Esic Market Economics and Business Journal
Vol. 57, n.º 1, January-April 2026, e483

Rethinking e-commerce deliveries: customer preferences and co-creation

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Received: 30-07-2025; Accepted: 07-04-2025; Published: 30-04-2026

Abstract

Objective and interest of the work: This study aims to assess e-commerce services and delivery strategies from a co-creation perspective, focusing on customer preferences in the evolving European retail landscape. Specifically, it seeks to support the redesign of delivery strategies by analysing how consumer expectations and engagement can influence the development of value-added services. By analysing the evolution of consumer purchasing patterns in response to social and environmental changes, the study investigates how retail companies can adapt their business models to meet customer expectations.

Methodology: A quantitative research approach was employed, analysing data from 521 participants. The study collected a range of consumer preferences and socioeconomic characteristics to cluster the emerging trends.

Results: The findings indicate that complementary business models can coexist, shaped by diverse customer expectations. Additionally, the level of service demand appears consistent across different income and occupation levels. There is an interest in value co-creation, specifically through scheduled deliveries or locker pickups, among individuals with higher occupational levels. In parallel, the study reveals the benefits of combining the service-dominant logic with the co-creation value in the analysis of customer needs and business strategy.

Limitations: The study is limited to a sample of 521 geographically distributed European participants, which may not fully capture the diversity of consumer behaviour across all regions.

Practical implications: The research identifies new purchasing trends. The study therefore supports the design of flexible retail business models based on customer-centric services, as well as sustainable, cyber-safe and collaborative deliveries.

ISSN 0212-1867 / e-ISSN 1989-3574

ESIC University
https://revistasinvestigacion.esic.edu/esicmarket

How to cite:
Turienzo, J. (2026). Rethinking e-commerce deliveries: customer preferences and co-creation. *ESIC Market. Economics and Business Journal*, 57(1), e483. DOI: 10.7200/esicm.57.483

Keywords: business model; logistics; e-commerce; co-creation value; cyber-safe

JEL codes: M00; R41; O33

1. Introduction

In recent years, the retail sector has undergone a deep transformation associated with evolving consumer purchasing habits. As a result, traditional retail managers seek to adapt their business models to offer e-commerce services that can counterbalance the exponential growth of online commerce platforms (Turienzo, 2025) and leverage social and technological trends to remain competitive in the changing retail landscape (Isharyani et al., 2024). Online platforms are forecasted to replace physical stores (Song et al., 2022) through digital and adaptable business models that respond to the continuous changes in customer needs (Kraus et al., 2019).

The emerging social and sustainability trends influence consumer behaviours (Zasada et al., 2019). Similarly, the preference for locally sourced products (Clark & Tilman, 2017) favours the consumption of goods from nearby producers. Furthermore, the evolving relevance of the customer's chosen platform is underscored by the shopping experience offered by the company (Alamdari et al., 2020). Likewise, the interaction and promotion via social media channels may incentivise the consumption of specific products or services (Cano-Marin et al., 2023).

Additionally, the increasing inclination towards mobility-centric services facilitates the integration of transport into consumer purchases (Ho & Tirachini, 2023). Furthermore, the e-commerce purchasing process must comply with cybersecurity standards (Mohd & Zaaba, 2019) to garner consumer acceptance. At the same time, managerial strategies should address emerging challenges in last-mile logistics and delivery sustainability (Heikkinen, 2024).

On the other hand, the high impact of last-mile logistics (LML) on the shopping experience and its complexity results in increased relevance and analysis (Bosona, 2020). This complexity generates business opportunities for those who optimise LML services (Cardenas et al., 2017) in terms of cost (Silva & Nilsson, 2024) and environmental impact (Pronello et al., 2017) reduction. Moreover, consumers may prefer different delivery modes and are willing to adopt sustainable options (Amaya et al., 2025).

Regardless of the distribution mode, companies must seek business optimisation by employing new technological and transport features (Turienzo et al., 2023a). In parallel, the LML must meet the customers' expressed needs (Liu et al., 2019). However, B2C LML is characterised by high inefficiency (Vakulenko et al., 2018). For instance, analysing needs and adapting business models by applying the service-dominant logic (SDL) enables the development of strategies that increase long-term business viability (Plé & Cáceres, 2010).

Additionally, studying customer needs enables an understanding of the actors involved in the creation, delivery and value capture through a redesign of business

models (Teece & Linden, 2017). Although researchers emphasise the adaptation of services to real needs to increase value generation (Guerola-Navarro et al., 2021) with minimal resources, there are few studies on the delivery process from the customer's perspective. This research aims to fill this gap by exploring and quantifying the relevance for European citizens. Using a quantitative research approach, the study delves into the preferences of different social groups regarding the delivery of products purchased via e-commerce and traditional retail.

As a result, the study addresses the existing gap by analysing LML delivery preferences from a consumer perspective. The research examines the influence of income and occupation on e-commerce and physical retail preferences, providing new evidence on consumer engagement and value co-creation in logistics. The findings also clarify which service features are most valued within each retail business model. Overall, the research reinforces the link between consumer behaviour, SDL, co-creation and logistics management. Furthermore, the study offers recommendations for designing more efficient delivery strategies based on sustainability and customer expectations.

2. Theory review

Previous studies revealed that successful companies associated with digital business models maintain a constant evolution of their operations (Tan et al., 2015). Therefore, they exhibit a lifecycle similar to that of a product (birth, growth, maturity or leadership) and avoid decline through continuous renewal (Teece, 2017). Investment in improving marketing, including communication and distribution, brings significant benefits to companies by enhancing operational efficiency (Gregory et al., 2019). The identification of needs and forecasting enables the optimisation and maximisation of human, technical, IT and management capabilities (Karaboga et al., 2023).

In line with this, retail digitisation intensifies the necessity of continuous adaptation to customer needs (Guerola-Navarro et al., 2021), social factors and environmental impact (Zasada et al., 2019). In addition, some customers value the environmental aspects of e-commerce (Biancolin & Rotaris, 2024). Therefore, integrating value co-creation principles with logistics optimisation allows business models to adapt to dynamic market and sustainability requirements (Olsson et al., 2023). Thus, the dynamism of LML enables companies that renew their business models to seize and generate significant opportunities (Rai et al., 2017).

However, the high volume of delivery-related operations (Bosona, 2020) poses great difficulties and challenges for LML (Hübner et al., 2016). Consequently, operational and strategic planning must be continuously adjusted to the operational capacity of each logistics partner (Leung et al., 2018). Thus, companies must analyse the delivery services offered, as LML can be the costliest component of e-commerce (Boysen et al., 2020). As a result, retailers must consider all actors involved in the

sales and distribution process as essential for the proper functioning of e-commerce (Pahwa & Jaller, 2022). In this way, the business model depends on LML optimisation, costs, inventory and customer delivery time (Silva & Nilsson, 2024).

Furthermore, digitisation should be used to address demand variability and customer delivery expectations (Hübner et al., 2016) through greater knowledge and cooperation with the customer (Giret et al., 2018). Teece and Linden (2017) emphasised that business strategy is based on creating and delivering value from the customer's perspective. Therefore, it is necessary to understand the characteristics of the service or product that add value to (potential) customers (Spieth & Schneider, 2016).

From this perspective, logistics optimisation and co-created experiences become mutually reinforcing, as last-mile efficiency depends on the degree of customer participation and shared value creation (Wang et al., 2023). Thus, new business models must satisfy the target market (Cortez et al., 2021). The coexistence of different business models is possible if they meet disparate needs (Thomé et al., 2021). Small retailers offer customers personalised attention and purchasing guidance (Srichookiat & Jindabot, 2017), as well as immediate delivery (Dupre & Gruen, 2004). Despite improvements in delivery services, immediate delivery is very restricted in e-commerce (Beckers et al., 2021). Based on this, the first research hypothesis and sub-hypotheses are proposed to address the coexistence of related business models that cover disparate needs:

- H1: E-commerce and traditional retail are complementary since they cater to diverse needs.
- H1a: Urgency, personalised attention and advice are the business strengths of the physical store.
- H1b: E-commerce bases its competitive advantages on the satisfaction of time freedom and a wide variety of alternative products.

On the other hand, from the SDL perspective, each customer subjectively and independently values the purchasing experience and the delivery service (Plé & Cáceres, 2010). Thus, customers assess and attribute a specific value to the services offered by the company (Robertson et al., 2014). When a service meets customers' needs, they are willing to exchange economic value, and the company therefore captures it through the sale (Vargo & Lusch, 2011).

In parallel, personal factors (age and occupation level) can influence customers' requirements, increasing their demands (Sasaki, 2022). The availability of time and income significantly influences shopping habits (Russo & Comi, 2020). Similarly, purchasing power (Liu & Niyongira, 2017) can shape customers' requirements and expectations due to the conservation of resources (money) during the purchasing process (Wang et al., 2021). Consequently, the second hypothesis is proposed:

- H2: The level of demand and delivery requirements is associated with occupation and income levels.

Following the SDL perspective, successful value creation involves analysing all subservices necessary to develop the business model (Echeverri & Skålén, 2011). In e-commerce, LML (distribution and delivery of products) has high visibility and business impact (Machado de Oliveira et al., 2017). Thus, the perspective and preferences of (potential) customers must be considered, allowing their active participation to maximise value creation (Vakulenko et al., 2018). For instance, the service offered (purchase, distribution and delivery) must be designed as a collaborative process among all involved actors, especially the customer (Plé, 2016). Through personalisation to the final actor (customer), it is possible to achieve a higher value by meeting customers' ambition to maximise the money invested (Yang et al., 2023). Additionally, the use of automated delivery services depends on ease of use and user willingness (Turienzo et al., 2023b). Among the key factors for their acceptance are proximity to offices or workplaces and good accessibility (Kedia et al., 2017). Based on the insights, the third hypothesis is proposed:

- H3: The customisation and adjustment of delivery services to individual customers are highly esteemed by population segments with limited time flexibility.

3. Methodology

3.1. Techniques used and characteristics of the sample

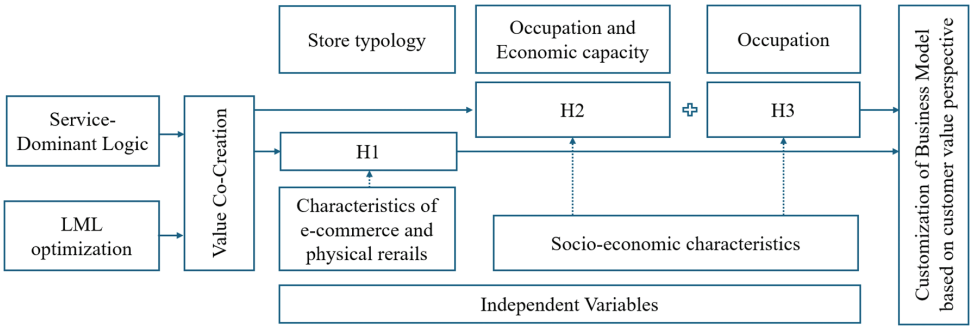
The research was conducted in Europe due to its representativeness of Western retail preferences and purchasing patterns. In 2023, e-commerce in Europe and the United States generated approximately $1.4 trillion (Statista, 2024).

Quantitative methodology enables the analysis of social consumption trends and business practices using statistical techniques (Allwood, 2012). Survey-based data collection identifies relationships between socioeconomic characteristics and improves understanding of behavioural patterns (Craighead & Meredith, 2008). By identifying common preferences within a sample, results can be generalised to similar population groups (Craighead et al., 2011).

As a preliminary step, a power analysis was conducted using G*Power 3.1.9.7 software to ensure adequate statistical power in marketing research (Maroufkhani et al., 2022). Since the final model includes multiple predictors, the F-test for 'multiple linear regression: R^2 deviation from zero' was selected as an approximation for the multivariate logistic model. Considering that pseudo-R^2 measures from logistic regression are not directly equivalent to R^2 from linear models, Cohen's f^2 was set at a medium level (0.15). Regarding the remaining parameters, α was fixed at 0.05 and statistical power at 0.90. With ten predictors, this required a minimum of 147 participants, confirming that the final sample size was sufficient.

Data collection was carried out by distributing an online survey between May and September 2024 via Survey Circle. The survey was completed by 521 individuals with diverse socioeconomic characteristics (see Appendix 1) to analyse customer value expectations and, therefore, business strategies (see Figure 1).

Figure 1. Research model



Source: Own elaboration.

3.2. Variables

To analyse the data reported in the survey, two types of variables are established: dependent and independent.

Dependent variables are intended to characterise the sample and identify potential purchasing preferences. Related to H1, the first analysed variable, 'store type', is defined as a dummy variable, with a value of 0 assigned to physical stores and 1 to e-commerce. However, the dependent variables proposed for the second and third hypotheses are evaluated from 1 to 3 (see Table 1).

Table 1. Type of personal situation and assigned value

Variable	Reduced (value = 1)	Medium (value = 2)	High (value = 3)	Feature evaluated
H2 and H3: Occupation	People with freedom of time to make purchases	People with light obligations that partially restrict freedom of time	Employees or self-employed workers who cannot go shopping at the desired time	Occupational status
H3: Economic capacity	People with reduced incomes that limit or condition their choice of products or establishments	People with average incomes that partially condition their choice of products or establishments	High-income earners who (almost) remove restrictions on product or store choice	Monthly income (€)

Source: Own elaboration.

In this study, occupation and economic capacity are defined as dependent variables with the aim of analysing whether individual preferences regarding delivery services and logistical attributes make it possible to identify different socioeconomic profiles. For this purpose, the logistic models estimate the probability of belonging to a given occupational or income category based on the preferences observed among participants. Therefore, the objective is to assess whether the degree of occupational engagement and income level can be statistically inferred from consumer behaviour. This modelling strategy is consistent with previous work on consumer behaviour, market segmentation and discrete choice analysis (Louviere et al., 2010).

- Independent variables
  - o H1: These needs are defined based on the main attributes of in-store commerce and e-commerce. They are defined as: (1) simplicity in the purchase; (2) immediacy in product delivery; (3) social factors (belonging to social groups, supporting local businesses...); (4) product visualisation; (5) time flexibility; (6) price; (7) direct professional assistance; (8) anonymity in the purchase; (9) product variety; (10) return and warranty process; and (11) home delivery. These variables are rated from 1 (very low) to 5 (very high), corresponding to the observed rating for each variable for physical stores and e-commerce.
  - o H2: To address the second hypothesis, the willingness to pay an additional cost for specific delivery times, information or scheduled deliveries was analysed. Key variables include: (1) 24-hour delivery time; (2) 72-hour delivery time; (3) 7-day delivery time; (4) purchase status information (order received, in preparation, awaiting pickup, shipped, out for delivery, etc.); (5) tracking (GPS tracking); and (6) complete transport information (cold chain, GPS location, estimated delivery time, shipment status). Similarly, a value of 1 is assigned when the acceptable additional cost is low (€0), and a value of 5 is assigned when it is high (€10 or more), as shown in Table 2.
  - o H3: To address the third hypothesis, two variables economically weighted by the customer are proposed. The variables are: (1) scheduled delivery time and day within the logistics provider's range; and (2) discount required to accept delivery to a locker or pickup point. Each has been rated uniformly based on the economic value assigned by the participant (see Table 2).

3.3. Research equations

To ensure consistency between the conceptual hypotheses and the empirical analysis, the equations used to test each research hypothesis are detailed.

- H1: $\text{logit}(\text{StoreTypology}_i) = \beta_0 + \beta_1 \cdot \text{Simplicity}_i + \beta_2 \cdot \text{Immediacy}_i + \beta_3 \cdot \text{Social factors}_i + \beta_4 \cdot \text{Product visualisation}_i + \beta_5 \cdot \text{Time flexibility}_i + \beta_6 \cdot \text{Price}_i + \beta_7 \cdot \text{Professional assistance}_i + \beta_8 \cdot \text{Anonymity}_i + \beta_9 \cdot \text{Product variety}_i + \beta_{10} \cdot \text{Return warranty}_i + \beta_{11} \cdot \text{Home delivery}_i + \epsilon_i$

Table 2. Weighting of variables associated with the second and third hypotheses

	Variable	Very low (value = 1)	Low (value = 2)	Medium (value = 3)	High (value = 4)	Very high (value = 5)
H2	Affordable cost overrun	€0	€1	€3	€5	+ €10
H3	Extra cost to be borne by the customer to arrange delivery	€0	€1	€3	€5	+ €10
	Discount required by the customer to accept delivery to a locker	€0	€1	€3	€5	+ €10

Source: Own elaboration.

- H2: The two dependent variables have been analysed individually and jointly. Therefore, the three research equations used for the multinomial regression approach are detailed below:

$$\text{logit}(P(\text{Occupation}_i = j)) = \beta_{0j} + \beta_{1j} \cdot 24\text{h delivery}_i + \beta_{2j} \cdot 72\text{h delivery}_i + \beta_{3j} \cdot 7\text{d delivery}_i + \beta_{4j} \cdot \text{Purchase status information}_i + \beta_{5j} \cdot \text{Tracking}_i + \beta_{6j} \cdot \text{Complete transport information}_i + \epsilon_{ij}$$

$$\text{logit}(P(\text{Economic capacity}_i = j)) = \beta_{0j} + \beta_{1j} \cdot 24\text{h delivery}_i + \beta_{2j} \cdot 72\text{h delivery}_i + \beta_{3j} \cdot 7\text{d delivery}_i + \beta_{4j} \cdot \text{Purchase status information}_i + \beta_{5j} \cdot \text{Tracking}_i + \beta_{6j} \cdot \text{Complete transport information}_i + \epsilon_{ij}$$

$$\text{logit}(P(\text{Occupation \& economic capacity}_i = j)) = \beta_{0j} + \beta_{1j} \cdot 24\text{h delivery}_i + \beta_{2j} \cdot 72\text{h delivery}_i + \beta_{3j} \cdot 7\text{d delivery}_i + \beta_{4j} \cdot \text{Purchase status information}_i + \beta_{5j} \cdot \text{Tracking}_i + \beta_{6j} \cdot \text{Complete transport information}_i + \epsilon_{ij}$$

- H3: $\text{logit}(P(\text{Occupation}_i = j)) = \beta_{0j} + \beta_{1j} \cdot \text{Scheduled delivery time}_i + \beta_{2j} \cdot \text{Discount required}_i + \epsilon_{ij}$

  General notes:
  - $P(\text{StoreTypology}_i)$ = probability that individual i chooses e-commerce (1) versus a physical store (0).
  - $P(\text{O\&E}_i = j)$ = probability that individual i belongs to category j of the combined multinomial dependent variable (occupation and economic capacity).
  - $P(\text{O}_i = j)$ = probability that individual i belongs to category j of the combined multinomial dependent variable (occupation).
  - β_{0j} = intercept for category j.

- $\beta_{1j},\ldots,\beta_{nj}$ = coefficients of the independent variables for category *j*.
- ϵ_{ij} = error term.

4. Analysis of the results

4.1. H1: E-commerce and traditional retail are complementary since they cater to diverse needs

The logistic model characterises the preferences of different store models (physical or e-commerce). To increase the reliability of the data, the coefficients were standardised (see Table 3). Estimated by maximum likelihood, the model shows high-quality performance in terms of fit (pseudo-R^2 = 0.743), a goodness-of-fit measure commonly reported in logistic regression models where the traditional R^2 is not applicable. Moreover, with a very high predictive ability (99.05%), the proposed model describes the behaviour of the dependent variable very well.

Table 3. Summary of the results of the logistic model analysis (H1)

Independent variable	Coefficient	Dependent variables' mean		Standard error	P-value
		Physical	E-commerce		
Simplicity in purchasing	1.12910	2.816	3.597	0.75441	0.13448
Immediacy in the delivery of the product	–0.98817	3.449	2.190	0.76433	0.19606
Social factors	–5.36954	2.933	1.896	1.61062	0.00086
Product visualisation	–1.97413	3.138	2.104	0.83454	0.01800
Freedom of time	4.66402	2.653	3.424	1.54145	0.00248
Price	1.55769	3.610	3.787	0.79441	0.04990
Direct attention from the professional	–5.22927	2.823	1.662	2.03171	0.01006
Anonymity in the purchase	1.42370	2.061	2.631	0.68820	0.03857
Product offer	1.42512	2.620	3.102	0.76518	0.06254
Return and warranty process	4.54528	2.476	3.914	1.44745	0.00169
Home delivery	12.40216	2.046	4.451	3.90517	0.00149

Source: Own elaboration.

Analysis of the correlations between independent variables (see Appendix 2) shows that they are less than 0.1. Similarly, multicollinearity was examined using variance inflation factors (VIF). To maximise the quality of the analysis, the 'home

delivery' variable was excluded from further analyses, as it had a VIF exceeding 10. It shows the variability of the responses of the 521 participants regarding the descriptors analysed. These descriptors clearly highlight the difference in the value that current and potential buyers assign to each channel.

4.2. H2: The level of demand and delivery requirements is associated with occupation and income levels

The goodness of fit for the multinomial model was estimated using McFadden's pseudo-R^2 technique. This technique is considered a standard goodness-of-fit measure for multinomial and logistic regression models when a traditional R^2 is not applicable (Long & Freese, 2022; McFadden, 1974). A higher value indicates a better fit of the model to the data. However, as observed in the descriptive results, occupation level and income do not significantly influence delivery requirements. Low pseudo-R^2 values are common in multinomial and discrete choice models, particularly when individual preferences are heterogeneous (Greene, 2020). This is reflected in the pseudo-R^2 values obtained, which are 0.032, 0.021 and 0.293, respectively, for the analysis of the dependent variables taken as occupation level, income level and combined occupation-income level. Furthermore, the results (see Table 4 and Appendix 3) present a low prediction level (less than 5% in all cases) according to the weak discriminatory power of each variable (James et al., 2021).

Similarly, leave-one-out (LOO) cross-validation was employed to assess the accuracy of the multinomial model (Hastie et al., 2021). In each iteration, the model is fitted with all data except one and then predicts the class of that excluded data point. Subsequently, the classification error is calculated for each data point and the average accuracy is calculated using LOO cross-validation. The obtained LOO values are relatively low, at 61.03%, 51.82%, and 7.34%, respectively, for the analysis of the dependent variables taken as occupation level, income level and combined occupation-income level.

4.3. +++H3: The customisation and adjustment of delivery services to individual customers are highly esteemed by population segments with limited time flexibility

H3 was analysed using multinomial logistic regression. The preliminary analysis reveals very low p-values (see Table 5). Likewise, the descriptive results show that a higher occupation level corresponds to a greater willingness for scheduled delivery and the use of lockers.

Assessed through McFadden's pseudo-R^2, the relative goodness of fit is relatively high (0.384). Finally, the LOO cross-validation provides a high average accuracy (69.67%) for the analysis of the dependent variable occupation level.

Table 4. Summary of the results of the logistic model analysis (H2)

Dependent variable	Independent variable	Coefficient				Standard error				P-value				VIF values
		(2)	(3)	(4)	(5)	(2)	(3)	(4)	(5)	(2)	(3)	(4)	(5)	
Occupation level	Delivery within 24 hours	0.180	-0.037			0.180	0.142			0.317	0.793			17.456
	Delivery within 72 hours	0.130	0.042			0.235	0.186			0.579	0.823			23.759
	Delivery in 7 days	0.049	-0.659			0.303	0.242			0.871	0.007			28.002
	Purchase status information	-0.251	0.090			0.417	0.326			0.548	0.781			54.211
	Tracking	-0.072	-0.126			0.264	0.210			0.785	0.548			24,.524
	Complete transport information	0.133	0.102			0.199	0.158			0.504	0.517			16.901
Income level	Delivery within 24 hours	0.088	-0.035			0.162	0.134			0.585	0.793			16.195
	Delivery within 72 hours	0.352	0.251			0.213	0.177			0.099	0.156			23.493
	Delivery in 7 days	-0.051	-0.264			0.265	0.220			0.848	0.228			23.860
	Purchase status information	0.239	-0.068			0.369	0.310			0.518	0.825			52.204
	Tracking	-0.503	-0.199			0.243	0.199			0.039	0.316			23.172
	Complete transport information	-0.142	-0.004			0.180	0.149			0.431	0.980			15.788
Combination of occupation and income levels	Delivery within 24 hours	0.371	-0.104	0.112	-0.029	0.271	0.234	0.233	0.225	0.171	0.656	0.631	0.897	24.917
	Delivery within 72 hours	0.538	0.977	0.830	0.597	0.370	0.319	0.317	0.308	0.145	0.002	0.009	0.052	32.099
	Delivery in 7 days	-0.525	-0.834	-0.876	-1.110	0.462	0.395	0.393	0.383	0.256	0.035	0.026	0.004	37.129
	Purchase status information	0.976	0.422	0.436	0.462	0.630	0.549	0.550	0.533	0.121	0.442	0.427	0.386	77.318
	Tracking	0.141	-0.181	-0.507	-0.131	0.402	0.350	0.352	0.338	0.725	0.605	0.149	0.698	35.517
	Complete transport information	-0.333	-0.217	-0.037	-0.101	0.302	0.257	0.256	0.248	0.270	0.399	0.884	0.683	20.633

Source: Own elaboration.

Table 5. Summary of the results of the logistic model analysis (H3)

Independent variable	Coefficient		Dependent variables' mean			Standard error		P-value		VIF values
	(2)	(3)	Reduced occupation	Average occupation	High occupation	(2)	(3)	(2)	(3)	
Extra cost to be borne by the customer to arrange delivery	0.812	-0.425	1.778	2.290	2.672	0.191	0.212	2.04E-05	4.52E-02	14.717
Discount required by the customer to accept delivery to a locker	1.221	-1.903	3.481	3.258	2.253	0.188	0.213	7.64E-11	1.33E-39	33.219

Source: Own elaboration.

5. Discussion of the results

Regarding the first hypothesis, it is worth mentioning the existence of independent variables or factors that motivate purchases in physical stores or via e-commerce. Simplicity of purchase is a characteristic linked to e-commerce (average of 3.597) and, to a lesser extent, to purchases in physical stores (average of 2.816). Similarly, the freedom of schedule offered by e-commerce is highly valued by consumers (3.424) compared to physical retail (2.653). Likewise, anonymity in the purchase favours e-commerce (average of 2.631 in e-commerce versus 2.061 in physical stores), despite concerns about cybersecurity (Mohd & Zaaba, 2019). The greater product variety available to consumers is an enhancer of e-commerce (3.102 versus 2.620). Therefore, the results confirm sub-hypothesis H1b. Finally, the return and warranty process offered by the store is a highly valued feature in e-commerce platforms (3.914), compared to the importance placed on warranties in physical stores (2.476). This aspect highlights the importance given to product visualisation in physical stores. Customers who want to see the product before purchasing prefer physical stores (3.138) over online platforms (2.104). Similarly, the results align with those of Srichookiat and Jindabot (2017) and confirm sub-hypothesis H1a, since, when expert advice is needed for the purchase, the variable 'direct attention from professionals' reveals that consumers prefer physical stores (2.823 in physical stores versus 1.662 in e-commerce). Moreover, the results show that consumers turn to physical stores when they need immediacy in product delivery (3.449 versus 2.190), confirming the theory proposed by Dupre and Gruen (2004). Additionally, the social trend of supporting small businesses is a factor that significantly influences consumers and favours sales in physical establishments (2.933 versus 1.896). Finally, price is a factor that barely influences consumers' decisions in selecting the channel, as the averages are very similar. Consequently, strategy should align with the creation and delivery of value (Teece & Linden, 2017), confirming that business viability is based on understanding the characteristics demanded by customers for each type of business model (Spieth & Schneider, 2016). Therefore, the results of H1 partially confirm the coexistence of complementary retail business models (Thomé et al., 2021).

Regarding H2, the results reject the proposed hypothesis. It can be observed that the independent variables do not adequately predict the dependent variable (p-values ranging from 0.3 to 0.8). Additionally, the mean values of the variables are highly similar across the independent variables. Regarding the 'delivery in 24 hours' variable, the values range from 2.398 to 2.714. Similarly, the 'delivery in 72 hours' results show values ranging from 2.050 to 2.398. Likewise, the results for the 'delivery in 7 days' variable range from 1.816 to 2.075. Furthermore, the maximum and minimum values are associated with medium-low occupation and income levels. Thus, the results reveal that the demand for delivery time does not depend on the occupation and income levels, partially differing from the conclusions of Russo and Comi (2020). In parallel, the results for the 'information on the status of the

purchase' variable show values ranging from 1.975 to 2.102, the 'tracking' variable values range from 2 to 2.125, and the 'complete transport information' values range from 2.163 to 2.325. Therefore, the results partially refute the increased demand indicated by Liu and Niyongira (2017) and Sasaki (2022), since the information requirements associated with shipping are not related to the level of occupation or income.

Regarding H3, the data indicate that a higher occupation level is associated with a greater interest in participating in the service. Thus, the results reveal that people with a higher occupation level are willing to assume a higher surcharge to arrange the delivery of the goods (2.672) compared to those with a lower occupation level (1.778). Similarly, people with a higher occupation level are more inclined to accept delivery through lockers with a lower required discount (2.253) than those with a lower occupation level (3.481). Consequently, regarding the level of participation, customer preferences should be considered to maximise captured value (Vakulenko et al., 2018), confirming that the possibility of arranging locker delivery and the location of the locker should be based on the most common characteristics of consumers (Kedia et al., 2017; Plé, 2016). Therefore, the results of H3 confirm that the value generated in people with a higher occupation level depends on the degree of participation offered (Yang et al., 2023).

6. Conclusions

In terms of theoretical contributions, the study offers three main outputs. Firstly, the results show that consumer preferences depend on their personal characteristics (income level and occupation). Through quantitative research, the study reveals the evaluation of the services offered by various retail business models and consumers' demands and willingness to co-create value. This finding contributes to understanding how co-creation dynamics can encourage more responsible and participatory forms of consumption. Secondly, the research shows that consumers' preferences regarding delivery time and information are independent of their income level and occupation. Thirdly, consumers will choose the provider or business model (physical store or e-commerce) based on their specific needs and concerns (i.e., cybersecurity, product testing, information, confidentiality). Lastly, the study reveals a greater willingness to participate in the value creation process among individuals with less leisure time due to lower adaptation needs for the service offered when it is created between the client and the retailer. This highlights the potential of co-created logistics to empower consumers and encourage shared decision-making based on sustainable and collaborative deliveries.

Simultaneously, there are multiple practical contributions. First, the results provide differentiated insights for both SMEs and large retail platforms. Business strategy leaders and managers should promote the development of companies by

addressing specific needs. The results indicate that consumers visit physical stores when the purchase involves technical questions that require consultation. Therefore, based on the findings, SMEs and traditional retailers are recommended to reinforce staff training and maximise in-store expertise to preserve their advisory advantage. Similarly, the results reveal that product availability is essential for physical stores, allowing them to showcase and deliver products immediately. For large retail platforms, these findings suggest the importance of balancing efficiency with customer interaction through digital assistance or hybrid service models.

In contrast, consumers report that an efficient and reliable return and warranty system in e-commerce could replace professional advice and product visualisation in the purchasing process. Hence, digital retailers should focus on strengthening post-purchase support and transparent return logistics as substitutes for physical interaction. Secondly, the research shows that delivery time is not critical, as consumers associate it with physical stores. However, delivery delays are equally poorly considered by all population segments analysed. Therefore, companies are advised to invest more resources in providing shipping status information rather than offering urgent deliveries and increasing cybersecurity. This approach may also reduce the environmental impact associated with express shipping operations, promoting more sustainable delivery planning.

Finally, the study identifies a high willingness to participate in a value co-creation process among individuals with a high occupation level. Similarly, consumers' predisposition to accept an additional cost to reduce the need for adaptation in the product delivery process is observed. Such co-created and flexible delivery models may encourage more socially inclusive and sustainable logistics practices by enabling shared decision-making and reducing unnecessary transport. For this reason, large e-commerce platforms are recommended to enable scheduled delivery systems or use a network of well-connected lockers to reduce logistical costs, whereas SMEs could benefit from local partnerships and flexible collection points to enhance customer satisfaction and operational efficiency.

The research presents limitations related to the empirical work. Although the participants are from cosmopolitan and multicultural countries, the sample is concentrated in European countries. Therefore, expanding the participant sample to include information from other cultures and from people with different personal characteristics is recommended. Consequently, further analysis is needed to determine demand for delivery times, required information or other factors based on the product type.

Funding

Funding for proofreading: Cátedra de Economía de la Ciberseguridad USC-INCIBE (CECOCIB).

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Appendix 1. Sample characteristics

Characteristics		Number of cases
Country	Spain	197
	Portugal	108
	France	38
	United Kingdom	118
	Germany	27
	Italy	31
	Nordic countries	2
Age range (years)	16–18	12
	19–24	126
	25–35	151
	36–50	84
	51–65	76
	66–70	28
	71–80	35
	81–99	9
Gender	Male	275
	Female	246
Employment situation	Self-employed	131
	Employed (by others)	189
	Unemployed	48
	Student	93
	Pensioner or retiree	60
Monthly income	Lower than €500	88
	€501–750	16
	€751–1,000	29
	€1,001–1,500	15
	€1,501–2,000	100
	€2,001–2,500	185
	Higher than €2,501	88

(*continued*)

Appendix 1. Sample characteristics (*continued*)

Characteristics		Number of cases
In what type of company does the activity develop?	Logistics	64
	Retail	30
	Manufacturing	103
	Medical Services	19
	Advice, technical studies and consulting	1
	Education	77
	Public administration	26
In which department do you carry out your activity?	Administration, finance and accounting	115
	Logistics	67
	Purchases	62
	Manufacturing	21
	Technical department	10
	(General) Management	24
	Others	21
How often do you shop in a physical store?	Zero	1
	1–2 times per year	13
	1 time per month	69
	1 time per week	148
	2 or more times per week	290
How often do you shop at e-commerce stores?	Zero	2
	1–2 times per year	58
	1 time per month	105
	1 time per week	182
	2 or more times per week	174

Appendix 2. Hypothesis 1: Correlation between independent variables. P-value observed through correlation test

#	Independent variable	1	2	3	4	5	6	7	8	9	10	11	VIF
1	Simplicity in purchasing	0	(3.16E-16)	(2.93E-17)	(6.40E-10)	(5.59E-07)	(2.98E-01)	(1.02E-21)	(2.03E-05)	(9.18E-03)	(2.83E-16)	(1.81E-35)	1.538
2	Immediacy in the delivery of the product	3.17E-16	0	(4.33E-32)	(9.57E-12)	(1.39E-13)	(1.49E-03)	(3.88E-32)	(1.48E-08)	(2.56E-04)	(3.73E-38)	(1.28E-70)	2.220
3	Social factors	2.94E-17	4.33E-32	0	(6.67E-14)	(2.35E-13)	(3.91E-02)	(4.22E-36)	(3.97E-10)	(4.98E-05)	(2.25E-27)	(1.11E-63)	6.034
4	Product visualisation	6.41E-10	9.57E-12	6.67E-14	0	(1.30E-11)	(3.41E-02)	(6.18E-26)	(0.002843)	(2.39E-04)	(8.61E-20)	(1.61E-39)	3.698
5	Freedom of time	5.59E-07	1.39E-13	2.35E-13	1.31E-11	0	(1.10E-01)	(4.90E-15)	(2.87E-06)	(1.02E-02)	(6.01E-17)	(8.68E-35)	8.871
6	Price	2.98E-01	1.49E-03	3.91E-02	3.41E-02	1.10E-01	0	(5.89E-02)	(2.61E-01)	(8.81E-01)	(1.51E-03)	(1.85E-02)	2.572
7	Direct attention from the professional	1.02E-21	3.88E-32	4.23E-36	6.18E-26	4.91E-15	5.89E-02	0	(2.71E-12)	(7.46E-08)	(8.92E-39)	(2.70E-94)	4.487
8	Anonymity in the purchase	2.03E-05	1.49E-08	3.97E-10	3.31E-05	2.87E-06	2.67E-01	2.72E-12	0	(9.59E-03)	(9.77E-08)	(7.38E-14)	2.681
9	Product offer	9.18E-03	2.56E-04	4.99E-05	2.39E-04	1.02E-02	8.61E-01	7.46E-08	9.59E-03	0	(1.06E-03)	(7.80E-08)	2.822
10	Return & warranty process	2.84E-16	3.74E-38	2.25E-27	8.61E-20	6.01E-17	1.51E-03	8.92E-39	9.78E-08	1.06E-03	0	(2.30E-70)	6.846
11	Home delivery	1.82E-35	1.28E-70	1.11E-63	1.61E-39	8.68E-35	1.85E-02	2.71E-94	7.39E-14	7.80E-08	2.30E-70	0	11.705

Appendix 3. Hypothesis 2: Descriptive data of independent variables linked to H2.

Analysis based on the participant's occupancy level variable

Independent variable	Dependent variable	N	Mean	Median	Max.	Min.	S. D.
Delivery within 24 hours	Reduced occupation	108	2,472	3	4	1	0,779
	Average occupation	93	2,581	3	4	1	0,798
	High occupation	320	2,453	2	5	0	0,794
Delivery within 72 hours	Reduced occupation	108	2,278	2	4	1	0,639
	Average occupation	93	2,323	2	4	1	0,710
	High occupation	320	2,297	2	4	1	0,562
Delivery in 7 days	Reduced occupation	108	1,972	2	3	1	0,520
	Average occupation	93	1,978	2	3	1	0,442
	High occupation	320	1,816	2	3	0	0,488
Purchase status information	Reduced occupation	108	2,028	2	3	1	0,319
	Average occupation	93	2,000	2	3	1	0,330
	High occupation	320	2,038	2	3	1	0,361
Tracking	Reduced occupation	108	2,111	2	3	1	0,439
	Average occupation	93	2,097	2	4	1	0,627
	High occupation	320	2,066	2	3	1	0,542
Complete transport information	Reduced occupation	108	2,213	2	4	0	0,737
	Average occupation	93	2,280	2	4	1	0,697
	High occupation	320	2,281	2	4	0	0,710

Analysis based on the participant's income level variable

Independent variable	Dependent variable	N	Mean	Median	Max.	Min.	S. D.
Delivery within 24 hours	Reduced income	134	2,485	2	4	1	0,712
	Median income	116	2,526	3	4	1	0,807
	High income	271	2,458	2	5	0	0,824
Delivery within 72 hours	Reduced income	134	2,224	2	4	1	0,668
	Median income	116	2,345	2	4	1	0,620
	High income	271	2,314	2	4	1	0,565
Delivery in 7 days	Reduced income	134	1,918	2	3	1	0,491
	Median income	116	1,897	2	3	1	0,445
	High income	271	1,849	2	3	0	0,512

Purchase status information	Reduced income	134	2,030	2	3	1	0,367
	Median income	116	2,052	2	3	1	0,319
	High income	271	2,018	2	3	1	0,349
Tracking	Reduced income	134	2,142	2	4	1	0,564
	Median income	116	2,009	2	3	1	0,611
	High income	271	2,081	2	3	1	0,488
Complete transport information	Reduced income	134	2,284	2	4	0	0,700
	Median income	116	2,207	2	4	0	0,786
	High income	271	2,284	2	4	1	0,686

Analysis based on the combined variable: occupation and income level of the participant

Independent variable	**Dependent variable**	**N**	**Mean**	**Median**	**Max.**	**Min.**	**S. D.**
Delivery within 24 hours	Reduced income & occupation	40	2,450	3	4	1	0,677
	Sum values = 3	49	2,714	3	4	1	0,890
	Sum values = 4	128	2,398	2	4	1	0,714
	Sum values = 5	130	2,523	3	4	1	0,760
	High income & occupation	174	2,448	2	5	0	0,857
Delivery within 72 hours	Reduced income & occupation	40	2,050	2	3	1	0,639
	Sum values = 3	49	2,245	2	4	1	0,723
	Sum values = 4	128	2,398	2	4	1	0,606
	Sum values = 5	130	2,338	2	4	1	0,642
	High income & occupation	174	2,264	2	4	1	0,515
Delivery in 7 days	Reduced income & occupation	40	2,075	2	3	1	0,526
	Sum values = 3	49	1,959	2	3	1	0,455
	Sum values = 4	128	1,883	2	3	1	0,496
	Sum values = 5	130	1,862	2	3	1	0,427
	High income & occupation	174	1,816	2	3	0	0,527

(*continued*)

Independent variable	Dependent variable	N	Mean	Median	Max.	Min.	S. D.
Purchase status information	Reduced income & occupation	40	1,975	2	3	1	0,276
	Sum values = 3	49	2,102	2	3	1	0,368
	Sum values = 4	128	2,023	2	3	1	0,365
	Sum values = 5	130	2,023	2	3	1	0,317
	High income & occupation	174	2,029	2	3	1	0,363
Tracking	Reduced income & occupation	40	2,125	2	3	1	0,404
	Sum values = 3	49	2,204	2	4	1	0,763
	Sum values = 4	128	2,086	2	3	1	0,470
	Sum values = 5	130	2	2	3	1	0,543
	High income & occupation	174	2,092	2	3	1	0,530
Complete transport information	Reduced income & occupation	40	2,325	2	4	0	0,764
	Sum values = 3	49	2,163	2	3	0	0,717
	Sum values = 4	128	2,219	2	4	0	0,698
	Sum values = 5	130	2,308	2	4	1	0,745
	High income & occupation	174	2,287	2	4	1	0,687