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# A SUSTAINABLE BUSINESS PROFIT THROUGH CUSTOMERS AND ITS IMPACTS ON THREE KEY BUSINESS DOMAINS: TECHNOLOGY, INNOVATION, AND SERVICE (TIS)

Enkeleda LULAJ ✉

*Faculty of Management in Tourism, Hospitality and Environment, University Haxhi Zeka, Eliot Engel, 30000 Peja, Kosovo*

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**Abstract.** *Purpose* – This research examines and investigates the importance of sustainable business profit through customers and its impacts on three key business domains: technology-innovation-service (TIS). The main goal was to see what were the interrelationships of business-consumers and consumers-business analysis to have a sustainable profit based on the models: Innovation and Growth Teams (IGT), Innovative Customer Relationship Management (ICRM), Business-to-Consumer (B2C), Customer Service and Support (CSS), Customer Service Technology (CST), and Multidimensional Scaling model (MDS) or the factors (F1–F14). Were these factors important to businesses and which variables had the greatest impact on sustainable profit through consumer evaluation during purchase?

*Research methodology* – This research was carried out on manufacturing, service, and distribution businesses (consumer-business analysis) and consumers (business-consumer analysis) in 200 businesses and consumers, through the completion of the online questionnaire and the meeting with the business managers, considering the same variables during the period (2019–2022). The data processing was done through (SPSS Statistics 23) using tests and econometric analysis (descriptive, factorial, reliability, multiple regression, and multidimensional scaling analysis) the model shows that all factors have great effects on sustainable business profit through consumers.

*Findings* – However, it is suggested that of great importance for a sustainable business profit through customers are: the behavior of workers and staff, handling requests faster, business support before and after purchase, providing information applications (discount, usage, term of the expiration date, product content, payment methods as well as the provision of transport by the business for consumers.

*Research limitations* – The limitations of this research are only a certain number of variables, years, and the number of businesses, but for other analyses and research, researchers can take a larger number of variables, businesses, and/or countries using the same models.

*Practical implications* – Based on the above questions, it was confirmed that a (TIS) through models will make the profit even more stable by strengthening the position of businesses in the market against their competitors. So, in this case there are still practical implications in three key business domains (TIS) technology, innovation, and services. Therefore, businesses should pay attention to these findings to have a sustainable business profit.

*Originality/Value* – Research related to sustainable profit through consumers considering three key business domains technology, innovations, and services (TIS) has not been analyzed earlier in terms of consumers as buyers and businesses as providers of products and services.

**Keywords:** sustainable profit, customers, profit matrix, econometric analysis, profit models, corporate finance, managerial accounting, businesses.

**JEL Classification:** M41, M42, C5, E2, G3, G4, L2, O3.

✉Corresponding author. E-mails: ***enkeleda.lulaj@unhz.eu***, ***enkeleda_lulaj@hotmail.com***

## Introduction

To have a sustainable profit, recent research and practices have shown the great importance of customers, innovations, services, and technology in businesses. Therefore, to include

sustainability in business, companies must consider the social and environmental aspects of consumers (Morioka et al., 2015), balancing the social, economic, and environmental values of consumers (Bocken et al., 2013) consider the basic models included in this research (TIS or Technology Innovation and Service, Innovation and Growth Teams (IGT), Innovative Customer Relationship Management (ICRM), Business-to-Consumer (B2C), Customer Service and Support (CSS), Customer Service Technology (CST), and Multidimensional Scaling model (MDS)) and the impact of each factor of these models on sustainable business profit. The three key business domains (Technology-Innovation-Service) have an increase in business practice nowadays, yet little is known about the successful adoption of sustainable business models by consumers (Evans et al., 2017). Such gaps were also highlighted (Yang et al., 2017) where it is emphasized that businesses to have a sustainable profit must identify new opportunities to create the model (TIS) and capture the value of business profit sustainability by having the customer at the center of attention. According to Snihura and Bocken (2022), it is emphasized that the strategic business management model (TIS) is not showing any significant impact on corporate sustainability through customers or financial performance, but according to Yang and Jang (2020), it is emphasized that in SMEs (small and medium-sized enterprises) this model has a positive impact by pushing businesses towards continuous innovation and change to satisfy customers and have a sustainably profitable business. According to Vidmar et al. (2021), it is emphasized that businesses must combine sustainable financial management objectives with the three main indicators (innovation, technology, and service) to offer a wide range of opportunities for consumers when purchasing products/services. Still, further research is suggested for a sustainable business profit integrating strategies and models that contribute to a world in which businesses and consumers succeed in buying and selling products/services (Bansal & Des Jardine, 2014). Therefore, the main goal is to analyze the business- consumer and consumer-business relationship to have a sustainable profit, analyzing what was the impact of the three key business domains (TIS) on businesses through consumers in the models of each session (IGT, ICRM, B2C, CSS, CST, and MDS) for factors (F1–F14). So, based on the findings from the econometric analysis and the validity of the hypotheses in each model, recommendations will be given to businesses regarding the sustainable profit of the business through consumers, bearing in mind that this research will bring: a) a new approach for a sustainable business profit, b) analysis of business through consumers, c) analysis of consumers through business.

## 1. Literature review

As it was pointed out in the introduction in general there is still a continuous transition for the sustainability of profit through customers considering the three main indicators of TIS (technology-innovation-services) in each model in different departments and businesses. Therefore, the creation and delivery of sustainability of economic-financial value are still unexplored (Agwu & Bessant, 2021). Some businesses can create a sustainable profit through the model (TIS) if they offer green or bio products to consumers because according to Larson et al. (2000), it is emphasized that customers who request these products are willing to pay a premium price to buy. Businesses must have developed sustainable supply chain management

for consumers when purchasing products/services according to the four sessions of this research for all models: Innovation and Growth Teams (IGT), Innovative Customer Relationship Management (ICRM), Business-to-Consumer (B2C), Customer Service and Support (CSS), Customer Service Technology (CST), and Multidimensional Scaling model (MDS) and all factors involved (F1-F14) to have a steady profit. Therefore, the authors' analysis (Gong et al., 2019) suggests the great impact of technology, innovations, and services on the performance and sustainable profit of the business as well as this continuous improvement in the supply chain of businesses considering that we are in an era when the natural environment, social responsibility, and consumer demands have increased. But are there economic improvements and sustainability of profit from improving customer satisfaction according to the models of this research? According to Anderson et al. (1994), it is emphasized that the expectations, quality, and prices offered by the business affect the satisfaction of consumers on the one hand, and on the other hand, there is also an increase in the economic improvement and sustainable profit of the business. The authors further elaborate that (IT) has increased productivity and created significant value for consumers, but there is no evidence that this economic benefit has resulted in more than normal business profit, this was analyzed by Hitt and Brynjolfsson (1996). Regarding the non-sustainability of profit through (TIS) through customers according to Zeithaml (2000), six categories of the (TIS) model that affect the non-sustainability of profit are highlighted as (the direct effect of non-quality through poor service, offensive effects through workers, non-defensive effects, weak link between service and sales intentions, lack of customer benefits, key drivers of customer non-retention). But according to Bolton (1998), the effects of business profit losses are related to business failures to provide quality products/services to consumers. To help businesses in the effective decision-making process and to have stability of the financial position, according to Lulaj (2021), Lulaj and Iseni (1018), it is emphasized that cost-volume-profit analysis has a significant impact on the sustainability business profit and its relationship with consumers during the purchase of products/services, as well as the fair evaluation of financial items in the financial statements that affect the sustainable profit and financial stability of the business. According to Bolton and Drew (1991), it is recommended that customers who have experience in the businesses in which they purchase products/services more accurately evaluate the service levels from the workers and staff of the business, therefore there are discrepancies between the levels of performance predicted by that perceived. Despite the experiences of consumers in evaluating the product/service offered by businesses, according to Snyder et al. (2016), it is emphasized that there are still uncertainties and weak definitions of the sustainability of profit and the importance of the three key business domains (TIS). The increase in the sustainability of the profit is achieved through the relationship between the service and the stable price as well as the cost supported by the company in generating this profit as emphasized by Carù and Cugini (1999). According to Jiang et al. (2022), it is emphasized that businesses should focus on the impact of service-oriented production starting from (production, design to final disposal) to have product sustainability. There is still little evidence on customer satisfaction and its impact on measures of business financial performance and sustainable profit as highlighted by Yeung and Ennew (2001). Regarding this, the authors also agreed (Hogreve et al., 2021) but added the importance of digital changes according to the model (CSS & CST) for providing

products/services to consumers. It is further argued by Ahearne et al. (2004) that the models (TIS & IGT), (CSS & CST), and (B2C & ICRM) enable sales performance and sustainability of business profit. According to Sharma (2008), consumer confidence in the products/services offered by the business is of great importance in the sustainability of profit not only in the short term but also in the long term (through high productivity, better customer satisfaction on the online pages of businesses, innovations for payment methods, support during and after purchases of products/services, etc.) were elaborated and analyzed by Mai et al. (2019). A similar opinion is emphasized by Mulhern (1999) adding the importance of the degree of concentration of profits among consumers. By Holma and Ax (2020) it is emphasized that the competition between businesses to provide a quality service to consumers during the purchase has a positive relationship with the sustainable profit of the business or the opposite. But according to Korsakiene (2009), it is emphasized that the relationship between business (consumer-business and business-consumer analysis) and consumers is a relatively new discipline that recommends that the correct management of these relationships increases the trust of old consumers and affects attracting new customers. This relationship is failing and there is an urgent need for some practices to address these issues was argued by Ryals (2005). New issues of improving the relationship (business-consumers and consumers-business) to increase the sustainability of the profit were analyzed by Coltman et al. (2010) where it is emphasized that businesses must maintain the privacy of consumers and the reduction of cost caused by the products /services.

As for the model (TIS & IGT) in which the factors (F1, F2, F3, F4, and F5) were included, contributions were made by various researchers regarding the sustainability of business profits through consumers. According to (F1) or workers and staff are polite according to Zhang et al. (2021) is emphasized that consumers prefer positive strategies of politeness of workers and business staff during the purchase of the product/service, while according to Bahadur et al. (2018), pointed out that a sustainable business profit is closely related to positive consumer intentions by spreading word-of-mouth information about business hospitality for consumers.

According to Pugh (2001), it is emphasized that workers should contain their emotional state in front of customers by showing positive emotions for them. According to (F2) or handling requests quickly by workers and staff for customers during the buying, according to Verhoef et al. (2009), it is emphasized that the business to have a sustainable profit must deal more quickly with the demands of consumers since the previous experiences of consumers influence their future experiences. According to (F3) or the provision of advice during the purchase to consumers by workers and staff, according to Inderst (2011), and Inderst and Ottaviani (2010), it is emphasized that financial advice for the purchase of products/services for consumers from business plays an important role in consumer decision-making to buy products/services indirectly influencing the sustainability of business profits. According to (F4) or the support for consumers during the purchase by workers or staff, according to Balderjahn et al. (2020), is emphasized that the support from the business increases satisfaction for the purchase on the one hand, but on the other hand, the social well-being of consumers affects the sustainability of business profit. According to (F5) or staff and workers are efficient/transparent to customers when purchasing products/services, according to Lemon and

Verhoef (2016), it is emphasized that during the integration of multiple business functions, workers and staff must be transparent/efficient with customers so that the business can make a sustainable profit because customer journeys in this era are becoming more and more complex. But to see if the state (country) offers the opportunity to support the sustainability of business profits through public expenditures (public budget) in the division for businesses, according to Lulaj (2022) it is emphasized that public expenditures are increased due to Covid-19 and that their gaps still continue, in this case, the possibility of support is not high, and the country must have political stability to support businesses based on priorities, not on the basis of political desires or interests it was said by the authors Lulaj et al. (2022), but despite this, taxes on the income of corporations (businesses) are collected mostly in the country, affecting the well-being of the population was emphasized in the research of Lulaj and Dragusha (2022), therefore businesses have a stability of profit due to (TIS). As for the model (ICRM & B2C) where the factors (F1, F2, F3, and F4) were included, contributions were made by different authors related to each factor of this model to analyze the sustainable business profit. According to factors (F1 and F2) or the provision of business support before the purchase and after the purchase (instructions, advertisements, clarifications, transport, packaging, etc.). Following Cravo and Piza (2019), it is emphasized that any kind of business support for consumers during the purchase of products/services improves business performance, creates new jobs, and increases profit sustainability. According to (F3) or the provision of business support for consumers regarding the provision of different payment methods during the purchase of products/services (Carlson & Paul, 2022), it is emphasized that the gift cards (discount, convenience, the free gift of any product/service, etc.) for customers offered by the business increase customer satisfaction by attracting new customers and increasing the sustainability of profit. While, according to Świecka et al. (2021), it is emphasized offering different methods from the business to make payments to consumers facilitates decision-making for purchases, but despite the innovative forms of payment methods, some consumers still prefer the traditional form of payment with cash for products/services. Regarding (F4) or the provision of business support for consumers related to online orders and purchases of products/services according to Bauman and Bachmann (2017), based on 138 scientific kinds of research, it is emphasized that businesses to have a sustainable profit must consider: (1) consumer-business and business-consumer trust patterns, (2) technology, and (3) social factors that influence trust in online shopping and ordering.

Regarding the model (CSS & CST) in which the factors (F1, F2, F3, F4, and F5) were included, contributions were made by different authors for each factor of this model to have a sustainable business profit. According to (F1) or ease of customer access to products/services through online business websites, according to Rust and Lemon (2001), it is emphasized that many businesses do not fully utilize the unique nature of the website, becoming critical in effective interaction with customers in interactive information environments. Therefore, it is recommended to create e-services strategies to have a sustainable business profit. According to (F2, F3, and F4) or applications to offer advice and recent discounts according to Wohllebe et al. (2020), it is emphasized that applications are becoming more and more important for businesses to have a sustainable profit. But one of their challenges is the use by consumers which is still without any great positive effect. Regarding the factor (F5) or the applications

offered by the business to make payments during the purchase of the product/service according to Martinez and Mc Andrews (2022), it is emphasized that there is still reluctance on the part of consumers to make payments via the Internet related to products/services. According to Lulaj et al. (2023), it was emphasized that to have a sustainable profit, businesses must be careful in total liabilities, increase the performance of total assets, increase the performance of net income and total business income, as well as provide training for increasing the skills of workers and improving technology (equipment, machinery, etc.). It is therefore recommended that businesses bring something else through (TIS) to have sustainability of profit. While according to Pal et al. (2021), it is emphasized that payment applications are not uniform. Therefore, this affects the sustainable profit of businesses through online consumer payments for products/services.

## 2. Methodology

### 2.1. The purpose of the paper

Research related to sustainable profit through consumers considering three main business indicators technology, innovations, and services (TIS) has not been analyzed earlier in terms of consumers as buyers and businesses as providers of products and services, therefore the aim is to analyze what is the impact of the three indicators (TIS) for a sustainable business profit through customers based on the models (IGT, ICRM, B2C, CSS, CST, and MDS) for the factors (F1–F14). Are these factors important to businesses and which variables have the greatest impact on sustainable profit through evaluation by consumers during purchases? So, the main goal is to analyze the relationship between business-consumer and consumer-business to have a sustainable business profit. Therefore, based on the findings from the econometric analysis and validation of the hypotheses in each model, recommendations will be given to businesses related to sustainable business profit through consumers. This research will bring: a) a new approach for sustainable profit, b) an analysis of business through consumers, and c) an analysis of consumers through business.

### 2.2. Methods and data collection

This research was carried out on manufacturing, service, and distribution businesses (consumer-business analysis) and consumers (business-consumer analysis) in 200 businesses and consumers, through the completion of the online questionnaire and the meeting with the business managers, considering the same variables during the period (2019–2022) as well as using the econometric models that were suitable for this research as elaborated in the Figure 1.

Figure 1 shows the conceptual framework for a sustainable business profit through customers and its impacts on three key business domains: Technology, Innovation, And Service (TIS). This model includes four econometric analyses, such as Factorial Analysis, Reliability Analysis, Multiple Regression Analysis, and Multidimensional Scaling Analysis. As it was emphasized in the methods, to see the importance of factors in sustainable profit through consumers, factor analysis was used, where according to Shrestha (2021), it is emphasized that this analysis helps to extract some useful factors as well as remove useless ones from

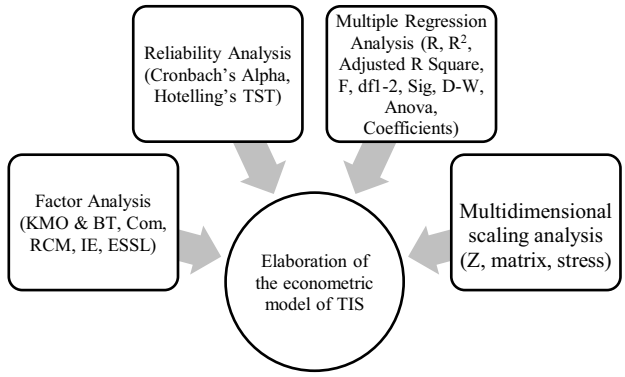


**Figure 1.** The processing of econometric analyzes related to the sustainable profit of businesses through consumers and its impact on Technology, Innovation, And Service (TIS) (source: author)

a large number of variables (Kaiser-Meyer-Olkin, Bartlett's Test of Sphericity, determinant score, Kaiser's criterion, Varimax, PCA, Matrix, etc.). A similar contribution was made to the authors' research Hayashi and Arav (2006). According to the results, three factors were created through the models: Innovation and Growth Teams (IGT), Innovative Customer Relationship Management (ICRM), Business-to-Consumer (B2C), Customer Service and Support (CSS), Customer Service Technology (CST), and Multidimensional Scaling model (MDS) as well as 14 sub-factors.

$$KMO_j = \frac{\sum_{i \neq j} R_{ij}^2}{\sum_{i \neq j} R_{ij}^2 + \sum_{i \neq j} U_{ij}^2}, \tag{1}$$

where Rij is the correlation matrix for sustainable profit in businesses through consumers and Uij is the partial covariance matrix for relationships (consumers-business and business-consumers). While to see the effect and importance of the independent variables on the dependent variable and its impact on three key business domains (Technology-Innovation-Service) for sustainable business profit, this research was based on the above questions of whether the independent variables had a significant impact and what the relationship was between the consumer and the business as well as between the business and the consumer when purchasing products and services. Therefore, the data were analyzed through multiple regression analysis for all models and sections of this research. According to Takemura (2021), and Uyanık and Güler (2013) it is emphasized that regression analysis helps to determine the importance and effects of each independent variable on the dependent variables as well as the importance of the model as a whole through ANOVA.

$$y = \beta_0 + \beta_1 x_1 + \beta_2 x_2 + \ldots + \beta_n x_n + \varepsilon, \tag{2}$$

where y – the dependent variable for each section of sustainable business profit through consumers and its impact on the three main domains ((Model: TIS (Technology-Innovation-Service & IGT (Innovation and Growth Teams), Model: ICRM (Innovative Customer Relationship

Management) & B2C (Business-to-Consumer), and Model CSS (Customer Service and Support) & CST (Customer Service Technology)); $x_1$ – independent variables (F1–F14); $\beta_1$ – parameters; $\varepsilon$ – error.

## 2.3. Instruments and research methodology

As stated in the methods, the main goal was to analyze the relationship between business-consumer and consumer-business to have a sustainable business profit, analyzing what was the effects on three key business domains (Technology-Innovation-Service-TIS) through consumers in the models of each section (IGT, ICRM, B2C, CSS, CST, and MDS) for factors (F1–F14). It is emphasized that for each variable and factor there is a difference in their importance and effects in the sustainable business profit through consumers based on the relationship (consumer-business and business-consumer). Therefore, businesses must take into account the three key business domains (TIS) at every stage of the business to have a sustainable business profit: for the TIS (Technology-Innovation-Service) and IGT (Innovation and Growth Teams) model (F1 and F2), for the ICRM (Innovative Customer Relationship Management) and B2C (Business-to-Consumer) model (F1 and F2), for the CSS (Customer Service and Support) and CST (Customer Service Technology) model (F2 and F3), for the MDS (Multidimensional Scaling) model (S1f1, S1f2, S1f3, S1f4, S1f5, S2f3, S2f2, and S2f3).

## 2.4. Research hypotheses

The research data related to the sustainable business profit through consumers and its impacts on three key business domains: Technology, Innovation, And Service (TIS) were analyzed through the econometric analyzes mentioned above.

Figure 2 presents the elaboration of the hypotheses for all sections based on the models: Innovation and Growth Teams (IGT), Innovative Customer Relationship Management (ICRM), Business-to-Consumer (B2C), Customer Service and Support (CSS), Customer Service Technology (CST), and Multidimensional Scaling model (MDS) for a sustainable business profit through customers and its impacts on three key business domains (TIS). In this figure, 4 hypotheses are raised for each section: $H_1$ = 5 factors, $H_2$ = 4 factors, $H_3$ = 5 factors, $H_4$ = 14 factors.

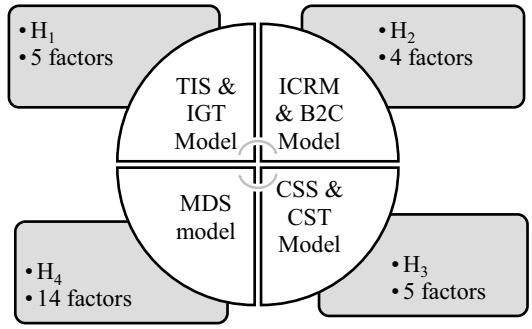


**Figure 2.** Elaboration of hypotheses for the sustainable business profit through consumers and its impacts on three key business domains (TIS) (source: author)

**Table 1.** Descriptive analysis

| Descriptive Analysis | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Age | | Frequency | Incomes | Frequency | Gender | Frecuency | Businesses | Frequency |
| Valid | 15–25 years old | 22.0 | 100–300 euro | 7.5 | M | 56.5 | Small | 17.5 |
| | 26–35 years old | 28.5 | 301–500 euro | 19.5 | F | 42.0 | Medium | 47.5 |
| | 36–45 years old | 18.0 | 501–1000 euro | 42.0 | No answer | 1.5 | Big | 35.5 |
| | 46–55 years old | 24.0 | Over 1000 euro | 31.0 | Total | 100.0 | Total | 100.0 |
| | 56–65 years old | 5.5 | Total | 100.0 | | | | |
| | Over 65 years old | 2.0 | | | | | | |
| | Total | 100.0 | | | | | | |

Table 1 presents the descriptive analysis of the data of respondents and businesses related to the variables (Age, Income, Gender, Businesses). According to the age variable, respondents aged 26–35 gave the greatest answer (28.5%). According to the income variable, it is emphasized that respondents with an average income are (500–1000 euros) or 42.0%. According to the gender variable, male respondents (56.2%) gave the biggest answers. The businesses that were awarded the most are medium enterprises (47.5%).

Hypotheses:

$H_1$: The factors of the model (TIS & IGT) have a significant impact on a sustainable business profit through customers

$$\hat{y} = \alpha_0 + \beta_1(F1) + \beta_2(F2) + \beta_3(F3) + \beta_4(F4) + \beta_5(F5) + \varepsilon. \quad (3)$$

With changes in model variables (TIS & IGT) to what extent should businesses be careful to have a sustainable business profit through consumers?

$H_2$: The factors of the model (ICRM & B2C) have a significant impact on a sustainable business profit through customers.

$$\hat{y} = \alpha_0 + \beta_1(F1) + \beta_2(F2) + \beta_3(F3) + \beta_4(F4) + \varepsilon. \quad (4)$$

With changes in model variables (ICRM & B2C) to what extent should businesses be careful to have a sustainable profit through consumers?

$H_3$: The factors of the model (CSS & CST) have a significant impact on a sustainable business profit through customers

$$\hat{y} = \alpha_0 + \beta_1(F1) + \beta_2(F2) + \beta_3(F3) + \beta_4(F4) + \beta_5(F5) + \varepsilon. \quad (5)$$

With changes in model variables (CSS & CST) to what extent should businesses be careful to have a sustainable business profit through consumers?

$H_4$: Business-consumers and consumers-business relationships have a significant impact on a sustainable business profit.

The multidimensional measurement of interrelationship (consumers-business and business-consumers) in which dimensions emphasize the importance of factors in sustainable business profit?

## 3. Results and discussion of results obtained

In this section, three key business domains of TIS (technology, innovation, and service) will be analyzed for a sustainable business profit through customers using the models: Innovation and Growth Teams (IGT), Innovative Customer Relationship Management (ICRM), Business-to-Consumer (B2C), Customer Service and Support (CSS), Customer Service Technology (CST), and Multidimensional Scaling model (MDS) as follows:

3.1. TIS and IGT model for a sustainable business profit through customers.

3.2. ICRM and B2C model for a sustainable business profit through customers.

3.3. CSS and CST model for a sustainable business profit through customers.

3.4. MDS model for a sustainable business profit through customers.

### 3.1. TIS and IGT model for a sustainable business profit through customers

In this section, the data of the (TIS & IGT) model for a sustainable profit business through consumers will be analyzed using econometric analysis such as:

3.1.1. Elaboration of the TIS and IGT model through factorial and reliability analysis for a sustainable business profit.

3.1.2. Elaboration of the TIS and IGT model through multiple regression analysis for a sustainable business profit.

Regarding the TIS (technology-innovation-service) model, according to Bocken and Konietzko (2022), it is emphasized that to have a sustainable profit, businesses have started to set ambitious circular economy objectives. Regarding the IGT model (innovation and growth teams) to have a sustainable profit through customers, according to Achtenhagen et al. (2013), and Antikainen and Valkokari (2016), it is emphasized that new growth opportunities should be used, oriented toward innovative experiments, balanced use of resources to achieve coherence between leadership, culture and employee engagement by jointly shaping key strategic actions for profit sustainability. According to Baden-Fuller and Haefliger (2013), it is emphasized that business models are closely related to innovation and technology to provide quality services to consumers during their purchases.

#### *3.1.1. Elaboration of the TIS and IGT model through factorial and reliability analysis for a sustainable business profit*

The factors of the model (TIS & IGT) for a sustainable business profit that provide services to customers during product purchase and service are analyzed through factor and reliability analyses. Therefore, to analyze the impact of each variable on a sustainable business profit, the following factors were elaborated on:

F1. The employees and staff are very kind.

F2. The employees and staff are quick to handle my purchase/service request.

F3. The employees and staff are very knowledgeable and provide me with relevant advice during purchase/service.

F4. The employees and staff are willing to assist me during purchase/service.

F5. The employees and staff are efficient/transparent during purchase/service.

Regarding the variable (F1) of workers and staff are very kind to customers during the purchase of the product/service according to West and Dawson (2012), and Crant (2000), it is emphasized that one of the main factors in the performance and sustainability of the profit in the business is the engagement of workers at work and in organizing the performance of tasks. But according to Freeman (1973), Ashford and Cummings (1983), and Lutz (2011) it is emphasized that workers who had good behavior with customers during their purchase influenced the sustainability of business profit in contrast to workers and staff who had other properties. Regarding the variable (F2) or whether workers and staff deal more quickly with customer requests during the purchase of the product/service according to Hartline and Ferrell (1996), it is emphasized that workers and staff who are responsible and dedicated to the completion of their work handle customer requests more quickly, while to receive a positive evaluation from customers, workers and staff must increase their efficiency and job satisfaction, reduce conflicts and role ambiguity. Important impact on faster handling of customer demands for a sustainable profit and business performance according to Deery and Nath (2015), it is emphasized that the relationship between the well-being and the work of employees should be taken into account from the business side. Regarding the variable (F3) if the workers and staff have the knowledge and offer advice to consumers during the purchase of the product/service according to Sánchez et al. (2003), it is emphasized that to increase the skills of the employees for their work as well as for providing more advice to consumers during their purchases, businesses should invest in training activities for workers, but that this type of investment is still very low on the part of businesses was emphasized by Huselid (1995), in this case, the lack of investment in training affects the sustainability of business profit. Regarding (F4) if workers and staff are willing to help customers during the purchase according to Harris (2007), it is emphasized that the help from the workers affects the process of building the customer experience by increasing satisfaction and trust during the purchase, therefore the investment from the business in training workers to be more helpful to customers during their purchases pays off with more consistent and quality customer exchanges. And according to Vance (2006), employees who are engaged in their work by assisting customers give their companies decisive competitive advantages, including sustainability of profits and high productivity in contrast to businesses that do not provide such conditions for consumers. Regarding the variable (F5) if workers and staff are efficient and transparent with consumers in the cases of their requests during the purchase according to Buell and Kalkanci (2019), it is emphasized that the transparency and internal responsibilities of businesses can be very motivating for consumers, this increases the probability to continue their purchase in transparent businesses. Therefore, loyal customers increase the stability of profit and business performance.

**Table 2.** Factor analysis and reliability analysis for sustainable profit in businesses through consumers (TIS & IGT model) (source: author)

| KMO and Bartlett's Test | | | | | | | Reliability Statistics | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Kaiser-Meyer-Olkin Measure of Sampling Adequacy. | | | | | | .853 | Cronbach's Alpha | Cronbach's Alpha Based on Standardized Items | | | N of Items |
| Bartlett's Test of Sphericity | Approx. Chi-Square | | | | | 472.783 | | | | | |
| | df | | | | | 10 | .872 | .873 | | | 5 |
| | Sig. | | | | | .000 | | | | | |
| Communalities-PCA | | | Component Matrix- PCA | | Total Variance Explained | | ANOVA with Tukey's Test for Nonadditivity | | | | |
| No. | Initial | Extraction | No. | TIS IGT | Extraction Sums of Squared Loadings | | | | | F | Sig. |
| | | | | 1 | No. | Cum. % | Between Items | | | 16.667 | .000 |
| F1 | 1.000 | .587 | F2 | .864 | F1 | 66.436 | Residual | | | 2.320 | .012 |
| F2 | 1.000 | .747 | F5 | .841 | F2 | 77.899 | Hotelling's T-Squared Test | | | | |
| F3 | 1.000 | .651 | F3 | .807 | F3 | 86.760 | HT | F | df1 | df2 | Sig |
| F4 | 1.000 | .629 | F4 | .793 | F4 | 94.411 | | | | | |
| F5 | 1.000 | .708 | F1 | .766 | F5 | 100.000 | 60.336 | 14.857 | 4 | 196 | .000 |

Table 2 presents the results for sustainable business profit through consumer purchases using the model (TIS & IGT) for factors (F1, F2, F3, F4, and F5). According to the KMO test (.853 > 0.50, Sig .000) it is emphasized that the data are suitable and very important for the factorial analysis. According to Communalities-PCA, it is emphasized that all factors have a significant impact on the model (p > 0.05) for (F1: 0.587 > 0.05, F2: 0.747 > 0.05, F3: 0.651 > 0.05, F4: 0.629 > 0.05, F5: 0.708 > 0.05) while the factor with the highest variance is (F2 = 0.747) or workers and staff handle customer requests faster when purchasing or performing services. According to the Rotated Component Matrix, it is emphasized that one factor (TIS & IGT) and five sub-factors (f1.1, f1.2, f1.3, f1.4, and f1.5) were created, in this case, the variables that have greater weight in a sustainable business profit are (f1.2 and f1.5) or the workers and staff handle customer requests more quickly and are efficient/transparent during customer purchases. According to Initial Eigenvalues, it is noted that the variance for the model (TIS & IGT) is 66.436 ≈ 66%. According to the reliability analysis (α = 0.873 ≈ 87%), it is emphasized that the data are quite important and reliable for the model. According to Hotelling's T-Squared Test (P = 0.000), it is emphasized that there is a significant difference between the sub-factors related to the sustainable profit in businesses through customers, and in particular through services and the increase of workers' assistance to customers during the purchase.

### *3.1.2. Elaboration of the TIS and IGT model through multiple regression analysis for a sustainable business profit*

Through multiple regression analysis, the factors of the model (TIS & IGT) were analyzed for a sustainable business profit by providing services to customers during the purchase of the product and performing the services for the factors (F1, F2, F3, F4, and F5) through tests such as R, $R^2$, Adjusted R Square, Change Statistics, Durbin-Watson, ANOVA, Coefficients to prove the raised hypothesis.

**Table 3.** Regression multiple analysis for sustainable business profit through consumers (TIS & IGT model) (source: author)

| Model Summary (TIS & IGT) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics-ANOVA | | | | | Durbin-Watson |
| | | | | | R Square Change | F Change | df1 | df2 | Sig. F Change | |
| 1 | .966 | .924 | .907 | .18321 | .924 | 121.871 | 2 | 36 | .000 | 2.110 |
| a. Predictors: (Constant): (F1, F2, F3, F4, F5)<br>b. Dependent Variable: TIS & IGT | | | | | | | | | | |

| Coefficients | | | | | | |
|---|---|---|---|---|---|---|
| MODEL | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
| 1 | | B | Std. Error | Beta | | |
| | (Constant) | 0.199 | .288 | | 3.161 | .000 |
| | F1 | .569 | .089 | .665 | .861 | .003 |
| | F2 | .515 | .109 | .595 | .769 | .002 |
| | F3 | .369 | .082 | .383 | 2.182 | .001 |
| | F4 | .249 | .085 | .259 | .671 | .005 |
| | F5 | .218 | .097 | .215 | 1.001 | .005 |

Table 3 explains 92% ($R^2$ = 0.924, Sig. = 0.000, F = 121,871) for the model (TIS & IGT) for a sustainable business profit through consumers during the purchase of the product/service depends on the independent variables (F1, F2, F3, F4, and F5), while 8% depends on other variables outside this model through random error. Adjusted R square at the value of 0.907 indicates that 91% of the variables are related to the model, while according to the D-W test (2.110) the model is significant and the autocorrelation is negative, which means that the standard error of the coefficient b or the model (TIS & IGT) is very small. While, according to Anova, it is emphasized that the model is significant at every level of significance (Sig. = 0.000). According to the table of coefficients, it is emphasized that the constant value of 0.199 indicates that if businesses do not take into account the factors (F1, F2, F3, F4, and F5) then the sustainable business profit through consumers will be 19% correct. According to (F1) it is emphasized that if the workers and staff are polite during the purchase of customers, then the profit will increase and will be stable by 57%. According to (F2) it is emphasized that if the workers and staff deal more quickly with the customer's requests during the purchase or performance of services, then the profit will increase and will be stable by 52%. According to (F3) it is emphasized that if the workers and staff have the knowledge and offer advice during the purchase of consumers, then the profit will increase and will be stable by 37%. According to (F4) it is emphasized that if the workers and staff are willing to help customers during the purchase, then the profit will increase and be stable by 25%. According to (F5) it is emphasized that if workers and staff are efficient and transparent with customers, then the profit will increase and be stable by 22%. The Beta coefficient shows that all the independent variables are significant in the model, but the two factors that have great significance for the

sustainability of the business profit are (F1 = 67% and F2 = 60%) or workers and staff are polite and quickly handle customer requests during their purchase.

$$\hat{y} = \alpha_0 + \beta_1(F1) + \beta_2(F2) + \beta_3(F3) + \beta_4(F4) + \beta_5(F5) =$$
$$0.1999 + 0.569x_1 + 0.515x_2 + 0.369x_3 + 0.249x_4 + 0.218x_5 + 0.08\mu.$$

According to the 95% confidence interval (Sig.2-tailed), it is noted that the *p-value* is smaller (p = 0.000 < 0.05) than the 5% significance level, then $H_0$ is rejected and accepted ($\beta_1, \beta_2, \beta_3, \beta_4 \beta_5$).

## 3.2. ICRM and B2C model for a sustainable business profit through customers

In this section, the data of the (ICRM & B2C) model for a sustainable business profit through consumers will be analyzed using econometric analysis such as:

3.2.1. Elaboration of the ICRM and B2C model through factorial and reliability analysis for a sustainable business profit.

3.2.2. Elaboration of the ICRM and B2C model through multiple regression analysis for a sustainable business profit.

Regarding the ICRM model (innovative customer relationship management) according to the authors (Valmohammadi, 2017; Guerola-Navarro et al., 2021; Wahlberg et al., 2009) it is proven that the practice of this model (ICRM) results in performance better organizational and affects sustainable profit growth, while businesses are stronger and more sustainable when they use strategies to provide services to customers this was proven by Saura et al., 2020). Another contribution related to (ICRM) was made by Paesbrugghe et al. (2022), where it was pointed out that consumers when they perceive the sales offer from businesses as risky prefer a different approach to purchasing the product/service businesses. According to Reinartz et al. (2004), it was emphasized that the implementation of CRM has a moderately positive relationship with the perceptive and objective performance of the company. Regarding the B2C model (business to consumer) according to Sorce and Edwards (2004), it is emphasized that the business-consumer analysis is suitable for understanding the nature of business-consumer and consumer-business relationships as well as for the elaboration and definition of these relationships, the dimensions of service quality for consumers during the purchase are important to have a sustainable profit. While according to Drigas and Leliopoulos (2013), it is emphasized that observations of the growth of behavior (B2C) in businesses increase customer satisfaction during the purchase.

### *3.2.1. Elaboration of the ICRM and B2C model through factorial and reliability analysis for a sustainable business profit*

The factors of the model (ICRM & B2C) for a sustainable business profit that provide services to customers during product purchase and service are analyzed through factor and reliability analyses. Therefore, to analyze the impact of each variable on a sustainable business profit, the following factors were elaborated on:

F1: The business provides pre-purchase support (instructions, advertisements, clarifications, etc.).

F2: The business provides post-purchase support (shipping, packaging, instructions for use, etc.).

F3: The business provides support for payment methods (through cash, debit-credit cards, loans, etc.).

F4: The business provides support for purchasing and ordering the online product/service.

Regarding the variable (F1) if the business offers support to consumers before purchasing the product/service (instructions, advertisements, other clarifications, etc.), according to Küster et al. (2016), it is emphasized that transactions related to services from the business to pre-purchase consumers that they are determinants of sustainable profit. According to the variable (F2) or the business provides support to customers after the purchase (transportation, packaging, instructions for the use of the product, etc.) according to Chang et al. (2010), it is emphasized that customer satisfaction is positively related to the convenience of the service or support after purchase for consumers, as well as trust in the product/service offered by the business. Regarding the variable (F3) or the business offers support to consumers regarding the method of payment during purchase (through cash, debit-credit cards, loans, etc.) according to Stavins (2017), gaps have been identified regarding payment methods and that still research is needed to understand consumer payment choices during product/service purchase. Regarding the variable (F4) or the business provides support to customers in case of online orders and purchases of the product/service, according to Rose et al. (2011), four important contributions are highlighted for both academics and businesses as (the content of purchase, specifics of the purchase, possible consequences, managerial implications). While according to Izogo and Jayawardhena (2018), it is emphasized that for businesses to have a sustainable profit through online ordering and purchasing customers must support and focus on customer experiences to improve their shortcomings.

**Table 4.** Factor analysis and reliability analysis for sustainable business profit through consumers (ICRM & B2C model) (source: author)

<table>
<tr><td colspan="6">KMO and Bartlett's Test</td><td colspan="6">Reliability Statistics</td></tr>
<tr><td colspan="4">Kaiser-Meyer-Olkin Measure of Sampling Adequacy.</td><td colspan="2">.743</td><td>Cronbach's Alpha</td><td colspan="3">Cronbach's Alpha Based on Standardized Items</td><td>N of Items</td></tr>
<tr><td colspan="2" rowspan="3">Bartlett's Test of Sphericity</td><td colspan="2">Approx. Chi-Square</td><td colspan="2">181.636</td><td rowspan="3">.747</td><td colspan="3" rowspan="3">.744</td><td rowspan="3">4</td></tr>
<tr><td colspan="2">df</td><td colspan="2">6</td></tr>
<tr><td colspan="2">Sig.</td><td colspan="2">.000</td></tr>
<tr><td colspan="3">Communalities-PCA</td><td colspan="2">Component Matrix- PCA</td><td colspan="2">Total Variance Explained</td><td colspan="6">ANOVA with Tukey's Test for Nonadditivity</td></tr>
<tr><td>No.</td><td>Initial</td><td>Extraction</td><td>No.</td><td>ICRM B2C</td><td colspan="2">Extraction Sums of Squared Loadings</td><td colspan="4"></td><td>F</td><td>Sig.</td></tr>
<tr><td></td><td></td><td></td><td></td><td>1</td><td>No.</td><td>Cum. %</td><td colspan="4">Between Items</td><td>54.272</td><td>.000</td></tr>
<tr><td>F1</td><td>1.000</td><td>.649</td><td>F2</td><td>.824</td><td>F1</td><td>56.928</td><td colspan="4">Residual</td><td>12.410</td><td>.000</td></tr>
<tr><td>F2</td><td>1.000</td><td>.679</td><td>F1</td><td>.806</td><td>F2</td><td>74.898</td><td colspan="6">Hotelling's T-Squared Test</td></tr>
<tr><td>F3</td><td>1.000</td><td>.517</td><td>F4</td><td>.729</td><td>F3</td><td>89.853</td><td>HT</td><td>F</td><td>df1</td><td>df2</td><td>Sig</td></tr>
<tr><td>F4</td><td>1.000</td><td>.532</td><td>F3</td><td>.646</td><td>F4</td><td>100.00</td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td colspan="7"></td><td>139.413</td><td>46.004</td><td>3</td><td>197</td><td>.000</td></tr>
</table>

Table 4 presents the results for sustainable business profit through consumer purchases using the model (ICRM & B2C) for factors (F1, F2, F3, and F4). According to the KMO test (0.743 > 0.50, Sig 0.000) it is emphasized that the data are suitable and very important for the factorial analysis. According to Communalities-PCA, it is emphasized that all factors have a significant impact on the model (p > 0.05) for (F1: 0.649 > 0.05, F2: 0.679 > 0.05, F3: 0.517 > 0.05, F4: 0.532 > 0.05) while the factor with the highest variance is (F2 = 0.679) or the business provides post-purchase support (shipping, packaging, instructions for use, etc.). According to the Rotated Component Matrix, it is emphasized that one factor (ICRM & B2C) and four sub-factors (f1.1, f1.2, f1.3, and f1.4) were created, in this case, the variables which have the greatest weight in a sustainable business profit are (f1.2 and f1.1) or the business provides post-purchase support (shipping, packaging, instructions for use, etc.), as well as the business, provides pre-purchase support (instructions, advertisements, clarifications, etc.). According to Initial Eigenvalues, it is noted that the variance for the model (ICRM & B2C) is 56.928 ≈ 57%. According to the reliability analysis (α = 0.747 ≈ 75%), it is emphasized that the data are quite important and reliable for the model. According to Hotelling's T-Squared Test (p = 0.000), it is emphasized that there is a significant difference between the sub-factors related to sustainable profit in businesses through consumers and in particular the innovations that businesses bring to consumers.

### *3.2.2. Elaboration of the ICRM and B2C model through multiple regression analysis for a sustainable business profit*

Through multiple regression analysis, the factors of the model (ICRM & B2C) were analyzed for a sustainable profit in businesses by providing services to customers during the purchase of the product and performing the services for the factors (F1, F2, F3, and F4) through tests such as R, $R^2$, Adjusted R Square, Change Statistics, Durbin-Watson, ANOVA, Coefficients to prove the raised hypothesis.

**Table 5.** Regression multiple analysis for sustainable profit in businesses through consumers (ICRM & B2C model) (source: author)

| Model Summary (ICRM & B2C) | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics-ANOVA | | | | | Durbin-Watson |
| | | | | | R Square Change | F Change | df1 | df2 | Sig. F Change | |
| 1 | .898[a] | .858 | .841 | .81668 | .858 | 9.1555 | 4 | 195 | .000 | 2.152 |
| a. Predictors: (Constant): (F1, F2, F3, F4)<br>b. Dependent Variable: ICRM & B2C | | | | | | | | | | |

| Coefficients | | | | | | |
|---|---|---|---|---|---|---|
| MODEL | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
| 1 | | B | Std. Error | Beta | | |
| | (Constant) | 0.173 | .293 | | 5.870 | .000 |
| | F1 | .552 | .477 | .697 | 1.984 | .004 |
| | F2 | .345 | .175 | .567 | 1.932 | .000 |
| | F3 | .291 | .174 | .389 | 2.592 | .005 |
| | F4 | .229 | .072 | .131 | .407 | .003 |

Table 5 explains 86% (R2 = 0.858, Sig. = 0.000, F = 9.1555) for the model (ICRM & B2C) for a sustainable profit through customer during the purchase of the product/service depends on the independent variables (F1, F2, F3, and F4), while 14% depends on other variables outside this model by random error. Adjusted R Sq. at the value of 0.841 shows that 84% of the variables are related to the model, while according to the D-W test (2.152) the model is significant and the autocorrelation is negative, which means that the standard error of the coefficient b or the model (ICRM & B2C) is very small. Whereas, according to Anova, it is emphasized that the model is significant at every significance level (Sig. = 0.000). According to the table of coefficients, it is emphasized that the constant value of 0.173 shows that if businesses do not take into account the factors (F1, F2, F3, and F4) then the sustainable profit through consumers will be 17% correct. According to (F1) it is emphasized that if the business provides pre-purchase support (instructions, advertisements, clarifications, etc.) to consumers, then the profit will increase and be stable by 55%. According to (F2) it is emphasized that if the business provides post-purchase support (shipping, packaging, instructions for use, etc.) for consumers, then the profit will increase and be stable by 35%. According to (F3) it is emphasized that if the business provides support for payment methods (through cash, debit-credit cards, loans, etc.), then the profit will increase and be stable by 29%. According to (F4) it is emphasized that if the business provides support for purchasing and ordering the online product/service for consumers, then the profit will increase and be stable by 23%. The Beta coefficient shows that all the independent variables are significant in the model, but the two factors that have great significance for the sustainability of the business profit are (F1 = 70% and F2 = 57%) or the provision of business support to customers during and after the purchase of products or services. Such an innovation through two models will make a profit even more stable by strengthening the position of businesses in the market against competitors.

$$\hat{y} = \alpha_0 + \beta_1(F1) + \beta_2(F2) + \beta_3(F3) + \beta_4(F4) =$$
$$0.173 + 0.552x_1 + 0.345x_2 + 0.291x_3 + 0.229x_4 + 0.14\mu.$$

According to the 95% confidence interval (Sig.2-tailed), it is noted that the *p-value* is smaller (p = 0.000 < 0.05) than the 5% significance level, then $H_0$ is rejected and accepted ($\beta_1, \beta_2, \beta_3, \beta_4$).

### 3.3. CSS and CST model for a sustainable business profit through customers

In this session, the data of the (CSS & CST) model for a sustainable profit business through consumers will be analyzed using econometric analysis such as:

3.3.1. Elaboration of the CSS and CST model through factorial and reliability analysis for a sustainable business profit.

3.3.2. Elaboration of the CSS and CST model through multiple regression analysis for a sustainable business profit.

Regarding (CSS & CST) model according to Sergeant and Frenkel (2000), it is emphasized that several variables such as the support of departments to each other, innovative technology, and the capacity of employees to satisfy the needs of customers during the purchase were very important in a sustainable profit. Regarding the CSS model (customer service and support) according to Chopra (2014), it is emphasized that businesses that provide support

and services during the purchase of consumers such as care, problem-solving, dedicated and helpful workers and staff play an important role in customer satisfaction and sustainable profit growth. Regarding the CST model (customer service technology) according to Considine and Cormican (2016), it is emphasized that the discussion about the adoption of self-service technology offered by businesses to customers should be expanded, the gap between theories and practices should be overcome, as well as this model helps decision makers determine how they should invest in CST to have a sustainable profit through consumers.

Regarding the variable (F1) or ease of access for consumers to products/services through online pages according to Ritaa et al. (2019), it is emphasized that businesses must take into account three dimensions of the quality of the electronic service (design of the website, security/privacy, as well as the fulfillment of customer requirements) influence the

growth of profit stability and customer satisfaction.

Figure 3 elaborates on the relationships between customer satisfaction, customer trust, and purchase intention. Regarding the factor (F2) or applications to address consumer issues according to Heinonen (2011), it is emphasized that businesses should discover their management challenges for online sites and plan the adjustment of applications to respond to the issues addressed by consumers. Regarding the factor (F3) or applications of businesses to provide advice to consumers about their products/services according to Molinillo et al. (2022), it is emphasized that businesses should emphasize the importance of their online site to provide the necessary advice for consumers during their purchase. Regarding the factor (F4) or applications to inform consumers about the latest discounts for their products/services according to Gao and Chen (2015), it is emphasized that consumers faced two types of uncertainty regarding online sites where product discounts/services such as product/service evaluation uncertainty as well as consumption state uncertainty. Regarding factor (F5) or applications for payment methods for consumers according to Chakraborty et al. (2022), consumption by consumers positively affects the adoption of payment applications through mobile phones. With the rapid development of electronic payments for products/services by consumers according to Li et al. (2022), this new form of payment is a new perspective for businesses that affects the increase in the sustainability of profit through consumers and the importance of three main indicators TIS (technology-innovation-service).

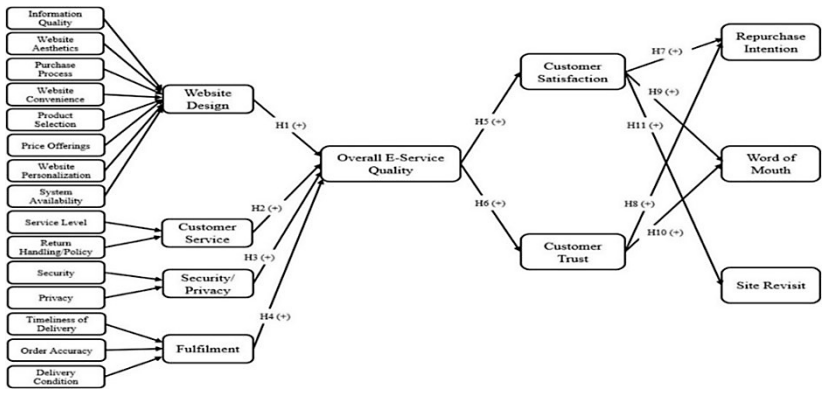


**Figure 3.** Overall e-service quality (source: Ritaa et al., 2019)

### *3.3.1. Elaboration of the CSS and CST model through factorial and reliability analysis for a sustainable business profit*

The factors of the model (CSS & CST) for a sustainable business profit that provides services to customers during product purchase and service are analyzed through factor and reliability analyses. Therefore, to analyze the impact of each variable on a sustainable business profit, the following factors were elaborated on:

F1: Ease of access to the product/service through online sites for consumers.

F2: Apps to address customer concerns about the product/service.

F3: Apps to provide product/service advice to consumers.

F4: Apps to inform about the latest discounts for consumers.

F5: Apps for consumer payment methods.

Table 6 presents the results for sustainable business profit through consumer purchases using the model (CSS & CST) for factors (F1, F2, F3, F4, and F5). According to the KMO test (0.815 > 0.50, Sig 0.000) it is emphasized that the data are suitable and very important for the factorial analysis. According to Communalities-PCA, it is emphasized that all factors have an impact on the model (p > 0.05) for (F1: 0.562 > .0.05, F2: 0.770 > 0.05, F3: 0.769 > 0.05, F4: 0.726 > 0.05, F5: 0.666 > 0.05) while the factor with the highest variance is (F2 = 0.770) or Apps to address customer concerns about the product/service. According to the Rotated Components Matrix, it is noted that in this case one factor (CSS & CST) and five sub-factors (f1.1, f1.2, f1.3, f1.4, and f1.5) were created. the variables that have the greatest weight in a sustainable business profit are (f1.2 and f1.5), or businesses offer the product/service through online sites

**Table 6.** Factor analysis and reliability analysis for sustainable business profit through consumers (CSS & CST model) (source: author)

<table>
<tr><td colspan="5">KMO and Bartlett's Test</td><td colspan="4">Reliability Statistics</td></tr>
<tr><td colspan="3">Kaiser-Meyer-Olkin Measure of Sampling Adequacy.</td><td colspan="2">.815</td><td>Cronbach's Alpha</td><td colspan="2">Cronbach's Alpha Based on Standardized Items</td><td>N of Items</td></tr>
<tr><td rowspan="3">Bartlett's Test of Sphericity</td><td colspan="2">Approx. Chi-Square</td><td colspan="2">593.238</td><td rowspan="3">.891</td><td colspan="2" rowspan="3">.891</td><td rowspan="3">5</td></tr>
<tr><td colspan="2">df</td><td colspan="2">10</td></tr>
<tr><td colspan="2">Sig.</td><td colspan="2">.000</td></tr>
<tr><td colspan="3">Communalities-PCA</td><td colspan="2">Component Matrix- PCA</td><td colspan="3">Total Variance Explained</td><td colspan="3">ANOVA with Tukey's Test for Nonadditivity</td></tr>
<tr><td rowspan="2">No.</td><td rowspan="2">Initial</td><td rowspan="2">Extraction</td><td rowspan="2">No.</td><td rowspan="2">CSS CST</td><td colspan="2">Extraction Sums of Squared Loadings</td><td colspan="3"></td><td>F</td><td>Sig.</td></tr>
<tr><td>1</td><td>No.</td><td>Cum. %</td><td colspan="3">Between Items</td><td>17.173</td><td>.000</td></tr>
<tr><td>F1</td><td>1.000</td><td>.562</td><td>F2</td><td>.878</td><td>F1</td><td>69.872</td><td colspan="3">Residual</td><td>1.323</td><td>.250</td></tr>
<tr><td>F2</td><td>1.000</td><td>.770</td><td>F3</td><td>.877</td><td>F2</td><td>81.144</td><td colspan="5">Hotelling's T-Squared Test</td></tr>
<tr><td>F3</td><td>1.000</td><td>.769</td><td>F4</td><td>.852</td><td>F3</td><td>90.120</td><td>HT</td><td>F</td><td>df1</td><td>df2</td><td>Sig</td></tr>
<tr><td>F4</td><td>1.000</td><td>.726</td><td>F5</td><td>.816</td><td>F4</td><td>96.574</td><td rowspan="2"></td><td rowspan="2"></td><td rowspan="2"></td><td rowspan="2"></td><td rowspan="2"></td></tr>
<tr><td>F5</td><td>1.000</td><td>.666</td><td>F1</td><td>.750</td><td>F5</td><td>100.000</td></tr>
<tr><td colspan="6"></td><td>65.047</td><td>16.017</td><td>4</td><td>196</td><td>.000</td></tr>
</table>

to consumers and have applications to address customer concerns about the product/service. According to Initial Eigenvalues, it is noted that the variance for the model (CSS & CST) is 69.872 ≈ 70%. According to the reliability analysis (α = 0.891 ≈ 89%), it is emphasized that the data are quite important and reliable for the model. According to Hotelling's T-Squared test (p = 0.000), it is emphasized that there is a significant difference between the sub-factors related to sustainable profit in businesses through consumers, and in particular for providing different applications for purchasing and performing services for consumers.

### *3.3.2. Elaboration of the CSS and CST model through multiple regression analysis for a sustainable business profit*

Through multiple regression analysis, the factors of the model (CSS & CST) were analyzed for a sustainable profit in businesses by providing services to customers during the purchase of the product and performing the services for the factors (F1, F2, F3, and F4) through tests such as R, $R^2$, Adjusted R Square, Change Statistics, Durbin-Watson, ANOVA, Coefficients to prove the raised hypothesis.

Table 7 explains 99% ($R^2$ = 0.986, Sig. = 0.000, F = 121,871) for the model (CSS & CST) for a sustainable profit through customers during the purchase of the product/service depends on the independent variables (F1, F2, F3, F4, and F5), while 1% depends on other variables outside this model by random error. Adjusted R Square. at the value of 0.863 shows that 86% of the variables are related to the model, while according to the D-W test (2.076) the model is significant and the autocorrelation is negative, which means that the standard error

**Table 7.** Regression multiple analysis for sustainable business profit through consumers (CSS & CST model) (source: author)

| Model Summary CSS & CST model | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Model | R | R Square | Adjusted R Square | Std. Error of the Estimate | Change Statistics-ANOVA | | | | | Durbin-Watson |
| | | | | | R Square Change | F Change | df1 | df2 | Sig. F Change | |
| 1 | .994[a] | .986 | .863 | .85299 | .986 | 3.663 | 5 | 194 | .003 | 2.076 |
| a. Predictors: (Constant): (F1, F2, F3, F4, F5)<br>b. Dependent Variable: CSS & CST model | | | | | | | | | | |

| Coefficients | | | | | | |
|---|---|---|---|---|---|---|
| MODEL | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
| 1 | | B | Std. Error | Beta | | |
| | (Constant) | 0.355 | .260 | | 9.058 | .000 |
| | F1 | .381 | .081 | .410 | 1.097 | .000 |
| | F2 | .624 | .114 | .712 | .914 | .002 |
| | F3 | .584 | .118 | .699 | –1.568 | .005 |
| | F4 | .444 | .102 | .449 | .430 | .004 |
| | F5 | .314 | .096 | .323 | 2.234 | .002 |

of the coefficient b or the model (CSS & CST) is very small. While, according to Anova, it is emphasized that the model is significant at every significance level (Sig. = 0.000). According to the table of coefficients, it is emphasized that the constant value of 0.355 indicates that if businesses do not take into account the factors (F1, F2, F3, F4, and F5) then the sustainable profit through consumers will be 36% correct. According to (F1) it is emphasized that if the business offers easy access to products and services through their online pages, then the profit will increase and be stable by 38%. According to (F2) it is emphasized that if the business offers Apps to address customer concerns about the product/service, then the profit will increase and be stable by 62%. According to (F3) it is emphasized that if the business offers Apps to provide product/service advice to consumers, then the profit will increase and be stable by 58%. According to (F4) it is emphasized that if the business offers Apps to inform about the latest discounts for consumers, then the profit will increase and be stable by 44%. According to (F5) it is emphasized that if the business offers applications for different ways of making payments when buying products or performing services, then the profit will increase and be stable by 31%. The Beta coefficient shows that all independent variables are significant in the model, but the two factors that have great significance for the sustainability of the business profit are (F2 = 71% and F3 = 70%), or Apps to address customer concerns about the product/service as well as Apps to provide product/service advice to consumers

$$\hat{y} = \alpha_0 + \beta_1(F1) + \beta_2(F2) + \beta_3(F3) + \beta_4(F4) + \beta_5(F5) = 0.355 + 0.381x_1 + 0.624x_2 + 0.584x_3 + 0.444x_4 + 0.314x_5 + 0.01\mu.$$

According to the 95% confidence interval (Sig.2-tailed), it is noted that the *p-value* is smaller (p = 0.000 < 0.05) than the 5% significance level, then $H_0$ is rejected and accepted ($\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$).

### 3.4. MDS model for a sustainable business profit through customers

Through the analysis of multidimensional measurement, the relationship between business and consumer (consumer-business and business-consumer) was investigated by analyzing the three indicators TIS (technology-innovation-service) included in all models within each indicator IGT (innovation and growth team), ICRM (Innovative Customer Relationship Management), B2C (Business to Consumer), CSS (Customer Service and Support), CST (Customer service technology), MDS (Multidimensional scaling) for a sustainable profit through customers through the hypothesis of raised.

Table 8 presents the multidimensional measurements for the three main indicators (TIS) related to sustainable profit through customers to see the differences or similarities of customers related to the variables of the models (TIS, IGT, ICRM, B2C, CSS, CST, and MDS). In the 4th iteration, the result (Stress values = 00026) was achieved, where it is emphasized that the values are desired and qualified as a suitable choice for the sustainable profit of businesses through consumers. According to the stress matrix (RSQ = 83158), it is emphasized that the data is significant at the value of 83%. The multidimensional measurement analysis is analyzed through two dimensions, where according to the first dimension (consumers with the code: S1f1 = 1.5551, S1f2 = 1.1192, S1f3 = 1.3500, S1f4 = 1.2779, S1f5 = 1.1831) about

**Table 8.** Multidimensional for sustainable profit in businesses through consumers (source: author)

| Iteration history for the 2-dimensional solution (in squared distances) | | | Stimulus Coordinates | | | |
|---|---|---|---|---|---|---|
| Young's S-stress formula 1 is used. | | | Elaboration | | Dimension | |
| Iteration | S-stress | Improvement | Stimulus Number | Stimulus Name | 1 | 2 |
| 1 | .28541 | | 1 | S1f1 | 1.5551 | –.7359 |
| 2 | .24652 | .03889 | 2 | S1f2 | 1.1192 | –.4817 |
| 3 | .24394 | .00259 | 3 | S1f3 | 1.3500 | –.3767 |
| 4 | .24368 | .00026 | 4 | S1f4 | 1.2779 | –1.1503 |
| Iterations stopped because S-stress improvement is less than .001000 For matrix Stress = .21893 RSQ = .83158 | | | 5 | S1f5 | 1.1141 | –.9206 |
| | | | 6 | S2f1 | .2749 | .9954 |
| | | | 7 | S2f2 | –.1562 | 1.0691 |
| | | | 8 | S2f3 | 1.0186 | 1.4438 |
| | | | 9 | S2f4 | –1.1767 | .8186 |
| | | | 10 | S3f1 | –.9552 | .5517 |
| | | | 11 | S3f2 | –1.2596 | –.3305 |
| | | | 12 | S3f3 | –1.4763 | –.4131 |
| | | | 13 | S3f4 | –1.4468 | –.4943 |
| | | | 14 | S3f5 | –1.2390 | .0246 |

their evaluations of products/services of businesses in (6 factors) it is emphasized that providing applications to see information about products/services related to prices, quality, use, expiry date, their content, then support during the purchase and after purchase (packaging, instructions), hospitality and a suitable environment for purchasing and performing services are important to have a sustainable profit through customers. According to the second dimension (customers with code: S2f2 = 1.0691, S2f3 = 1.4438), it is emphasized that offering different ways to make payments when purchasing or performing services as well as transporting products has great importance for sustainable business profit. Therefore, the hypothesis ($H_4$) is confirmed, where it is emphasized that business-consumer and consumer-business relationships have a significant impact on the sustainable profit of businesses through consumers. The most important dimensions (offering different methods for making payments to consumers from the business, and providing information on prices, quality, discounts, and product transportation).

Table 9 shows four models (TIS and IGT; ICRM and B2C; CSS and CST; MDS model), as well as factors (F1–14) and sub-factors (f1.1–f1.14), emphasize the identification of alternative hypotheses for each of the models of this research to have a sustainable profit through consumers. Therefore, there is a significant difference between the variables according to the indicators (TIS) for a sustainable business profit.

**Table 9.** Verification of hypotheses (source: author)

| Models Factors | Sub-factors | Multiple regression Mathematical equation Clarification of hypotheses |
|---|---|---|
| TIS and IGT model for a sustainable business profit through customers | F1 F2 F3 F4 F5 | $H_1$: The factors of the model (TIS & IGT) have a significant impact on a sustainable business profit through customers $\hat{y} = \alpha_0 + \beta_1(F1) + \beta_2(F2) + \beta_3(F3) + \beta_4(F4) + \beta_5(F5) =$ $0.1999 + 0.569x_1 + 0.515x_2 + 0.369x_3 + 0.249x_4 + 0.218x_5 + 0.08\mu$ According to the 95% confidence interval (Sig.2-tailed), it is noted that the *p-value* is smaller (p = 0.000 < 0.05) than the 5% significance level, then $H_0$ is rejected and accepted ( $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$ ) |
| ICRM and B2C model for a sustainable business profit through customers | F1 F2 F3 F4 | $H_2$: The factors of the model (ICRM & B2C) have a significant impact on a sustainable business profit through customers $\hat{y} = \alpha_0 + \beta_1(F1) + \beta_2(F2) + \beta_3(F3) + \beta_4(F4) =$ $0.173 + 0.552x_1 + 0.345x_2 + 0.291x_3 + 0.229x_4 + 0.14\mu$ According to the 95% confidence interval (Sig.2-tailed), it is noted that the *p-value* is smaller (p = 0.000 < 0.05) than the 5% significance level, then $H_0$ is rejected and accepted ( $\beta_1, \beta_2, \beta_3, \beta_4$ ) |
| CSS and CST model for a sustainable business profit through customers | F1 F2 F3 F4 F5 | $H_3$: The factors of the model (CSS & CST) have a significant impact on a sustainable business profit through customers $\hat{y} = \alpha_0 + \beta_1(F1) + \beta_2(F2) + \beta_3(F3) + \beta_4(F4) + \beta_5(F5) =$ $0.355 + 0.381x_1 + 0.624x_2 + 0.584x_3 + 0.444x_4 + 0.314x_5 + 0.01\mu$ According to the 95% confidence interval (Sig.2-tailed), it is noted that the *p-value* is smaller (p = 0.000 < 0.05) than the 5% significance level, then $H_0$ is rejected and accepted ( $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5$ ) |
| MDS model for a sustainable business profit through customers | F1 F2 F3 F4 | $H_4$: Business-consumers and consumers-business relationships have a significant impact on a sustainable business profit (RSQ = 83158) Therefore, the hypothesis ($H_4$) is confirmed, where it is emphasized that business-consumer and consumer-business relationships have a significant impact on the sustainable profit of businesses through consumers. The most important dimensions (offering different methods for making payments to consumers from the business, and providing information on prices, quality, discounts, and product transportation). |

## Conclusions and practical implications

Sustainable business profit through consumers and the impact of the three indicators TIS (technology-innovation-service) is very important for businesses to ensure consumer satisfaction when purchasing products/services and increase the sustainability of business profit. Since customers are important in business, it is quite essential to assume how a sustainable profit depends on the main indicators (TIS). Therefore, in this research, sustainable profit through customers was analyzed through models (IGT, ICRM, B2C, CSS, CST, and MDS). A sample of 200 businesses and consumers was created by interviewing and completing the online questionnaire for the four sessions included in this research during the period (2019–2022). According to the findings of econometric analyzes and tests (factorial, reliability, multiple regression, and multidimensional scaling analysis), the great importance of each

factor in the sustainability of business profit through consumers was emphasized. But it is strongly recommended that businesses should take into account the three indicators (TIS) in each stage of the business to have a stable profit: For the TIS and IGT model (F1 and F2), for the ICRM and B2C model (F1 and F2), for the CSS model and CST (F2 and F3), for the MDS model (S1f1, S1f2, S1f3, S1f4, S1f5, S2f3, S2f2, S2f3). Research brought: a) a new approach for a sustainable profit (CSS & CST: F2 = 71%, F3 = 70%, ICRM & B2C: F1 = 70%, F2 = 57%, TIS & IGT: F1 = 67%, F2 = 60%), b) an analysis of business through consumers (D1: S1f1 = 1.5551, S1f2 = 1.1192, S1f3 = 1.3500, S1f4 = 1.2779, S1f5 = 1.1141, S2f3 = 1.0186), c) an analysis of consumers through business (D2: S2f2 = 1.0691, S2f3 = 1.4438). The limitations and implications of this research are only a certain number of variables, years, and the number of businesses, but for other analyses and research, researchers can take a larger number of variables, businesses, and/or countries using the same models.

There are still practical implications in three key business domains (TIS) technology, innovation, and services. Therefore, businesses should pay attention to these findings to have a sustainable business profit.

## Data availability

The data used to support and prove the findings of this study are available from the corresponding author upon request.

## Conflict of interest

The author declares that there are no conflicts of interest regarding the publication of this paper.

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