Innovation in business model as a response to the sharing economy

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Abstract

Purpose – The sharing economy (SE) is significantly affecting traditional companies, which have felt a need to adapt their business model. The aim of this study is to identify the different types of adaptation developed by companies within a SE context, and to examine how they relate to their characteristics.

Design/methodology/approach – A content analysis involving 149 real-world adaptation cases was carried out, after which a Kruskal–Wallis test and a multiple correspondence analysis were used to explore the relationships between the types of adaptation identified, the business characteristics and the strategic decisions taken for these adaptations.

Findings – Through the analyses proposed in the study, the main conclusions suggest that the way companies adapt to SE is related to business characteristics and the strategic decisions taken for these actions, demonstrating throughout the article what types of adaptations are made depending on variables such as sector of activity or business orientation.

Originality/value – This study is the first to examine the variables affecting the decisions among traditional companies in response to the SE. In addition, this work explores the SE from the business point of view, shedding light on the participation in SE by traditional companies.

Keywords Sharing economy, Business model innovation, Content analysis, Acquisition,
Internal development, Partnership

Paper type Research paper

1. Introduction

In recent years, there has been a tremendous growth in the number of sharing economy (SE) platforms aimed at renting or selling second-hand goods that has profoundly modified consumer behavior and business activities (Agarwal and Steinmetz, 2019). This trend has given rise to the development of an alternative form of consumption that advocates a sustainable economic system through a more efficient exploitation of resources and products (Hamari *et al.*, 2016; Jiang *et al.*, 2016). As a result, the SE has had important socioeconomic and business implications, including the elimination of intermediary companies in operations, direct connection between consumers or the lengthening of the useful life of products.

The SE was first seen as a threat to the manufacturers of durable goods and traditional service providers because of its negative influence on industries like hospitality, transportation, fashion, finance and even distribution channels (Keko *et al.*, 2018).

However, it has recently come to be seen as an opportunity for established business models to create and offer greater value for existing customers (Garud *et al.*, 2022), to acquire new customers, to reduce internal costs through resource and energy efficiency (Chien, 2022; Hsu, 2023), to achieve sustainable development goals (Sadiq *et al.*, 2023) and, for organizations, to expand their reputation by positioning themselves in the market as "sustainable" organizations (Ciulli and Kolk, 2019).

As such, traditional companies have started to adapt their business models to SE principles through alternatives such as business model innovation or vertical integration (Chen and Wang, 2019) taking into account that the efficient use of network externalities and external contributions in innovation efforts toward the SE can create competitive advantages (Belezas and Daniel, 2022). However, so far, few studies have examined this area (Zervas *et al.*, 2017), and our study attempts to deepen the SE literature by (1) analyzing if there are differences in the types of adaptation used according to the characteristics of the company itself and their strategic decisions taken for these adaptations (Zervas *et al.*, 2017), (2) identifying what characteristics and strategic decisions are more related to different types of adaptations toward SE (Ciulli and Kolk, 2019), (3) broadening the overall understanding of the SE phenomenon through qualitative analysis (Rojanakit *et al.*, 2022) of real business cases (Agarwal and Steinmetz, 2019) and (4) explaining how business model innovation can play an important role in providing alternatives through SE (Eckhardt *et al.*, 2019).

In an effort to address the research gaps mentioned above, we conducted a Kruskal–Wallis test and a multiple correspondence analysis (MCA) among 149 cases of firm adaptations toward SE, and in doing so, identifying important theoretical and practical implications.

From a theoretical point of view, the main implications are (1) the extension of the development and explanation of the different forms of adaptation to the SE and their illustration through examples, (2) the enrichment of the existing academic literature on the SE with an approximate distribution of the relationship between the different forms of adaptation carried out by firms to the SE and the characteristics of the firms, (3) the linking of the SE literature with existing literature on business model innovation and (4) the exploratory association of the strategic decisions that each type of adaptation implies for the firm. The ideas provided will open up new lines of research for future studies.

From a practical point of view, the main implications are (1) the relationship of concrete examples of adaptation with the adaptation options developed in the literature on SE, giving ideas for company managers, (2) at the same time provides ideas about the consequences that these adaptations will imply for companies, thus helping marketing and innovation professionals from traditional companies to take decisions on how to adapt or react to changes in the market related to SE and (3) explanation for emerging platforms on the distribution of business characteristics that may be most closely related to the different types of adaptation, yielding indications about future threats or opportunities.

2. Theoretical framework

Recently, there have been major changes affecting markets in terms of production, marketing, corporate governance and business models (Edelman *et al.*, 2017). Among the changes deserving to be highlighted are the technological advances that have enabled an extensive development of information technologies and important advances in online and mobile communications (Battisti and Brem, 2021), the awareness of climate change and the repercussions that consumer behavior may have on the environment (Hamari *et al.*, 2016). These changes are causing, among other things, a shift away from product ownership in favor of temporary product sharing, resulting into the development of "SE platforms" (Kumar *et al.*, 2018) that affect traditional companies in multiple ways, as described in section 2.1.

2.1 Impact of the sharing economy on traditional markets

The emergence and growth of SE, a scalable socioeconomic system that employs technology-enabled platforms to provide users with temporary access to tangible and intangible resources (Eckhardt *et al.*, 2019), have a significant effect on traditional durable goods manufacturers and service providers. Not only does it alter consumer (purchasing and usage) behavior, it also affects the mode of operation of manufacturers (Li *et al.*, 2020), their market share and the role played by consumers (Matzler *et al.*, 2015).

From the point of view of people's purchasing behavior, and according to the European Commision (2018), at a European level, only 33% of collaborative platform users claim that they will continue to use products/services through traditional business models in the same quantities as before accessing these platforms. By contrast, 32% of them affirm to have replaced to some degree the services they used through traditional channels with services offered through collaborative platforms. This shows that the effects of the SE on consumption patterns in established markets are a worrying reality for traditional companies.

From a business perspective, all sectors and industries are being affected to a greater or lesser extent by the SE (Keko *et al.*, 2018). SE poses a threat to established companies as it cannibalizes purchases and reduce prices (Richard and Cleveland, 2016) by promoting the replacement of individual property acquisition by shared ownership (Sanasi *et al.*, 2020) or even by short-term renting (Belk, 2014). This can be clearly seen in hospitality and transportation, which are the sectors that have been most affected (Gerwe and Silva, 2020). For example, Zervas *et al.* (2017) found that a 1% increase in Airbnb listings leads to a reduction of 0.05% in quarterly hotel revenues, which is in line with recent research by Hossain (2020). Additionally, Airbnb's entry makes the hotel industry more heterogeneous, forcing high-quality hotels to reposition themselves at the higher end of the market, while lower quality accommodations move to compete on price with Airbnb (Chang and Sokol, 2022). In the transportation sector, Kim *et al.* (2018) demonstrated that mobility markets such as cabs have significantly reduced their number of trips in relation to the growth of Uber. Mouratidis *et al.* (2021) argued that the average number of vehicles owned per household has significantly reduced when using the SE, and that for every vehicle used in shared mobility the number of vehicles in circulation has proportionally been reduced.

In addition, the SE has also led to significant changes in distribution channels because the sales force of the B2B2C sector has been replaced by these service providers (Kumar *et al.*, 2018). As such, the SE challenges traditional marketing channels and supply chains. The concepts of ownership and its transfer are deeply embedded in the roles of traditional channel members, while in the SE, consumers see access as an accepted way to obtain resources that were previously acquired through traditional channels (Ferrell *et al.*, 2017).

To cope with the negative consequences described above, companies have begun to adapt to the SE as it is described in section 2.2.

2.2 Business model innovation in the face of the SE

The shift toward the new modes of consumption that characterize the SE may offer new options for companies to innovate (Ciulli and Kolk, 2019), to continue serving their customers (Sanasi *et al.*, 2020), or to design new business models and value propositions to better adapt themselves to the new demand logics (Massi *et al.*, 2021). In this way, traditional companies can leverage their experience and the strength of their brands to adapt to SE (Richard and Cleveland, 2016) or give their product a new form of use (Klotz, 2018).

To take advantage of these opportunities, some companies have already begun to adapt their business models to the principles of SE (Chen and Wang, 2019), and earlier studies have identified different forms of adaptation (see Table 1).

Belk (2014)	Offering free content while providing other sources of income
	Acquire a collaborative platform
	Create a collaborative platform
Matzler *et al.* (2015)	Sell the use of the product
	Support customers in their desire to resell goods
	Exploit unused resources and capabilities
	Provide repair and maintenance services
	Expanding into new markets with collaborative consumption
	Develop new business models through the SE
Richard and Cleveland (2016)	Extending the brand to peer-to-peer rental services
Klotz (2018)	Add product rental services
Chen and Wang (2019)	Acquire a collaborative platform
	Create a collaborative platform
Kang *et al.* (2019)	Develop/use a collective mailing service
Ciulli and Kolk (2019)	Internal development
	Partnership
	Acquisition
Li *et al.* (2020)	Cooperating with collaborative platforms

Source(s): Table by the authors

Belk (2014) and Matzler *et al.* (2015) were the first to suggest some classifications of adaptation options, on the basis of which new forms of adaptation were later proposed such as extending the brand to peer-to-peer rental services (Richard and Cleveland, 2016), adding product rental to the service offering of companies (Klotz, 2018), developing or using collective shipping services through agreements (Kang *et al.*, 2019) or cooperating with SE platforms (Li *et al.*, 2020). Other authors, such as Chen and Wang (2019), explore already established options like acquisition or companies creating their own platforms. More recently, Ciulli and Kolk (2019) have proposed a new classification of adaptive actions that distinguish between internal development, partnership and acquisition.

At the same time, we observe a lack of research that has examined whether these alternative options of adaptation depend on a company's specific characteristics (Ciulli and Kolk, 2019), especially within a B2B context (Agarwal and Steinmetz, 2019), where academic studies have analyzed the main barriers for industrial companies to enter the SE (Govindan *et al.*, 2020), and the challenges they face to develop sharing-based business models (Melander and Arvidsson, 2021).

To shed light on this issue, the next section describes the methodology used to analyze, in a B2B context, whether the adaptation options observed in the market are related to the business characteristics of the companies involved.

3. Methodology
Given that business reality is, in some cases, ahead of academic studies in terms of the development and analysis of new business models (Bocken *et al.*, 2014), an exhaustive study of real cases of adaptation has been carried out following a procedure similar to the one developed by Ciulli and Kolk (2019) and Urbinati *et al.* (2017).

For the identification of the cases, we followed a process divided into five sequential steps, which took place between July 2021 and January 2022.

First, we identified the economic sectors with the greatest presence of SE, and which are the most important exchange platforms in each sector based on the information provided by consulting firms like PwC (2015, 2018) or organizations like the European Commision (2016, 2018). This resulted in the following list of sectors: accommodations, automotive, financial, machinery/industrial equipment, fashion, labor service, catering, and retail and logistics.

Second, we focused on identifying specific cases of companies that are active in the sectors we identified and that have innovated to adapt to the SE. Using Google Chrome browser, we consulted both general and news section results by adding the term "SE" to each of the sectors. Because it was a general keyword search, millions of results were obtained.

Third, to reduce the enormous number of results we obtained in the previous step, new, more refined and specific search keywords were used for each sector to obtain more precise results. Table 2 contains the keywords/headlines used to perform the searches.

Accommodation	Hotel SE
	Hotel sharing
	Hotel adapt to SE
Automotive	Cars SE
	Mobility SE
	Geely Holding Group SE
	Daimler SE
	Group Volkswagen SE
	Toyota Motor Corporation SE
	Nissan SE
	Volvo SE
	Hyundai Company SE
	Tesla Motors SE
	Groupe Peugeot Société Anonyme (PSA) SE
	Renault SE
	Kia Motors SE
Financial	Bank SE
	Finance SE
Industrial machinery/equipment	Machinery SE
	Construction SE
	Equipment SE
	B2B SE
	Sharing machinery
Fashion	Fashion SE
	Collaborative fashion
	Fashion companies subscription
	Fashion clothing rental
	Rental services in fashion
	H&M SE
	Nike SE
	Levi's SE
Labor services	Corporations SE
	Manufacturer SE
	Corporations crowd work
	Shared economy in labor services
	Shared economy in labor insurance
Restoration	Catering SE
	Delivery sharing service
Retail and logistics	Logistics SE
	Shared transportation
	Retail SE
	Supermarket SE
	Department store SE
	Retailers SE
	Wholesalers SE

Table 2.
Sectors and search keywords

Source(s): Table by the authors

In the fourth stage of the process, more specific information was collected for each of the identified cases to generate a more complete description. To this end, the website of the exchange platform and/or company related to the specific example was visited and press releases on the innovation of the business model developed by the actors involved were consulted. In turn, this search made it possible to identify alternative keywords, resulting in the identification of new cases. In addition, for each registered company, an exhaustive search was carried out for information on business characteristics such as turnover, age, sector of activity and commercial orientation. The entire process of identification, information collection and analysis described above resulted in a total sample of 149 adaptation cases [1].

Finally, the information obtained for each case was recorded and coded using content analysis, and different variables were defined to characterize each individual case. As a result, a database of 10 variables describing the identified business cases was formed.

3.1 Content variables and coding
The variables used to characterize the adaptation cases are described in Table 3. Some of them characterize the companies themselves and others have to do with the decisions made to adapt to the SE.

As far as the commercial orientation of companies is concerned, we distinguished three options: a consumer orientation (B2C), a business orientation (B2B) or a mixed (B2B and B2C) orientation. The size of the companies was defined according to the 2019 turnover in millions of euros (MM€). Because most companies are large, we opted in favor of classifying them in terms of their size relative to each other.

The variables "the type of adaptation" and "the part of the business model adapted" were codified following Ciulli and Kolk (2019). Specifically, three categories were used to describe the "types of adaptation." "Internal development" encompasses companies that have used

Sector	Size	Business orientation	Age
1 = Industry	1= <2	1 = B2C	1= <10
2 = Transportation and storage	2 = 2–10	2 = B2B	2 = 10–50
3 = Construction	3 = 10–50	3 = B2B and B2C	3 = 50–100
4 = Trade	4= >50		4= >100
5 = Hospitality and tourism services			
6 = Other services			
Type of adaptation	Adapted business model part		Brand decision
1 = Internal development	1 = Value proposition		1 = New brand
2 = Acquisition	2 = Customer interface		2 = Extension
3 = Partnership	3 = Business infrastructure		
	4 = Entire new business model		
Consumption change	Duration (years)		Country
1 = App	1 = 0–1		1 = China
2 = Rent	2 = 1–5		2 = EEUU
3 = No	3= > 5		3 = Spain
			4 = Japan
			5 = United Kingdom
			6 = Europe
			7 = Asia
			8 = America
			9 = World

Table 3.
Variables structure
and coding

Source(s): Table by the authors

their own resources to adjust their business to SE. Within the category of "partnership" are identified those companies that have modified their business models through collaboration agreements with other institutions. By contrast the category "acquistion" includes the total or partial purchase of other companies or platforms as a way to adapt.

The variable "adapted business model part" has four categories. The "value proposition" one encompasses those cases whose change action involved the addition of a new product/ service offered to existing customers. An example of this would be a new home delivery service offered by a supermarket. The "customer interface" option represents those adaptation actions that involved offering a new or existing product/service to a new segment of consumers. An example would be the development by an insurance company of a special insurance for users of shared mobility, which is a segment hitherto unexploited by the company. The "business infrastructure" category refers to adaptation options that involve changes in the way the company's resources (e.g. labor, equipment, machinery or tools) are managed. This is the case with the joint creation among several companies of an innovation ecosystem to cooperate in the use of resources or hiring of labor. Finally, the creation of a complete "new business model" frames cases of adaptation that involve the creation of an entirely new business model for the company. An example of this would be the offering of shared mobility services by car companies.

Additionally, we also looked at whether the modification or creation of new business models involves a "brand decision." This variable classifies cases of adaptation into two categories depending on whether the change implies the creation of a new brand related to the created/adapted business model ("new brand" category), or it only involves the integration of these business model changes within the firm's existing brand portfolio ("brand extension" category).

Whether these adaptation options involve some type of "consumption change" when purchasing goods or services was also analyzed and different categories were identified. The "app" category implies the use mobile applications to interact with the company. The "rent" option involves not acquiring ownership of the product but entering into temporary rental contracts with the companies. The "no" category means that the modes of consumption did not change at all.

3.2 Sample description
Table 4 shows the characteristics of the companies involved. The most prominent sector is industry (56%), followed by other services (22%) and commerce (11%), while they are mostly very large companies, 49% of them with a turnover over € 50 M, and 26% between € 10 M and € 50 M. In addition, most of the companies operate in both B2B and B2C contexts (77%) and have significant experience in the market, with 67% of them having been in business for more than 50 years.

The type of adaptation most frequently developed is partnership (63%) and the least common form is acquisition (16%). Regarding the adapted business model, the most frequent options are the adaptation of the customer interface (33%) and the creation of a new business model (31%).

In terms of brand decision, in most cases (71%) companies kept using their current brand (brand extension), while a minority of 29% preferred to create a new brand.

Most of the adaptation cases did not directly involve changes in the form of consumption (51%), while some others (39%) opted to use an application to offer products.

Finally, the geographical profile of the adaptation actions developed is centered on three categories: worldwide (28%), Europe in general (25%) and the USA (23%). The duration of these adaptations varies between 1 and 5 years (59%).

Sector	%	Size	%	Age	%	Business orientation	%
Industry	56	<2	11	<10	2	B2C	20
Other services	22	2–10	14	10–50	31	B2B	3
Trade	11	10–50	26	50–100	47	B2C and B2B	77
Hospitality and tourism services	9	>50	49	>100	20		
Transport and storage	2						
Adapted business model part	%	Type of adaptation	%	Country	%	Duration	%
Entire new business model	31	Acquisition	16	World	28	<1	18
Business infrastructure	7	Partnership	63	Europe	25	1–5	60
Customer interface	33	Internal development	21	EEUU	23	>5	22
Value proposition	29			Spain	6		
				China	4		
Brand decision	%	Consumption change	%	United Kingdom	4		
Extension	71	App	39	America	4		
New brand	29	Rent	10	Asia	3		
		No	51	Japan	3		

Source(s): Table by the authors

4. Analysis and results

4.1 The Kruskal–Wallis test

First, for data analysis, the Kruskal–Wallis test was performed using SPSS software. The Kruskal–Wallis test is a non-parametric (one-factor) test that analyzes the variances of categorical variables and compares differences between three or more groups (Tufféry, 2011).

This test has been used by recent studies (see Chang *et al.*, 2019; Rita *et al.*, 2021) with similar aims to the present study, that is, to explore the relationships between qualitative variables. In the context of our study, this test will help to understand how firm characteristics (e.g. sector, size, business orientation and age), and the strategic decisions taken for these adaptations (part of the adapted business model, brand decision, consumption change, country and duration) are related to the different types of adaptation carried out by firms to the SE. More specifically, the test will allow us, through the use of the Kruskal–Wallis chi-square, to test the null hypothesis that:

H0. There are no significant differences in the dependent variable (i.e. that there are no differences in the use of the different type of adaptation) between the groups of independent variables (firm characteristics and strategic decisions).

As shown in Table 5, the Kruskal–Wallis chi-square *p*-value is <0.1 in several cases, and in others even <0.01 so that we can reject the null hypothesis at this level of significance. More specifically, Table 5 shows how, with respect to the characteristics of the companies, there are significant differences in the types of adaptation used according to the business sector. This indicates that not all companies engage in the same adaptation activities toward the SE, but that, depending on the sector in which they operate, they are oriented toward one type of action or another. This is also the case for business orientation, although with a lower significance ($p < 0.1$), which shows that there are significant differences in the implementation of the types of adaptation according to the business orientation of the company. However, there are no significant differences in the use of adaptation options according to the size or age of the enterprise, indicating that it cannot be claimed that companies, large or small, old or new, adapt in different ways.

Independent variables	KW chi-square	DF (degree of freedom)	p-value (Chi-Square)
Sector	10.11	2	0.006***
Size	1.20	2	0.549
Business orientation	5.88	2	0.053*
Age	3.02	2	0.220
Adapted business model part	13.55	2	0.001***
Brand decision	39.06	2	0.000***
Consumption change	48.65	2	0.000***
Country	5.1	2	0.078*
Duration	2.14	2	0.342

Note(s): * is 10% of significance. ** is 5% of significance. *** is 1% of significance
Source(s): Table by the authors

Table 5.
Kruskal–Wallis test

In terms of the strategic decisions taken for these adaptations, it can be observed that there are significant differences in the use of adaptation actions depending on the part of the business model being adapted, the branding decision and the change in consumption. This shows that, depending on the strategic decisions taken in terms of change in the business model, brand or way of interacting with the consumer, they are oriented toward one type of adaptation action or another. Although with less significance ($p < 0.1$), significant differences are also detected at country level, while no differences are found in terms of the duration of the actions.
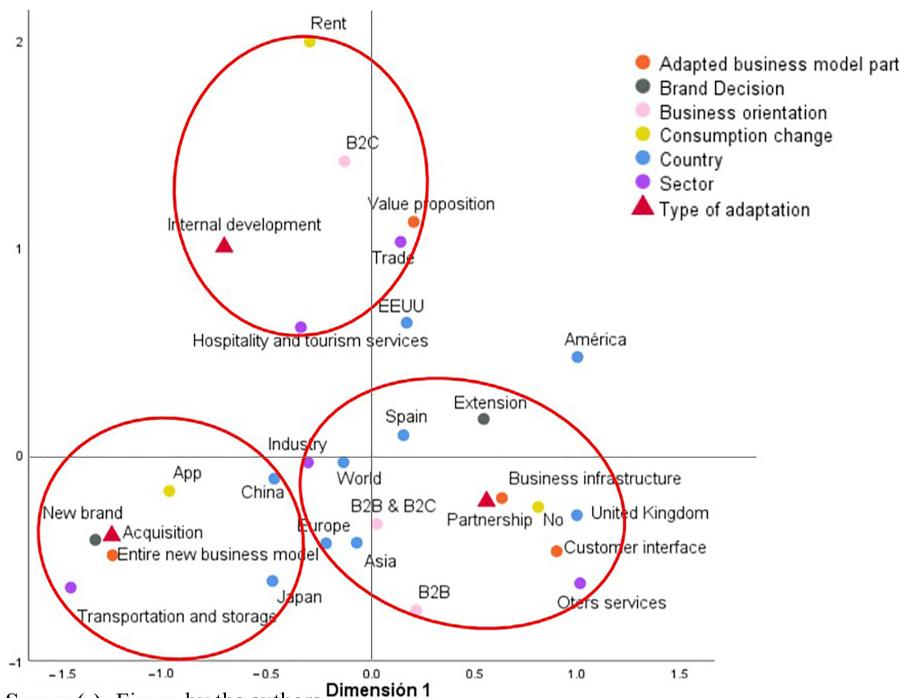
Therefore, according to the results of the Kruskal–Wallis test, most of the variables are related to significant differences in the form of adaptation, although it is not specified how these variables are related to each other. Therefore, in the next section, we show the results of the MCA to explore more concretely the distinction between these three types of adaptation.

4.2 Multiple correspondence analysis

An MCA was used to explore the relationships of the set of variables that we identified in the previous section that presented significant differences in the use of the different types of adaptation. The reason why we opted for this analysis is because it is a powerful technique to recognize patterns and associations in a dataset with multiple categorical variables (Arimond and Elfessi, 2016; Das *et al.*, 2018). It also allows the elaboration of graphical representations that help interpret data conveniently by simplifying the structure of associations between categories (Das *et al.*, 2018). Therefore, its main objective is to obtain a graphical representation of the original data matrix framed in as few dimensions as possible by considering the effect of each variable on all others and showing the co-occurrence of categories in a lower dimensional space (Parchomenko *et al.*, 2019). Ultimately, MCA is presented as the most suitable method for dealing with a wide diversity of qualitative metrics, extracting the optimal quantification describing the relationships between the categories of each variable, as well as the relationship between these variables (Arimond and Elfessi, 2016).

For the reasons mentioned above, MCA provides a better fit with the objectives and data collected in this study, which involves 7 variables coded into 29 categories for a total of 149 cases.

Using the SPSS program, the MCA creates different dimensions and estimates their eigenvalue under the assumption that those with a higher eigenvalue magnitude get a higher explained variance (Das *et al.*, 2018). For the choice of dimensions, the analysis was carried out for a maximum of four dimensions. However, only two of them were retained because they explained most of the variance (78.6%). This result is considered of good quality as they accounted for more than 50% of the total inertia (Chang *et al.*, 2019) (Figure 1). The variables

Source(s): Figure by the authors

identified and transferred to the graph show a good degree of dispersion, which indicates the quality of the variables and data obtained (Parchomenko *et al.*, 2019), making it possible to obtain a correct interpretation of the distances between the different variables.

In line with the characteristics of the MCA, Figure 1 can be interpreted based on the closeness of the points on the graph, with categories that are close together being more similar than categories that are far apart (Arimond and Elfessi, 2016). Based on this criterion, the categories were grouped into three distinct groups, taking the type of adaptation action as the center.

The first group, located in the lower left corner, is centered on "acquisition" as a form of adaptation. This group is made up of a total of seven categories belonging to six different variables. Thus, "acquisition" as a form of adaptation is highly related to (1) the "creation of a business model" and (2) the "creation of a new brand" for such action. In addition, companies that adapt through acquisition also develop and implement (3) their own "applications" for interaction with consumers, which means changing the way they interact with their customers. The sector most highly linked to this form of adaptation is (4) "transportation and storage," and it is related with Asian countries, such as (5) China and Japan. This means that the acquisition implies important changes at the business level, involving the incorporation of a completely new business model for the company, the creation of new brands and the use of mobile applications to manage customers relationships. The structure of the group is shown in Table 6.

A clear example of this group is United Parcel Service (UPS), a company providing package delivery. This company, after a number of partial acquisitions on the Roadie platform, in the last quarter of 2021, finally acquired full ownership of the platform. Roadie is

	Firm characteristics	Strategic decisions
Acquisition	**Sector**	**Brand decision**
	Transportation and storage	New brand
	Country	**Consumption change**
	China	App
	Japan	**Adapted business model part**
		Entire new business model
Internal development	**Sector**	**Consumption change**
	Hospitality and tourism services	Rent
	Trade	**Adapted business model part**
	Business orientation	Value proposition
	B2C	
Partnership	**Sector**	**Adapted business model part**
	Industry	Business infrastructure
	Other services	Customer interface
	Business orientation	**Consumption change**
	B2B and B2C	No
	B2B	**Brand decision**
	Country	Extension
	Spain	
	World	
	Asia	
	United Kingdom	
	Europe	

Table 6.
Group structure   **Source(s):** Table by the authors

a crowdsourced delivery platform that offers shared distribution services and connect users who made trips by car and users who need to send or receive something. With this acquisition, UPS wanted to develop an alternative market that has experienced remarkable growth in recent years. As a result, the company was able to reach a different target audience compared to its traditional customer base by incorporating the Roadie platform and using mobile applications to interact with their new customers. The service is available in the USA, closing 2021 with more than 200,000 registered drivers and coverage in more than 20,000 zip codes across the country, reaching 90% of US households.

The second group, located in the upper central part of Figure 1, represents the category of "internal development." This group is characterized with six categories that belongs to a total of five different variables. It presents a greater dispersion of values compared to group 1, although they have an acceptable proximity among themselves in general and with the category of internal development in particular. This form of adaptation is related to (1) the expansion of a market strategy aimed mainly at the final consumer "(B2C)," and the participation in (2) "trade" and "hotel and tourism services." In addition, "internal development" as an adaptation option is also broadly related to the adjustment in (3) the "value proposition" of the business model, and the development and implementation of "rental" options to market the company's products through monthly subscriptions or by other means, allowing consumers to change the way they consume the company's products. To summarize, this adaptation option is mainly related to companies in the service sector that are oriented to the final consumer and that use rental as a new way of interacting with their customers by modifying their value proposition.

The German multinational retail chain MediaMarkt is an example of a company that belongs to this group. In 2020, it decided to realign its strategy by offering rental services (rent) for some of its products. Its current objective is to ensure that the service section gains

weight over product sales. In 2019 only 7% of the company's revenues in Spain came from services (2 M€), such as rental or leasing, electricity sales and alarms. The rationale of this strategy is that customers are currently valuing the enjoyment of the product more than the ownership itself.

Finally, the third group, located in the lower right part of Figure 1, has to do with the category of "partnership." This group is the most complete and complex because it includes a total of 14 categories belonging to the 7 variables used in the analysis. Therefore, it presents categories with a remarkable level of grouping and other variables with a greater dispersion of points within the graph. However, they have an acceptable internal proximity in general and with the category of partnership in particular.

On one hand, the categories most strongly related to "partnership" are (1) the adjustment in the "company's infrastructure" as part of the adapted business model and (2) the "no" incorporation of substantial changes in the way customers consumes the company's products. This means that the changes implied by this option take place at an internal level and neither affects the way they relate to customers nor their brand decision because (3) the companies expand their own existing brands. In addition, companies that adjust through partnerships also develop and implement adjustments to (4) the "customer interface" as part of the adapted business model and (5) are geographically located in widely dispersed and varied areas, such as European countries like the UK, Spain and "rest of Europe countries," the "rest of Asian countries" and "the world" as a whole.

The use of partnership as a form of adaptation, on the other hand, can be explained by a business characteristic as the sector, (6) related to different sectors, ranging from "industry" sector to "other services." Market strategies that characterize this group include (7) companies that develop market strategies exclusively focused on other companies "(B2B)," and others that develop a mixed strategy focused on both companies and consumers "(B2B and B2C)." This shows that, at a first glance, there is no clear pattern of business characteristics in relation to this option.

To illustrate the types of companies included in this group, we can mention services companies, like the disinfection services company Cloralex, which entered into an alliance in 2020 with the Airbnb platform to promote new cleaning standards in the face of the new situation caused by COVID-19. With this alliance, Cloralex aimed to expand its market by reaching a different consumer segment, while obtaining an important opportunity to increase its number of customers through access to all users of the platform. Another company included in this group is the great industrial conglomerate Geely Holding Group. In addition to the many other actions designed to adapt to the SE in recent years, in 2021 this company formed an innovation ecosystem with the Renault Group through a collaboration agreement. This ecosystem allowed both groups to share resources, technology and even infrastructure to deepen innovation focused on the development of hybrid vehicles in the Chinese and South Korean markets.

5. Discussion and implications
The main findings of the analyses discussed in this study suggest that the way firms adapt to SE is related to business characteristics and the strategic decisions taken for these adaptations. This finding is in line with earlier studies (Klotz, 2018; Li *et al.*, 2020), which stated that not all firms will obtain similar results by adapting in the same way. Instead, there are circumstances, conditions and markets in which it may be more convenient to act in a certain way or not to do so. Therefore, this study sheds light on the gap in the analysis of the different uses of forms of adaptation toward SE and its opportunities (Mai and Ketron, 2022), while extending the previous study by Ciulli and Kolk (2019) by looking at the variables that affect established firms' decisions to enter SE through different approaches.

More specifically, the results of this study show through the Kruskal–Wallis test that there are differences in the use of adaptation options depending on both the characteristics of the companies and strategic decisions taken for these adaptations. Subsequently, the MCA analysis was conducted to precisely identify how each form of adaptation is related. Table 6 shows the characteristics and strategic decisions that can be associated with adaptations toward SE.

These results suggest that acquisition, as a way of adapting to SE, implies important changes at the business level. These changes include the creation of new business models, the development of new brands and changes in the way a company relates to customers in the transportation and storage sectors industry. Such adaptations are complex and costly decisions that require a long-term vision. These results are consistent with the literature that view acquisition as a form of growth that involves an extensive economic effort on the part of the traditional company (Jordão *et al.*, 2014), and that can offer a solution to complex problems such as adjusting to technological changes or strengthening the competitive position (Child *et al.*, 2001). Therefore, as this adaptation form involves costly operations and proposes solutions to complex and ambitious issues, it makes sense that they involve major business changes over time.

By contrast, internal development as a way to adapt is more common among companies in the commerce/tourism sector. They choose to change their business model internally without the need for drastic changes, except in terms of value propositions. As such, the aim of this form of adaptation is to generate synergies in the company's traditional activity, taking advantage of its knowledge of the market and exploring these new business opportunities provided by the SE. These results are in line with the characteristics of internal development. Compared to acquisition, it involves a slower growth process, a lower monetary cost versus a greater need for time invested, and greater risks, due to the need to maintain the entire process internally from start to finish (Francis and Smith, 1995). However, this form of adaptation also involves taking advantage of the company's market experience, by giving it a greater ability to recognize opportunities, understanding which resources are available and needed, and developing synergies from these resources. It can be used as a springboard to approach these new opportunities (Karim and Mitchell, 2004). As these are companies with more limited economic resources and a high level of experience in the market, internal development is the most appropriate way to adapt, allowing them to use all their knowledge and capabilities, and assuming an acceptable cost for the realization of these actions (Lee and Lieberman, 2010).

Finally, partnership is the most commonly used form of adaptation and companies that opted in favor of this option present a more complex profile. There is no clear pattern as far as the relationship between business characteristics and this option is concerned because we identified companies in a wide variety of sectors, including industry and services. However, this is consistent with the view of partnership as an essential strategy for business development at all levels, regardless of business characteristics (Kanter, 1994). This may explain why in recent years the analysis of innovation in business models has been focused mainly on the study of partnership (Coombes, 2022) as the basis for achieving disruptive innovations and adapting the company to changes in the market structure (Carlborg *et al.*, 2021).

Moreover, these complex partnerships are in line with the increase of complex and specialized innovation models observed recently in business partnership and innovation literature (Xie and Wang, 2020). It shows that it is becoming increasingly complicated for a single company to engage in innovation independently, and it is more and more necessary to work together with other actors to create and capture value through innovation (Adner, 2006), for instance with universities, researches institutions, other companies, technological centers, suppliers or end users (Cantù *et al.*, 2021). This applies to smaller companies that do not have

enough resources to develop this innovation process by themselves (Zhang *et al.*, 2021) and to larger companies that want to remain competitive in highly dynamic environments (Joseph *et al.*, 2021). This has given rise to what we understand as innovation ecosystems, i.e. networks of hierarchically heterogeneous and independent organizations that collaborate for the co-creation of a value proposition (Thomas and Ritala, 2022; Konietzko *et al.*, 2020; Moreau *et al.*, 2018).

In general, this study has allowed us to analyze real cases of adaptations toward the SE by traditional companies, identify and classify them according to their characteristics and the different types of adaptation used. In this way, by analyzing and coding qualitative data on a total of 149 cases of adaptation, it has been possible to obtain a fairly broad perspective of how these cases work. Furthermore, this article has given us the possibility to relate the types of adaptation to changes in business models, linking and extending existing literature on the SE, business models innovation, and even finding relationships with the literature on innovation ecosystems.

In addition, this study also raises a number of managerial implications for traditional companies and emerging platforms alike. First, by identifying 149 real-life cases of adaptation, we demonstrate that there are different approaches that traditional firms can take to compete in an SE context. To this end, the characteristics of each of the adaptation options used are detailed and explained, providing company managers with concrete examples of companies that have adapted, which could raise their awareness of the potential role that their adoption could play in their company. In addition, the identification of relationships between adaptation options and certain variables on business characteristics provides a table. This table allows managers of traditional businesses to determine which options are most developed based on their specific characteristics and how they relate strategic decisions. This provides information to managers of traditional companies that are thinking of adapting to SE and therefore eliminates part of the uncertainty of this decision.

With regard to SE platforms or start-ups, the activities of traditional companies can represent both an opportunity and a threat. On the one hand, they may present opportunities for partnerships or even acquisitions that allow these emerging platforms to thrive in the market. On the other hand, they may also risk affecting their market share. As a result, this study provides an explanation for emerging platforms on the distribution of business characteristics that may be most strongly related to each type of adaptation. It offers clues about future threats or opportunities.

6. Limitations and future lines of research

This study also has some limitations. Although it takes a first step toward the study of the variables that affect the decisions of established companies to adapt to the SE, it has an exploratory nature because it is based on qualitative data identified in secondary sources. Future studies could extend this line of research by using quantitative data that would allow a more in-depth examination of the relationships between company characteristics and adaptation modes. Second, collecting information from secondary sources using keywords for the Internet search of adaptation cases may have led to the omission of certain keywords. The inclusion of these keywords might have yielded different results and could have resulted into the underuse of other important search terms and the under-identification of other business cases. As such, future research may involve expanding the number of search terms being used to identify as many cases as possible.

In addition, while this study indicates that the partnership option has been by far the most used form of adaptation by companies to adjust their business models to the SE context, it does not provide an explanation for why that is the case, which is something future research can examine in greater depth. Moreover, most companies included in this study are large,

making it difficult to draw conclusions about smaller companies. As such, future research can also include smaller companies, and see what the similarities and differences are when looking at the size of a company.

Note

1. The complete list of companies, sectors and types of adaptation can be requested from the authors.

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