, it is also important to identify, and deal with, any potential bias among leadership bodies (Bezold, 2010). To ensure a broad and effective diffusion of the questionnaire in order to obtain a valid sample, a company specialising in academic research was hired to assist the research team in administering and collecting the questionnaires. To this end, the recommendations of Dillman et al. (2014) were followed. The managers were initially given general information regarding the purpose of the research project, and informed about data protection, including anonymity. Once the manager had agreed to participate in the study, a link to the questionnaire was sent to their email address. A further request was sent after one week and then after two weeks to those who were not responding. After follow-up telephone contacts, a total of 204 valid questionnaires were collected, resulting in a response rate of 10%, which is a sample comparable to recent studies in similar research fields (Müller-Stewens et al., 2020; Rosa et al., 2023; Troise et al., 2022). The data were collected between October and November 2024. Table 1a and Table 1b summarise the main characteristics of both the managers and the FSI firms.

Non-response and common method bias tests were performed to verify the quality of the model. The non-response test (Mann-Whitney test) does not indicate significant differences ($p > 0.05$) between early and late respondents (30%) regarding the research variables. We also evaluated common-rater bias using Harman's single-factor test, which revealed a cumulative variance of 40%. This indicates that the model is not affected by common-rater issues (Podsakoff et al., 2003).

We adopted a sequential explanatory strategy. First, we performed quantitative analysis. Second, we conducted a complementary qualitative analysis by collecting and analysing interviews' data.

3.2. Quantitative analysis: variable measurement and data analysis

The variables used in this study were organisational foresight (OF), innovation in the FSI, coordination of routines, green corporate social responsibility (GCSR) and sustainable performance in the FSI.

OF was measured by adapting the scale developed by Zhang et al. (2024), which includes three basic foresight capabilities: environmental scanning capabilities, strategic selection capabilities, and integration capabilities. Although this scale is less complex than the frameworks proposed, for example, by Fergnani (2022), and Rohrbeck

[1] According to Recommendation 2003/361 of the European Union, micro-enterprises have less than 10 employees; small enterprises have less than 50 employees; and medium-sized enterprises have less than 250 employees. This classification is partly aligned with that of the Brazilian Institute of Geography and Statistics (IBGE).

Table 1a
Main characteristics of managers.

	Managers (%)
Age (years)	
20–29	6
30–39	27
40–49	39
50+	28
	100%
Education	
Secondary school	40
Bachelor's degree	58
Specialisation/MBA	2
	100%
Tenure (years)	
0–5	45
6–10	27
11+	28
	100%
Position	
Financial/accounting manager/controller	8
General manager	61
People/HR manager	3
Food and drink manager	12
Other	16
	100%

Source: Authors' elaboration.

Table 1b
Main characteristics of FSI firms.

	Firms (%)
Number of employees	
1–9 (micro restaurant)	59
10–49 (small restaurant)	39
50–249 (medium restaurant)	2
	100%
Seating capacity (number of seats)	
1–50	17
51–100	35
101–200	40
200+	9
	100%
Type of service	
À la carte	51
Buffet by weight	3
All-you-can-eat buffet	7
À la carte and Buffet	26
Buffet by weight and All-you-can-eat buffet	7
Set meal	5
	100%
Years since foundation	
1–5	7
6–10	25
11–20	46
20+	22
	100%

Source: Authors' elaboration.

and Kum (2018), it seems suitable to capture both the nature of the context being analysed, the FSI, and the expected profile, capabilities and routines of the firms included in the sample.

Indeed, the FSI encompasses diverse typologies of firms, especially micro-, small- and medium-sized enterprises, which perform heterogeneous operations related to procuring, storing, preparing, transporting, and selling food and beverages for immediate consumption, takeaway, or delivery (Rosa et al., 2023). In particular, FSI firms that operate in the commercial sector are mainly restaurants, diners, snack bars, fast-foods, steakhouses, and chain outlets. FSI firms also offer services within public/institutional contexts, such as hospitals, schools, universities, and care homes (Edwards, 2013). Given their size, such FSI firms usually have limited resources, financial constraints and a lack of technical expertise for innovation and foresight activities (Corvello et al., 2023; Nguyen et al., 2021).

Furthermore, FSI SMEs are usually low-tech companies (Yun et al., 2020) with little management expertise or organisational capabilities (Nguyen et al., 2021). These firms tend to focus on short-term operational efficiency and daily routines in an environment characterised by potential disruptions in supply chains and workforce constraints. This means that the sheer pressure of managing day-to-day operations may reduce the time allocated to strategic thinking and impede a cultural shift towards future planning (Aaltonen et al., 2015; Quansah et al., 2022). Furthermore, most FSI SMEs lack strategic teams or complex foresight systems that require dedicated organisational resources, such as R&D departments and long-term budgets for innovations (Carayannis et al., 2025).

In addition, it is worth noting that 40% of the respondents have a high school diploma, 58% of them hold a Bachelor's degree, and only 2% of managers have a specialisation/MBA (Table 1a). This suggests that these managers are not expected to have either advanced foresight capabilities or deep awareness of the tools and techniques to support OF. Thus, their firms are presumed to be lacking in sophisticated OF systems and routines. Indeed, these managers may prefer to rely on their experience and intuitive judgment to develop ad-hoc adaptations to market changes (Dörr et al., 2024), rather than introducing new management expertise and organisational capabilities (Corvello et al., 2023).

In the light of the above, the scale proposed by Zhang et al. (2024) seemed to offer an appropriate measure of nascent foresight behaviours, for our study. It makes it possible to avoid any overestimation of capabilities and it does not assume advanced practices like scenario planning or Delphi methods, which are atypical among FSI SMEs.

As regards the section of the questionnaire dedicated to *OF*, managers were asked to respond to 18 items about environmental scanning capabilities (7 items), strategic selection capabilities (5 items), and integration capabilities (6 items), based on a 7-point Likert scale (ranging from 1-never to 7-always). Environmental scanning capabilities were measured by time horizon, depth, and the strength of ties. Strategic selection abilities were evaluated based on analysis, vision, and planning. Integration abilities were assessed through leadership, coordination, and knowledge base (Zhang et al., 2024).

Innovation in the FSI was measured by involving 18 items adapted from Kim et al. (2018) and Tsaur et al. (2024) to measure managers' perceptions. This variable consisted of four constructs: product innovativeness (5 items), technology-based service innovativeness (4 items), experiential innovativeness (4 items), and promotional innovativeness (5 items). These items were measured using a 7-point Likert scale (ranging from 1-totally disagree to 7-totally agree).

The variables *GCSR* and *sustainable performance of FSI firms* were adapted from Sun et al. (2023). GCSR was measured by using 6 items. Whereas, sustainable performance was measured by employing 5 questions that were adapted from Gelhard and von Delft (2016). A 7-point Likert scale was used to measure these variables (ranging from 1-totally disagree to 7-totally agree).

Coordination of routines was measured by involving 5 items adapted from Müller-Stewens et al. (2020) which was originally developed by Sammerl (2006). A 7-point Likert scale was employed to measure the variables (1-totally disagree and 7-totally agree). The construct included the following elements: controlled and progressive implementation process, systematic and integrating project management, coordination based on performance- and goal-orientation.

The analysis also involved two control variables related to managers (*age* and *education*) and two control variables related to FSI firms (*number of employees* and *number of seats/places*) (Rosa et al., 2021). In particular, *age* was measured in years. *Education* was categorised by the level of educational attainment: secondary school, Bachelor's (first) degree, or specialisation/MBA. The variable *employees* was measured by the number of hired employees, while the variable *seats/places* was measured by considering the seating capacity.

This research employed partial least squares structural equation modelling (PLS-SEM) for data analysis. PLS-SEM is a statistical technique that estimates a series of multiple regression equations (Hair et al., 2017). It evaluates theoretical frameworks from a predictive standpoint and analyses complex models with numerous relationships that involve several variables (Filimonau et al., 2024; Rasoolimanesh et al., 2021). PLS-SEM is widely used because it makes it possible to manage small sample sizes, to handle non-normal data, and to accommodate different types of measurement scales (Hair et al., 2017).

3.3. Complementary qualitative analysis

To integrate the interpretation of the quantitative findings from the first research stage, we adopted a sequential explanatory design involving complementary interviews (Creswell and Plano Clark, 2018). This qualitative analysis did not seek to offer statistical generalisation or theory construction but, rather, sought the grounding constructs adopted in real-world practice by identifying common OF strategies, actions, and tools. This helped enrich the interpretation of the quantitative findings by explaining the organisational mechanisms underlying the observed relationships, particularly those which diverged from theoretical expectations.

First, we identified 27 FSI firms from the initial sample whose response patterns showed high homogeneity and low variability, especially for items predominantly evaluated with maximum values (6 and 7 on the Likert scale). These cases also indicated a need for further clarification on how innovation practices, coordination of routines, and sustainability were effectively operationalised. In June 2025 the managers of these 27 FSI firms were invited to participate in the interviews. Five out of 27 managers agreed to participate, forming a self-selected sample. To mitigate social desirability bias, participants were assured anonymity and assigned identifiers R1 through R5. Table 2 shows the main characteristics of the respondents and their firms.

Two interviews were conducted in person, while three were performed online. The interviews lasted between 10 and 28 min and were recorded and transcribed verbatim in Portuguese. Data were analysed in Portuguese. Selected quotations were translated into English, edited for clarity, and cross-checked against the original transcripts to ensure conceptual fidelity. The semi-structured script was developed based on the quantitative results and sought to understand: i) how firms identify future changes and integrate information external to management; ii) how formal coordination routines influence innovation; and iii) why certain innovations do not necessarily translate into sustainable practices or sustainable performance. The complete script is available in Appendix B.

The qualitative analysis was conducted through thematic coding guided by the constructs of the theoretical model and by the quantitative results. The interviews were mainly used to interpret three aspects observed empirically: a) possible inhibiting effects of excessively formalised routines on creative and experiential innovations; b) the existence of predominantly technical, aesthetic, or commercial innovations, that had no effective impact on sustainability; and c) difficulties in transforming strategic capabilities and future vision into practical innovation and operations. Throughout the analysis, qualitative evidence was interpreted alongside quantitative results to identify convergent evidence, explain unexpected findings, and provide contextual explanations for the organisational mechanisms underlying the statistical relationships (Li et al., 2026).

4. Results

The following sections present the results obtained from both the quantitative analysis (survey) and the qualitative analysis (interviews).

4.1. Measurement model

Hypotheses were tested by applying PLS-SEM on data collected through the online questionnaire. To determine the reliability of the model's variables, Cronbach's alpha coefficients and Composite Reliability (CR) indicators were calculated. Table 3 shows that both values (Cronbach's alpha and CR) are above 0.7 for all variables, thus confirming the reliability of the model. Average Variance Extracted (AVE) indicators were calculated in order to assess convergent validity. The values were all above the 0.5 threshold recommended by Hair et al. (2017). We also examined the variance inflation factor (VIF) for all constructs. The results were below 3, suggesting that the model is unlikely to exhibit common method bias (Kock, 2017). Table 3 also reports the results which demonstrate that both the reliability and the convergent validity variables were suitable for all the variables employed in the model.

Moreover, to determine the discriminant validity of the model, both the Fornell-Larcker Criterion and the Heterotrait-Monotrait ratio (HTMT) were used. According to the Fornell-Larcker Criterion (Table 4, Panel A), the results show that the self-correlation is higher than the correlation of the variable of interest with others. This consistency is reinforced by the HTMT results (Table 4, Panel B), where all combinations were below 0.9 (Hair et al., 2017).

Table 3
Measurement model.

Variable	Cronbach's alpha	CR (rho_c)	AVE	R2	R2 Adj	Max. VIF
1. OF	0.931	0.956	0.879	–	–	2.508
2. Coordination of routines	0.738	0.848	0.655	0.601	0.599	2.508
3. Innovation	0.857	0.904	0.701	0.623	0.619	1.595
4. GCSR	0.717	0.794	0.504	0.331	0.327	1.555
5. Sustainable performance	0.880	0.913	0.680	0.633	0.622	1.595
6. Age	–	–	–	–	–	1.026
7. Education	–	–	–	–	–	1.126
8. Number of employees	–	–	–	–	–	1.268
9. Number of seats	–	–	–	–	–	1.334

Note: Organisational Foresight (OF); Green Corporate Social Responsibility (GCSR); Sustainable performance of FSI firms.
Source: Authors' elaboration.

Table 2
Main characteristics of the respondents and their firms.

Respondents	Position	Firm size	Service type	State of Brazil	Mode of interview	Duration of interview
R1	Manager/owner	Micro restaurant	À la carte	Santa Catarina	In person	15 min
R2	General manager	Small restaurant	À la carte	Santa Catarina	Online	28 min
R3	General manager	Small restaurant	À la carte	Santa Catarina	Online	11 min
R4	Manager/owner	Small restaurant	À la carte	Paraná	Online	22 min
R5	Manager/owner	Small restaurant	À la carte	Santa Catarina	In person	10 min

Source: Authors' elaboration.

Table 4
Discriminant validity.

Panel A: Fornell-Larcker	1	2	3	4	5	6	7	8	9
1. OF	**0.938**								
2. Coordination of routines	0.775	**0.809**							
3. Innovation	0.779	0.684	**0.837**						
4. GCSR	0.471	0.441	0.575	**0.710**					
5. Sustainable performance	0.612	0.562	0.700	0.707	**0.825**				
6. Age	−0.073	−0.146	−0.142	−0.101	−0.048	–			
7. Education	0.350	0.374	0.290	0.210	0.198	−0.046	–		
8. Number of employees	0.068	0.102	0.005	−0.064	−0.001	−0.046	0.148	–	
9. Number of seats	0.227	0.280	0.228	0.224	0.211	−0.096	0.178	0.417	–

Panel B: Heterotrait-Monotrait ratio (HTMT)	1	2	3	4	5	6	7	8	9
1. OF									
2. Coordination of routines	0.888								
3. Innovation	0.867	0.824							
4. GCSR	0.417	0.442	0.585						
5. Sustainable performance	0.671	0.654	0.794	0.730					
6. Age	0.075	0.174	0.152	0.144	0.052				
7. Education	0.363	0.407	0.310	0.210	0.216	0.046			
8. Number of employees	0.070	0.125	0.090	0.082	0.081	0.046	0.148		
9. Number of seats	0.236	0.310	0.241	0.240	0.222	0.096	0.178	0.417	

Note: Organisational Foresight (OF); Green Corporate Social Responsibility (GCSR); Sustainable performance of FSI firms.
In Panel A are presented the correlation coefficients and, in the diagonal (in bold).
Source: Authors' elaboration.

4.2. Structural model

Table 5 shows that the relationship between OF and coordination of routines is positive and significant ($\beta = 0.775$; $p < 0.01$), thus confirming H1a. H1b was also confirmed, since the results indicated that OF exerts a positive and significant effect on innovation in the FSI ($\beta = 0.622$; $p < 0.01$). Similarly, the relationship between coordination of routines and innovation in the FSI was confirmed at the 95% confidence level ($\beta = 0.202$; $p < 0.05$). The results also confirmed a positive and significant association between innovation and GCSR ($\beta = 0.575$; $p < 0.01$) and the sustainable performance (SP) of FSI SMEs ($\beta = 0.452$; $p < 0.01$), thus confirming H3a and H3b. Furthermore, H4 was confirmed because the findings showed a positive and significant relationship between GCSR and SP ($\beta = 0.461$; $p < 0.01$).

Table 5
Structural model.

Relationship/hypothesis	β	T-value	P-values	Confidence intervals	
				2.5%	97.5%
Direct effects					
OF → Coordination of routines (H1a)	0.775	21.009	0.000***	0.689	0.833
OF → Innovation (H1b)	0.622	8.703	0.000***	0.484	0.763
Coordination of routines → Innovation (H2)	0.202	2.498	0.013**	0.030	0.348
Innovation → GCSR (H3a)	0.575	12.470	0.000***	0.471	0.654
Innovation → SP (H3b)	0.452	8.743	0.000***	0.357	0.555
GCSR → SP (H4)	0.461	8.139	0.000***	0.339	0.565
Indirect effects					
OF → Coordination of routines → Innovation (H5)	0.157	2.567	0.010***	0.025	0.264
OF → Innovation → GCSR (H6a)	0.358	7.349	0.000***	0.270	0.461
OF → Innovation → SP (H6b)	0.281	6.252	0.000***	0.196	0.374
Coordination of routines → Innovation → GCSR	0.116	2.338	0.019**	0.017	0.213
Coordination of routines → Innovation → SP	0.091	2.393	0.017**	0.014	0.165
Innovation → GCSR → SP	0.265	7.615	0.000***	0.202	0.338
OF → Coordination of routines → Innovation → GCSR → SP	0.042	2.314	0.021**	0.006	0.078
OF → Coordination of routines → Innovation → SP	0.071	2.450	0.014**	0.011	0.126
OF → Innovation → GCSR → SP	0.165	5.706	0.000***	0.114	0.230
OF → Coordination of routines → Innovation → GCSR	0.090	2.384	0.017**	0.013	0.162
Coordination of routines → Innovation → GCSR → SP	0.054	2.270	0.023**	0.008	0.102
Control variables					
Age → SP	0.063	1.331	0.183	−0.027	0.156
Education → SP	−0.033	0.688	0.492	−0.128	0.059
Number of employees → SP	0.032	0.580	0.562	−0.116	0.106
Number of seats → SP	0.003	0.052	0.958	−0.100	0.103

Notes: Two-tailed paths were tested. Organisational Foresight (OF); Green Corporate Social Responsibility (GCSR); Sustainable performance (SP) of FSI firms.
** $p < 0.05$.
*** $p < 0.01$.
Source: Authors' elaboration.

The results also confirmed the positive and significant mediating effect of coordination of routines in the relationship between OF and innovation in the FSI ($\beta = 0.157$; $p < 0.01$), which supports H5. Moreover, Table 5 shows that innovation mediates the association between OF and GCSR ($\beta = 0.358$; $p < 0.01$), as well as the relationship between OF and the SP of firms ($\beta = 0.281$; $p < 0.01$), thus confirming H6a and H6b. The analysis also considered a selection of control variables, namely age and education of managers, and the number of employees and seats in the FSI firms investigated. It is worth noting that the results did not indicate a positive or significant relationship with the SP of firms. Fig. 1 illustrates the structural model and research hypotheses, with the results of the path coefficients (β) and their significance (p).

4.3. Robustness and complementary analyses

Additional tests were performed to verify the robustness of the results obtained from the quantitative analysis. Furthermore, qualitative research was conducted based on interviews with a selection of managers of Brazilian FSI firms to integrate the interpretation of the quantitative results.

First, we analysed the quantitative data and verified the effects of environmental scanning capabilities, strategic selection capabilities, and integration capabilities on OF regarding the coordination of routines and innovation in the FSI. The results reveal that environmental scanning capabilities do not significantly affect the coordination of routines at the 95% confidence level ($\beta = 0.129$; $p > 0.05$); however, they do positively influence innovation in the FSI ($\beta = 0.558$; $p < 0.01$). The effects of environmental monitoring capabilities, such as the identification and interpretation of long-term external information (Paliokaitė and Pačėsa, 2015; Zhang et al., 2024), are only perceived over time. Furthermore, their alignment with the coordination of operational routines, such as control and supervision, is both difficult to measure and often does not even occur in practice.

Additional tests also indicate that strategic selection capabilities significantly affect the coordination of routines ($\beta = 0.389$; $p < 0.01$) but they do not have any influence on innovation in the FSI ($\beta = -0.100$; $p > 0.05$). The non-significant relationship between strategic selection capabilities and innovation in the FSI shows that idealising the future (Haarhaus and Liening, 2020; Paliokaitė and Pačėsa, 2015) does not automatically translate into innovation results; rather, a path with operational goals and timelines must be drawn up.

The interviews reinforce these findings by demonstrating that FSI firms develop environmental scanning capabilities, primarily through the continuous search for external information, though they use different mechanisms to do so. In particular, one manager noted that their firm "seeks information from Abrasel, the Brazilian Association of Bars and Restaurants, and from accounting consultants, in addition to following the association's magazines" (R1). Moreover, "through these and similar associations, we stay informed about industry developments. The employers' union is also part of our sector, and, beyond that, we monitor broader market trends through information gathered at trade fairs" (R2). In addition, "in northern Paraná, institutional actors such as the Brazilian Micro and Small Business Support Service (Sebrae), the National Rural Learning Service (Senar), the Federation of Commerce of Goods, Services and Tourism (Fecomércio) and the Federation of Agriculture of the State of Paraná (FAEP), effectively manage and disseminate information about our industry" (R4). Furthermore, R4 stated that: "I regularly take part in events such as tourism and food and beverage trade shows, drawing on my own experience. I travel extensively, and every year I take a 45-day trip, either abroad or within Brazil, to attend these kinds of events" (R4). Then, R5 noted that: "as a manager, I'm always learning. Through our membership, we are part of Abrasel, and there are WhatsApp groups where members share a lot of information. This gives us new ideas and helps us see what others are doing in the industry" (R5). Overall, participation in industry associations appears to be the most common practice for gaining information and further developing capabilities.

Although we cannot use the interviews to establish causal relationships, the qualitative results confirm the existence of a systematic process of searching for and interpreting external information, which

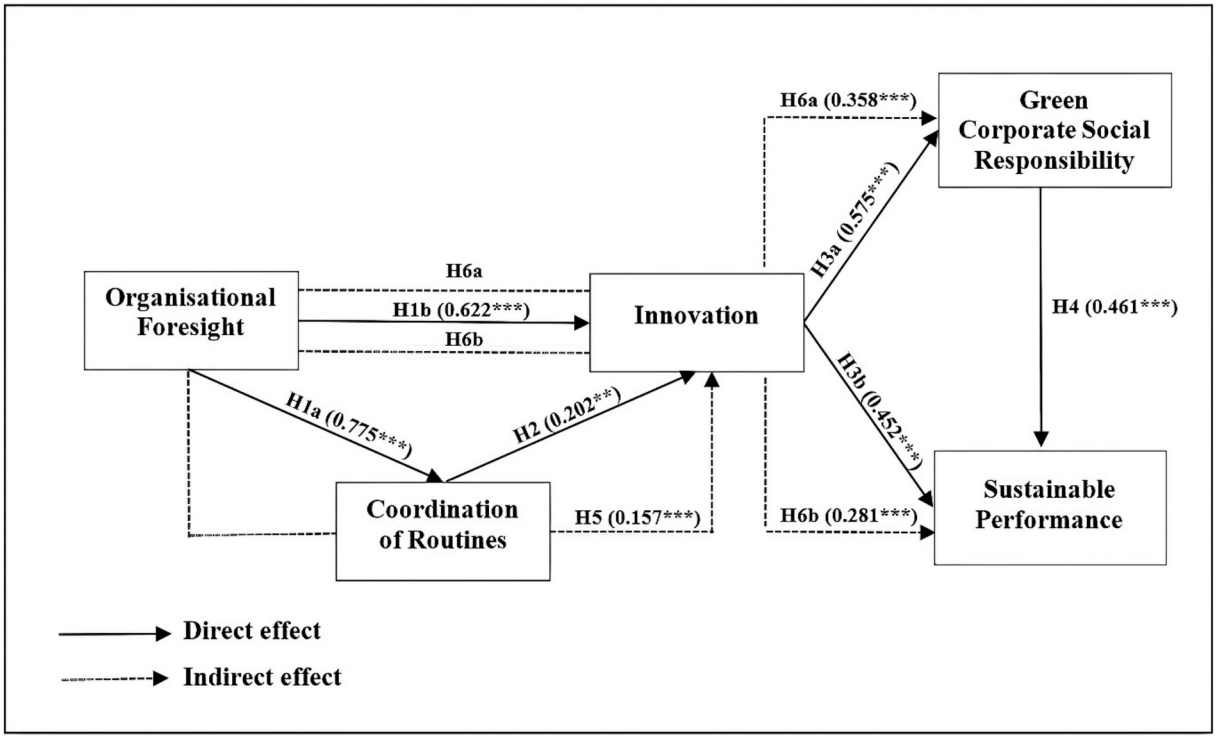


Fig. 1. Structural model and path coefficients.
Source: Authors' elaboration.

corresponds to the construct measured in the quantitative stage. Nevertheless, the interviews reveal that this information is not always translated into formal planning practices or coordinated routines. On the one hand, the interviewees emphasised the importance of maintaining historical data and systems for planning: "if you get stuck in a routine where you're not making any progress and fail to prepare specifically for key events, based on market information, you're going to run into serious problems" (R2). On the other hand, it was stated that "customer-related decisions are made on a day-to-day basis, without formal processes" (R3), and "when changes need to be made, I am usually the one who drives and implements them" (R5). This suggests that decision-making remains largely internal and individual-based, rather than being formally systematised within the firm.

Regarding the quantitative evidence, our analysis reveals that integration capabilities affect both the coordination of routines ($\beta = 0.308$; $p < 0.01$) and innovation in the FSI ($\beta = 0.210$; $p < 0.01$) positively and significantly. When environmental scanning capabilities, strategic selection capabilities, and integration capabilities are combined into a second-order construct, one can examine the synergies that exist among them. The interactions between these capabilities can have a cumulative effect that may not be clear when such capabilities are analysed individually. Together, these capabilities create a more robust framework that encourages coordination of routines and innovation in the FSI.

Additional tests were conducted to verify the relationship between OF and coordination of routines in each element of innovation in the FSI: product innovativeness, technology-based service innovativeness, experiential innovativeness, and promotional innovativeness.

The results confirmed our expectations. They show a positive and significant association between OF and product innovativeness ($\beta = 0.444$; $p < 0.01$), technology-based service innovativeness ($\beta = 0.567$; $p < 0.01$), experiential innovativeness ($\beta = 0.509$; $p < 0.01$), and promotional innovativeness ($\beta = 0.685$; $p < 0.01$). The findings also reveal a positive and significant relationship between coordination of routines and product innovativeness ($\beta = 0.282$; $p < 0.01$) and technology-based service innovativeness ($\beta = 0.307$; $p < 0.01$). However, unexpectedly, the analysis did not confirm the significant relationship between coordination of routines and experiential innovativeness ($\beta = 0.162$; $p > 0.05$) and promotional innovativeness ($\beta = -0.137$; $p > 0.05$).

These results demonstrate that coordination of routines is more effective in product innovation (Müller-Stewens et al., 2020) and technology-based services. However, the standardisation of routines is less effective in innovations with emotional and sensory appeal, areas where creativity and spontaneity are essential for customer loyalty. It may be that coordination of routines leads to excessive bureaucracy, thereby reducing flexibility and creativity, both of which are essential for this type of innovation (Varma et al., 2020), especially in experiential and promotional activities.

The interviews reinforce this interpretation by demonstrating that routine coordination is used to support operational planning, organise activities, and reduce failures, although the degree of formalisation varies among firms. Indeed, one manger reported that: "everything is recorded and archived. So we have all the detailed information on production [...] our staff are also encouraged to actively seek out and share information within the firm" (R2). Similarly, another interviewee affirmed that "we have routine coordination tasks as part of our day-to-day work. We have checklists and specific operational procedures for each member of staff" (R5). It was also stated that "we create a profile for each customer to understand their preferences and determine how best to communicate with them. Through routine conversations, we gather information about their background, dietary restrictions, and personal likes or dislikes" (R4). Although R4 acknowledged that these practices are part of their daily workflow, "the process isn't formally standardised; we currently manage it using spreadsheets" (R4). In some cases, employees even showed resistance to adopting new practices: "at first, it was a bit of a struggle, but they soon realised that it was necessary and ultimately led to improvements" (R3).

Together, these qualitative findings show that managers perceive the coordination of routines as an important mechanism for organising operations, planning resources, supporting decision-making, and reducing failures. This strengthens its positive association with organisational practices aimed at planning and implementing operational changes, practices that, in the quantitative stage, were associated with product innovation and technology-based services.

Then, we examined the relationship between the selected elements of innovation, namely product innovativeness, technology-based service innovativeness, experiential innovativeness, and promotional innovativeness, with GCSR and SP in the FSI. The results show that product and technology-based service innovations do not significantly increase GCSR ($\beta = 0.010$, $p > 0.05$; $\beta = 0.004$, $p > 0.05$). Whereas experiential and promotional innovativeness do benefit GCSR ($\beta = 0.359$, $p < 0.01$; $\beta = 0.357$, $p < 0.01$). We also found that technology-based service innovativeness does affect SP ($\beta = 0.361$, $p < 0.01$). However, the expected positive and significant relationships between product, experiential, and promotional innovativeness, and SP, were not confirmed ($\beta = 0.046$, $p > 0.05$; $\beta = 0.015$, $p > 0.05$; $\beta = 0.056$, $p > 0.05$). These results suggest that product innovations (such as new menu combinations) and technology-based services (such as new ordering tools) prioritise customer experience and satisfaction, relegating environmentally sustainable practices to a secondary priority. It may be that FSI firms do not prioritise sustainability-oriented innovations when they perceive a potential trade-off with customer experience and satisfaction. This interpretation is consistent with Filimonau et al. (2022), who suggested that some hospitality firms may resist certain environmental initiatives because they are viewed as intrusive, or potentially detrimental, to customer experience.

Second-order construct analysis offers a more comprehensive and integrated perspective on how different forms of innovation interact and contribute to broader objectives, such as social responsibility and sustainability performance. This highlights the need to adopt a multidimensional approach to innovation research, particularly in sectors where customer interaction is crucial for the success of the firms. These insights suggest that understanding innovation in complex, dynamic and rapidly changing environments, including the FSI, requires contextualised and integrated analysis. This makes it possible to fully capture the effects of innovation on social and sustainable practices. Robustness tests have demonstrated both the reliability of the main results and the consistency of the proposed model.

The interviews further contribute to explaining the results obtained from the quantitative analysis by showing that certain innovations are adopted primarily for operational, commercial, or customer experience reasons, without necessarily producing environmental effects. Indeed, "during the pandemic, we had to create a digital menu based on a QR code. We didn't have one before; we'd even had a PDF file for anyone who asked via WhatsApp. However, I can tell you that last month, it wasn't accessed as much because people prefer paper" (R1).

Regarding biodegradable materials, "they are much more expensive than using things like plastic dishes. Replacing materials makes the final product more expensive for the customer. This might be because we don't yet have a strong sustainability culture. [...] Once a culture of sustainability is more established and demand drives mass production, I believe supply will increase and prices will start to fall. So, while we can't switch over completely right away, we will continue adopting what we can" (R2). According to R5, "there are various sustainable packaging options". However, "besides being expensive, these options don't meet our main goal, which is to serve food hot. They aren't as effective as polystyrene. With polystyrene, the food arrives hot, stays warm for half an hour, and is still at the perfect temperature when you open it [...] although we practice sustainability internally because we understand its importance, we are not going to post online about how we sort our trash. I just don't center my business around advertising sustainability" (R5).

As regards waste and water reduction, it was noted that: "we have

implemented several bathroom upgrades to minimise paper and water consumption, leading to notable cost savings. Despite these efficiency gains, some customers remain hesitant about the changes, even when it directly impacts the final price of food and service. [...] Furthermore, we have partnered with a solar energy specialist to address power usage across our two restaurants and two retail shops. This year, we are installing a large-scale solar canopy over our parking lot. This system will serve a dual purpose: providing shaded parking for vehicles while generating renewable energy on-site. This model has already proven successful at various shopping centres in our area" (R3).

Taken together, the interviews confirm that the adoption of innovations does not automatically increase sustainability performance. In some cases, technologies are adopted to facilitate processes or meet customer needs, but they do not necessarily generate environmental benefits. Barriers related to the cost and functionality of sustainable alternatives also emerge, as reported by R2 and R5. This qualitative evidence is consistent with the absence of a significant relationship between product innovation and GCSR, and between product innovation and sustainability performance. However, the interviews do not allow us to directly explain the positive effects of experiential and promotional innovation on GCSR. Further qualitative evidence is needed to verify whether customer satisfaction is generally prioritised at the expense of sustainability.

Overall, the qualitative evidence suggests that the sustainability implications of innovation depend not only on whether an innovation is adopted, but also on its underlying purpose, the constraints surrounding its implementation, and the trade-offs involved in balancing operational and customer-related objectives with sustainability concerns.

5. Discussion

This quantitative analysis, and the qualitative investigation, have illustrated how OF, coordination of routines, innovation, and sustainability practices are operationalised within day-to-day management of FSI SMEs. In particular, OF is a continuous process that is able to influence both the economic decisions and activities of firms, and their approach to social and environmental responsibilities. The interviews revealed that foresight activities are often embedded within informal networks, customer interactions, and industry associations, while innovation mainly derives from continuous interactions between managers, employees, and customers.

Our findings show that OF positively and significantly affects the coordination of routines, confirming H1a. The coordination of routines can assist companies in conflict management by identifying and allocating resources and responsibilities, thus complementing foresight activities (Paliokaitė and Pačėsa, 2015; Paliokaitė et al., 2014; Schwarz et al., 2020). This seems even more important for the FSI which is a complex and multifaceted industry, encompassing manufacturing and service aspects, consumer preferences and technological innovations. To address such challenges, firms should develop foresight capabilities, which would allow them to prepare, and adapt, to changing market demands (Rodgers, 2007). As emerged from the interviews, FSI SMEs prepare themselves to deal with market, technological and regulatory changes, by using both formal and informal channels. Most firms partner and participate in national and international events for the FSI, in order to seek information, data and practices about trends in the industry. However, FSI managers often utilise informal channels which are deemed to be more effective, cheaper and faster.

By ensuring coordinated organisational routines and stimulating a forward view, firms can develop the dynamic capabilities required to seize market opportunities and undertake strategic long-term commitments while still remaining flexible in uncertain environments (Razzak et al., 2022). This is especially the case of fast food operational systems which are related to the degree of coordination between three main subsystems: the front-of-house, the back-of-house, and the management control subsystem. Seamless integration ensures the efficiency and responsiveness of these subsystems. The managers interviewed have all strengthened simple organisational routines over time and adopted similar software, for example Microsoft Excel, to contribute to improving both internal processes and customer experience. In particular, most firms have begun recording diverse information daily, including the number of seats occupied and time, number and type of dishes ordered, supplies bought and used. This enables FSI firms to design and coordinate organisational routines regarding shopping lists, checklists, and employees' service.

Findings also showed that OF positively affects innovation in the FSI, confirming H1b. These results build on previous studies (Rohrbeck and Gemünden, 2011; Ruff, 2015; Yoon et al., 2018; Zhang et al., 2024) by demonstrating that OF enables managers to be better prepared when addressing market changes and to adapt more rapidly to new trends and customer needs. This includes identifying new products, innovating the menu, and introducing operational adjustments that align business practices with customer expectations (Filimonau et al., 2022; Tsaur et al., 2024). While FSI firms can navigate intense competition and market uncertainty, their success hinges on their ability to foster innovation (Tsaur et al., 2024). Indeed, innovation enables firms to differentiate themselves and adapt to evolving experiential trends (Filimonau et al., 2022; Tsaur et al., 2024). As most of the managers interviewed emphasised, this has increasingly attracted the attention of FSI firms after the COVID-19 lockdown which severely disrupted their business, exacerbating economic, social and environmental challenges in the sector. Furthermore, the results indicate that FSI SMEs should integrate foresight activities into their innovation management processes to maximise their innovation capacity. A multi-modal dissemination strategy should be followed. As suggested by Rohrbeck and Gemünden (2011), firms should set their internal processes while communicating the foresight insights through mailing lists, the Intranet, and internal document-management systems.

Both the key role of managers in designing and implementing OF and the contribution of non-managerial employees are valuable. Indeed, Sarpong et al. (2013b) argued that over-compartmentalisation, over-determinism and (in)congruence of values can limit employees' engagement in foresight practices, by reducing information flow and hindering creativity, adaptability and the development of shared values. Regarding this aspect, the interviewees stressed the importance of engaging employees in foresight activities by encouraging informal one-to-one and group meetings, as well as promoting up-skilling and re-skilling courses for staff, focusing on practices for reducing food, water and energy waste.

Our analysis also reveals a positive and significant association between the coordination of routines and innovation in the FSI, thus confirming H2. This result supports a study by Müller-Stewens et al. (2020), which identified a positive relationship between the coordination of project routines and diverse types of innovation in the FSI. Because it aligns different perspectives and actions, and both integration and supervising activities, coordination of routines is a key capability for fostering innovation in an efficient and effective way.

While previous studies have extensively demonstrated that OF contributes to improving the performance of firms that is often associated with higher profitability and market share (Vecchiato, 2015), our findings would suggest that innovation also positively affects both GCSR (H3a) and the sustainable performance of FSI SMEs (H3b). This advances understanding about how innovation can become a driver of GCSR (Broadstock et al., 2020; Yang et al., 2024). In particular, innovation facilitates the implementation of sustainability-focused GCSR practices in the FSI, such as reducing waste, improving energy and water efficiency, and adopting recycling and composting initiatives (Broadstock et al., 2020; Sun et al., 2023). Moreover, innovation enables firms to integrate new knowledge, resources, and technologies, enhancing organisational and sustainable performance through differentiation strategies (Sun et al., 2023). This approach involves developing solutions, in terms of products and services, that should be

tailored to meet customer needs (Inthavong et al., 2023).

Furthermore, GCSR exerts a positive effect on the sustainable performance of FSI firms (H4). Companies can benefit from GCSR by reducing their environmental footprint, thus improving their sustainability performance (Padilla-Lozano and Collazzo, 2022; Sun et al., 2023). By adopting eco-friendly practices, firms can address ecological imbalances and achieve higher environmental standards, increasing the alignment between desired outcomes and sustainability goals (Sun et al., 2023). Among the most common eco-friendly practices, the interviewees emphasised the importance of focusing on just-in-time business models and small à la carte menu. Based on continuous data collection over time, managers set a limit on the number of dishes and stored supplies on a weekly basis, in order to reduce food and water waste. In addition, firms are responsible for maintaining and improving practices for waste separation, used oil recycling, and electricity production from solar energy.

Regarding the mediating role of the coordination of routines, our findings suggest that FSI SMEs, with greater ability to coordinate their activities, are more likely to benefit from the OF practices related to innovation, thus confirming H5. In particular, the integration and supervision of activities can enhance a firm's ability to innovate, by further reinforcing the information and knowledge obtained from foresight practices (Filimonau et al., 2024). Moreover, coordination of routines can help firms to incorporate foresight signals into their strategies, thus allowing for continuous adjustments (Zhang et al., 2024). These signals especially concern consumer preferences (Filimonau et al., 2022; Filimonau et al., 2024). However, the role of both formal and informal routines in coordination should not be overlooked. Since managers and their teams tend to develop their own coordination mechanisms through shared understanding and informal practices, routines can play a dual role by either enabling or constraining coordination. Despite the fact that established routines provide fixed structures, they can also impede flexibility when unexpected situations arise (Banks et al., 2016).

As regards the mediating role of innovation, the analysis has shown that innovation in the FSI mediates the relationship between OF and GCSR (H6a), and the association between OF and the sustainable performance of FSI SMEs (H6b). Innovation also plays an important role in translating OF into real actions that promote the adoption of sustainable and socially responsible practices. By leveraging OF, firms can be better prepared to respond to increased environmental and social awareness among consumers (Filimonau et al., 2024). Indeed, foresight helps companies to pinpoint emerging consumer needs and adapt to new regulations, thereby fostering innovation in terms of products, processes, and operations that, in turn, reduce their environmental footprint. Adopting more efficient technologies, developing sustainable menus, and diminishing waste, can help FSI companies to turn OF insights into measures that also strengthen their efforts for GCSR (Broadstock et al., 2020; Sun et al., 2023). In particular, the interviewees stressed that their firms have replaced paper-based documents and menus with digital devices. They have also introduced delivery apps to make their business more efficient, as well as implementing further digital tools for collecting customers' feedback, for example Google Reviews. Nevertheless, the findings obtained from the qualitative investigation show that innovations are often implemented without setting sustainability targets. Most managers argued that innovations were primarily introduced to pursue operational efficiency, customer demands, or market competitiveness. Translating innovation into sustainability outcomes seems to depend on additional organisational efforts and strategic alignment.

6. Conclusion

This article has examined the evolving role of OF which increasingly shifts from a mere technical exercise at the individual level, towards more socially and environmentally-oriented capabilities and objectives which should be embedded both into the structures and processes of firms, and the culture of human resources. The analysis has explored the interplay between OF, coordination of routines and innovation, revealing their key role in achieving GCSR and sustainable performances of firms in the FSI. Using a cross-disciplinary approach, we applied PLS-SEM to survey data from 204 Brazilian FSI managers. Then, we interviewed five managers. This enabled us to integrate the interpretation of the quantitative findings by explaining the organisational mechanisms underlying the observed relationships, particularly those which diverged from theoretical expectations.

The results show that OF positively affects the coordination of routines and innovation in FSI SMEs, with innovation subsequently enhancing GCSR and sustainable performance. Furthermore, coordination of routines mediates the OF–innovation relationship, and innovation mediates the effects of OF on both GCSR and sustainable performances, thus reinforcing the adaptability of firms.

The theoretical contributions of the article and a selection of implications for the FSI are as follows.

6.1. Theoretical contributions

By combining the perspectives of economics of innovation and managerial economics, this article offers three theoretical contributions.

First, it advances the understanding of how firms arrange and manage their OF processes (Battistella, 2014; Iden et al., 2017). The analysis has shown how companies integrate OF within their strategies and operational activities, in order to foster innovation and value (Gordon et al., 2020: Iden et al., 2017). Drawing on the emerging role of the dynamic capabilities of OF (Adegbile et al., 2017; Battistella, 2014; Haarhaus and Liening, 2020; Ruff, 2015), the findings have also revealed the complementarity between OF capabilities and routine coordination capabilities. In particular, we have extended the OF framework, which includes environmental scanning, strategic selection, and integration capabilities, by linking it with the integration and supervision of coordination of routines. We have also found new empirical evidence on the benefits of OF, namely environmental scanning capabilities, strategic selection capabilities and integration capabilities, in the domain of innovation (Paliokaitė and Pačėsa, 2015; Zhang et al., 2024), by investigating product innovation, technology-based service, experiential, and promotional innovativeness, in the context of FSI SMEs.

Second, this article responds to the call for more consistent empirical evidence about the underlying mechanisms which characterise the relationship between OF and coordination of routines in fostering innovation (Adegbile et al., 2017; Andersen and Andersen, 2014; Gershman et al., 2016; Gordon et al., 2020; Müller-Stewens et al., 2020; Rohrbeck and Gemünden, 2011). Although the results confirm a positive and significant effect of OF on innovation, the findings also offer new insights into how formalised coordination routines facilitate or hinder innovation. In particular, the coordination of routines has heterogeneous impacts on product innovativeness, technology-based service innovativeness, experiential innovativeness, and promotional innovativeness. Indeed, unexpected and detrimental effects were found with respect to experiential, and promotional innovativeness.

Third, we contribute to understanding the extent to which OF can be implemented by firms to address emerging societal and environmental issues (Cook et al., 2014; Lang and Ramirez, 2017; Mao et al., 2020; Pietrobelli and Puppato, 2016). The analysis has demonstrated that innovation plays a mediating role in the relationship between OF and GCSR, and the sustainable performances of firms (Kim et al., 2018; Tsaur et al., 2024). This is especially relevant for SMEs that operate in the FSI where foresight has an important role in menu planning, optimising inventory management, and reducing the waste of food, energy and water. However, our findings suggest that foresight operates as an informal, experiential sense-making capability rather than as formal organisational one for FSI SMEs. Moreover, innovations appear to be driven, primarily, by operational efficiency, customer expectations, and

market competitiveness, and not by explicit sustainability goals.

6.2. Implications for the industry

Given the specific characteristics of both SMEs and the FSI, it is useful to recall Wenzel (2022), according to whom foresight has been transformed into an ideal that overstates, exaggerates, firms' abilities to manage the future. Instead, foresight should focus on practice-based examinations of "future-making" as a more effective way of concentrating on how organisations realistically, rather than ideally, interact with the future (Wenzel, 2022, p. 845). Our results suggest a selection of practices for FSI SMEs.

FSI SMEs should invest in OF to strengthen their dynamic capabilities and to improve their ability to navigate uncertain environments. However, the differentiated findings suggest that FSI SMEs should not equally reinforce all their environmental scanning, strategic selection, and integration capabilities. Indeed, to ensure the effectiveness of their efforts, FSI SMEs should align a selection of OF capabilities and practices with their specific strategic needs and environmental context. This means that foresight is not a one-size-fits-all approach. Instead, foresight should be tailored to the context and circumstances of each organisation (Sarpong et al., 2013a), by designing flexible organisational structures, and by encouraging internal and external relationships (Sarpong et al., 2013c).

Our results also reveal the critical role of foresight accuracy in the efficient use of natural resources, including food, water, and energy. Managers can leverage OF to enhance innovation, such as developing new products, utilising renewable sources and sustainable ingredients, and by improving the overall customer experience. By integrating OF into the operations of firms, managers can better coordinate innovative initiatives and respond effectively to market changes and consumer expectations.

Although OF enables FSI SMEs to create a protected environment for exploring emerging challenges and alternative solutions, its effectiveness depends on embedding foresight activities into both daily operations and long-term strategic planning. This forward-looking orientation helps firms to anticipate medium- and long-term changes and to align innovation efforts accordingly. Managers should therefore formalise coordination routines and strengthen knowledge-sharing mechanisms, as these capabilities support innovation. Furthermore, the strategic integration of foresight and coordination capabilities can enhance GCSR and the sustainable performance of FSI firms. However, management control systems should be aligned with the firm's technological context: in uncertain environments, such as the FSI, the use of interactive control appears to be more beneficial for innovation, whereas, in more stable contexts, greater emphasis should be placed on coordination routines and process alignment. At the same time, managers should avoid overestimating their ability to predict the future and recognise the value of institutionalising formal foresight processes. OF is most effective when supported by internal collaboration across organisational units and the engagement of key external partners, as this integration of diverse perspectives strengthens firms' ability to address economic, social, and environmental uncertainty.

Along with the key role of managers in fostering OF, it is also important that firms actively promote diversity, in terms of knowledge, skills, and experience, within their foresight activities so as to strengthen both the quality and innovation of products, services and business models. To do so, managers should promote collaboration among employees, as well as investing in training and support for employees when implementing OF practices. As for reducing food consumption, and the waste of energy and water, managers should embed waste mitigation goals into OF values, promote the application of environmental-driven innovations for waste reduction among their employees, and introduce non-monetary and monetary incentives for eco-friendly behaviour among staff.

6.3. Limitations and avenues for future research

This study has some limitations which should be considered in order to guide the directions future research could take.

First, here the methodology involved is a survey, and respondents' perceptions and interpretations may vary significantly, leading to diverse opinions that cannot be fully captured in a quantitative analysis. Indeed, it would be useful to conduct a follow-up of this complementary qualitative analysis. More specifically, increasing the sample of in-depth interviews with managers could contribute to reaching a deeper understanding of the underlying mechanisms which characterise the relationships hypothesised.

Second, this analysis concerned a limited sample of firms which operate in the FSI in Brazil, an emerging market. Care and caution should be used when generalising these results which may vary across countries and sectors. Future research could investigate samples from diverse countries or perform cross-country comparisons to better conceptualise the evolving role of OF for innovation, coordination of routines, and GCSR.

Third, this study used cross-sectional data, which hinders the ability to establish strong causal links over time. Further longitudinal research is recommended to investigate the impacts of OF, as foresight practices, innovation, GCSR and sustainable performance typically take years to develop, to implement and to then achieve the expected outcomes. Since OF impact can be mistaken for other factors, due to the difficulty of measuring it (Rohrbeck and Kum, 2018; Vecchiato and Roveda, 2010), it may be of interest to explore the moderating role of other factors, such as organisational culture, leadership styles, and the socio-economic features of the external environment.

Fourth, this analysis did not focus on a specific technology trend or technology-based service. Future studies may strengthen the cross-disciplinary approach, especially those involving a technical-engineering perspective, to improve understanding of the relationship between OF, innovation, GCSR and sustainable performance. The potential contribution of new digital technologies to the advancement of OF practices should be analysed. It may be of interest to explore the role of artificial intelligence which might reduce the time required to translate signals into actions, leading to continuous integration of and between foresight practices, thus enabling firms to implement real-time decision-making.

CRediT authorship contribution statement

Rogério João Lunkes: Writing – original draft, Software, Resources, Methodology, Funding acquisition, Formal analysis, Data curation, Conceptualization. **Daiane Antonini Bortoluzzi:** Writing – review & editing, Writing – original draft, Supervision, Project administration, Methodology, Investigation, Formal analysis, Data curation. **Lorenzo Compagnucci:** Writing – review & editing, Writing – original draft, Visualization, Methodology, Investigation, Formal analysis, Conceptualization. **Fabricia Silva da Rosa:** Writing – review & editing, Resources, Funding acquisition, Conceptualization. **Francesca Spigarelli:** Writing – review & editing, Visualization, Conceptualization.

Ethics approval and consent to participate

This study adhered to the ethical principles outlined in the Declaration of Helsinki, ensuring the protection and ethical treatment of all participants involved in the research. All participants in this study provided informed consent prior to their involvement. They were fully informed about the nature, purpose, and potential risks of the research. Participation was entirely voluntary, and participants had the right to withdraw at any time without any consequences. The study was conducted in accordance with ethical guidelines (Brazil's Data Protection Law), and the anonymity of the respondents and companies was guaranteed.

Declaration of Generative AI and AI-assisted technologies in the writing process

The authors declare that generative artificial intelligence AI technologies were not used during the conceptualisation and writing of this manuscript.

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Appendix A. Measurement instrument

Organisational Foresight (OF) - adapted from Zhang et al. (2024)
Environmental scanning capabilities
We often consider future conditions over the next 2 years or a longer period.
We scan all areas (technology, regulatory framework, competitors, customers and sociocultural context).
We scan for developments in markets and/or industries in which we are not currently involved.
We consider new issues, trends and technologies whose relevance to our business cannot yet be assessed.
We attend meetings such as trade exhibitions and scientific conferences, where opportunities can be found.
We have an active network of contacts with the scientific and research community.
We work jointly with suppliers or customers to develop solutions.
Strategic selection capabilities
We analyse potential future conditions in detail.
We forecast potential future conditions.
We set long-term objectives that are consistent with our vision and values.
We develop activity plans that optimise progress towards the organisational strategy.
We apply rigorous measurements of business performance against goals and objectives.
Integration capabilities
We provide regular incentives (for example, recognition by senior management and/or financial rewards) to promote a wider vision.
The top management encourages to bring external information into the company.
The activities of different departments are well coordinated.
Every employee is expected to establish and maintain formal and informal networks with other units.
In our company, information is shared freely across functions and hierarchical levels.
Continued organisational learning is encouraged, and there is sufficient time/opportunity to improve an individual's skills and capabilities.
Innovation in the food service industry (FSI) - adapted from Kim et al. (2018) and Tsaur et al. (2024)
Product innovativeness
This firm offers new combinations of food.
This firm offers an innovative customised menu.
This firm regularly introduces new menu items.
This firm offers new flavours.
This firm presents food in an innovative way.
Technology-based service innovativeness
This firm offers new apps or online ordering tools.
This firm has integrated innovative technologies into its services.
This firm delivers cutting-edge services.
The procedure for ordering menu items is innovative.
Experiential innovativeness
The spaces and furniture have an innovative design.
The employees interact with customers in innovative ways.
This firm is well-known for organising innovative events.
The employees help customers to solve their issues and address their needs in innovative ways.
Promotional innovativeness
This firm implements innovative promotional (marketing) programmes.
This firm adopts new ways to market itself to customers.
This firm offers innovative deals.
This firm provides customers with innovative communication platforms (for example, online communities), which enable customers to make suggestions.
This firm offers innovative reward programmes (membership).
Coordination of routines - adapted from Müller-Stewens et al. (2020)
Innovation runs here through a controlled and progressive implementation process.
Innovation projects are controlled by systematic project management.
Innovation processes are accompanied by a situation-appropriate and multi-stage integrating project management.
Our innovation processes are clearly structured and understood by all parties involved.
Individual activities within the innovation process are coordinated based on performance- and goal-orientation.
Green Corporate Social Responsibility (GCSR) - adapted from Sun et al. (2023)
The firm follows environmental-friendly processes (for example, it avoids food waste during the preparation of dishes/buffets).
The firm adopts environmental-friendly policies, such as the implementation of technologies to reduce water waste, food waste, and energy consumption.

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The firm adopts policies or regulations that encourage the use of renewable energy sources and participation in the circular economy.
The firm has policies or techniques to save energy.
The firm has implemented sustainable policies, such as the use of biodegradable packaging, reducing the use of disposable plastics, and repurposing food to avoid waste.
Sustainable performance - adapted from Gelhard and von Delft (2016)
We are the first that offer environmentally-friendly products/services at the marketplace.
Our competitors consider us as a leading company in the field of sustainability.
We develop new products/services or improve existing products/services that are regarded as sustainable for both the society and the environment.
Compared to our competitors, our reputation in terms of sustainability is better.
Compared to our competitors, we respond more thoroughly to societal and ethical demands.

Appendix B. Complementary qualitative analysis: interview guide

Q1: How does your firm identify and prepare for future changes (technological, regulatory, or environmental)? For instance, do you participate in industry associations or trade shows and fairs, and do you maintain contact with those who develop solutions (for example, suppliers, clients, or research agencies)? Do they analyse potentials and set goals? Do you offer incentives to employees to seek outside information? Could you provide some examples?

Q2: How do routine coordination practices (formal management practices that facilitate activities and organise teams) support, or hinder, the development of innovation and customer experience?

Q3: Has the firm adopted innovations, such as menu changes or technologies like mobile apps and software, that have had no impact on sustainability outcomes (food waste, water, or energy consumption)? Do customers show little or no interest in sustainable innovations? How do you perceive this disconnect?

Data availability

Data will be made available on request.

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