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Supply chain management strategies for mobile value added services

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Abstract

The aim of the current research was to provide strategies for the supply chain management of mobile phone value-added services. Therefore, in terms of the goal, this research was apart from developmental research and in terms of the method of collecting findings, it was apart from mixed (qualitative-quantitative) research. The data base method was used in the qualitative part and the structural equation modeling method was used in the quantitative part. The statistical population in the qualitative section included university professors, managers and heads of the Ministry of Communications, and in the quantitative section included experts and managers of the Ministry of Communications. In the qualitative section, 15 people were selected as a sample using the purposeful snowball sampling method, and a semi-structured interview was conducted with them, and it went to the stage of theoretical saturation, and in the quantitative section, 280 people were selected by random sampling. The tool for collecting findings was a semi-structured interview in the qualitative part and a researcher-made questionnaire in the quantitative part. Validation of the research tool was calculated in the qualitative part with the criteria of Lincoln and Guba [13] and in the quantitative part with confirmatory factor analysis and Cronbach's alpha test. Data analysis was done in the qualitative part with Strauss and Corbin's three-step coding method [21] in the Maxqda software environment and in the quantitative part with structural equation modeling in the SmartPLS software. Based on the findings of the research in the qualitative part, 328 open codes, 26 core codes and 10 selective codes including agility and flexibility, customer orientation, innovation and creativity, risk management, cooperation with strategic suppliers, environmental and market analysis, use of information technology, Development of flexibility, development of sustainability and social and improvement of logistics processes were identified for the supply chain management strategies of mobile value added services. The findings of the quantitative section showed that all the identified components and strategies were able to predict the main structure well, and the fit rate of the model was calculated as 0.663. According to these findings, it is suggested that telecommunications and mobile phone companies use these identified strategies for supply chain management.

Keywords: supply chain management, value added services, mobile phone, sustainable and social development
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1 Introduction

Given the high volume of mobile phones being produced and the large number of stakeholders involved in the process of designing, manufacturing and distributing these mobile phones, it is not surprising that the mobile phone supply chain is usually very high performing [14] so supply chain design and management In the mobile phone industry, due to reasons including short product life cycle, rapidly evolving technology, globally connected distribution networks, increased product diversity, and high levels of demand and supply uncertainty create problems for supply chain managers [11]. At the same time, the rapid increase in global demand and increased market segmentation force managers to sell a high volume of specialty phones [15]. The result is a supply chain that links dozens of suppliers to multiple manufacturing facilities and distribution channels on many continents and is constantly changing to accommodate next-generation phones [23]. As intense competition lowers the price of these phones, when mobile phones gain popularity in price-sensitive emerging markets, the relative cost of managing such a complex supply chain increases, thus increasing the risks [17]. History has shown that wrong steps in supply chain management can lead to a sharp decline in the performance of the organization as a whole [4]. Although this level of complexity poses significant challenges for those designing supply chains, it also represents an opportunity for companies to gain a competitive advantage from them [19]. Firms whose products compete on innovation in developed markets may specifically design their supply chains for flexibility, while firms that compete on price in emerging markets may simplify their supply chains to improve efficiency [5]. Hence, by improving flexibility in the supply chain, it may be possible to quickly adapt to changing consumer demands and preferences [16] or by improving efficiency in the supply chain, it may be possible to offer phones at a lower price than competitors [7]. By protecting against systematic shortages of parts from suppliers, it may be possible to continue production while competitors are unable to meet market demand [20]. The value of a high performance supply chain is recognized in the industry [25] although many studies have been conducted to help identify the various ways companies can improve their supply chain. But just because some supply chain practices work for one company doesn't mean it will work for another, even in the same industry. The wide variety of products in terms of price and performance suggests that there is no "one-size-fits-all" supply chain strategy that fits all companies. Therefore, this study focuses specifically on the factors that affect supply chain performance in the mobile phone industry, and the practices that companies adopt to improve their supply chain performance.

2 Research method

The aim of the current research was to identify the strategies for the supply chain management strategy of mobile phone value-added services. Therefore, in terms of the goal, this research was a development research and in terms of the method of gathering findings, it was a mixed (qualitative-quantitative) research. In the qualitative part, the database method has been used to identify the strategies for the supply chain management of value-added mobile phone services, and in the quantitative part, structural equation modeling has been used to validate the model obtained from the quantitative method. The statistical population in the qualitative part included university professors and managers and bosses working in the Ministry of Communications and in the quantitative part the employees of the Ministry of Communications. In the qualitative section, 15 people were selected as the research sample using the targeted sampling method, and in the quantitative section, 280 people were selected using the random sampling method. The tools for collecting findings in the qualitative part include semi-structured interviews and in the quantitative part, researcher-made questionnaires. Validation of the research findings in the qualitative section was evaluated through the four criteria of Lincoln & Guba [13]. Peer description method was used to achieve the "credibility" criterion. In this way, the researcher asked 2 PhD students who had used this method to re-code a part of the interviews in order to know the correctness of the researcher's coding process and the lack of bias in the analysis. For the "transferability" criterion, purposeful and snowball sampling methods were used, for the "reliability" criterion, consultation with professors and experts in this field was used regarding the process of conducting research and obtaining feedback to improve the work, for the "reliability" criterion, "Verifiability" was also used by taking notes during the work process. Other methods have been used to ensure the validity of self-monitoring research. In this way, the whole process of collecting, extracting and coding the findings was reviewed again, and another method of calculating the reliability of the research findings was the agreement method between the two coders. In this method, five interviews were selected and another researcher was requested to perform secondary coding without knowing about the primary coding. In the primary coding, 46 indicators were extracted and in the secondary coding, 39 indicators were extracted, and there was disagreement in 7 cases. Therefore, when the numbers were put in the following formula, the reliability coefficient of the evaluators was calculated as 0.85, which is higher than the value of 0.6, it can be claimed that the index extraction tool is reliable.

$$\text{Reliability of tools} = \frac{\text{Agreement number}}{\text{Number of possible agreements}} \frac{39}{46} = 0.85.$$

In the quantitative part, confirmatory factor analysis was used to evaluate the divergent and convergent validity of the research, and Cronbach's alpha test was used to evaluate the reliability. The analysis of the findings was done in the qualitative part using Strauss and Corbin's three-stage coding model (open, central and selective coding) and in the quantitative part through descriptive and inferential structural equation modeling tests.

3 Research findings

In order to achieve the objectives of the research, the conducted interviews were analyzed and the interviews continued until the theoretical saturation stage. The results of the analysis of the interviews are presented in the form of coding and reported in Table 1.

Table 1: Coding of research findings

Selective encoding	Axial coding	Open coding
Agility and flexibility	Use of new technologies	Blockchain chaining in data transfer and registration, providing banking services without the need for physical branches, innovative solutions for granting loans and financial installments, increasing financial facilities and improving the liquidity of businesses, asset management using artificial intelligence algorithms, data science or data mining, assistant virtual, business intelligence, asset management using artificial intelligence algorithms, financial technology, blockchain technology in financial affairs, business revenue generation from hosting services, social marketing, game software,
	Responding to dynamic demand	Dynamic demand control, dynamic pricing, use of modern technologies, internet supply and demand, dynamic business
	outsourcing	Cost saving, focusing on the organization's core competence, cost restructuring, cost restructuring, access to intellectual property and wider experience and knowledge, achieving a drastic change in quality through a service contract with a third company, providing services with a contract legally binding contract with financial and legal penalties, access to a large pool of talent and a sustainable source of skills, increased capacity for innovation,
Customer Orientation	Understanding customer needs	Providing value-added services according to customers' needs and continuously updating services, measuring customer satisfaction, appropriate customer support, continuous and close communication with customers, customer-oriented culture, customer feedback
	Personalization of services	Personalization with the help of artificial intelligence, manual personalization, identification and classification of different user groups, user classification,
	Providing quality services	Thorough knowledge of products and services, use of positive literature, instill confidence in your employees to improve the quality of customer service. Sometimes use customers' first names, consider incentives and rewards, follow good conversational principles to improve customer service, manage response time to improve customer service, allow customers to provide feedback
	Active communication with customers	Actively communicate with customers to better understand needs and feedback Re-engage with old customers Apologize to customers when problems arise Communicate clearly and in a good tone Personalized interactions Use a one-size-fits-all approach Don't, focus on face-to-face interactions, be active on social media, show your appreciation,
Innovation and creativity	Providing new services	Use appropriate support tools, perform marketing activities, market analysis, define the supply chain, identify audiences, market analysis, competitor analysis, check competitor product launch times
	Using new business models	Point of sale business model, multi-modal platform business model, cash machine business model, freemium business model, subscription business model, peer-to-peer business model, hidden income business model, Razor and razor handle business, direct sales business model, affiliate marketing business model, drop shipping business model, business model combining sales points and sales chain
	Cooperation with innovative companies	Business risk and familiarity with the market, company acquisition, education acquisition, obtaining a bachelor's degree, joint venture, joint research and development, research and development contract, research funding, alliance, consortium, networking, order to external sources.
risk management	Identification and assessment of risks	Leading the team through risk identification, identifying important issues for quick resolution, discovering management methods, identifying positive and negative risks, determining the right time for risk assessment, preliminary risk analysis
	Creating preventive programs	Establishing the desired context, identifying the risk, analyzing the risk, recognizing the risk in the desired range, planning for the remaining processes, assessing the risk.

	Use of risk management tools	Determining the profitability of trading, having a trading plan, considering the advantages of tools, considering the disadvantages of tools, using technologies
Cooperation with strategic suppliers	Building strong relationships with partners	Share goals and values with competitors, mutual respect, create opportunities for others to connect, let go of expectations, spend time brainstorming
	Information sharing	Providing career information, providing economic information, labor market services, career guidance for job seekers, adapting skills and interests to the needs of the labor market.
	Collaboration in innovation	Cooperation with entrepreneurs and start-ups, open innovation, cooperation with consulting centers and universities, cooperation with educational institutions in sharing information and data, cooperation with other businesses, choosing the right innovation partner.
Environmental and market analysis	Identifying customer preferences in the mobile phone market	Knowing the types of customers in telephone sales, examining the career prospects of the labor market, creating a list of available jobs in the demand sector and publishing models for measuring the competence of the workforce, addressing needs, cross-selling opportunities.
	Analysis of competitors and business environment opportunities and threats	Being in the competitive environment, observing ethics, principles, values, unique sales propositions and how to use the brand in the market, differences in its products and services with its competitors, forming marketing campaigns, analyzing dominant trends in the future of the market, advertising Brand and branding, predictive analytics in production and logistics, personalized customer experience
Use of information technology	Internet of Things	Capable of remote monitoring, cost reduction, predictive analysis, prevention of product quality problems, assistance in automation of business accounting, reduction of maintenance costs, optimization of energy consumption, data collection through devices based on IoT, monitoring vital indicators through IoT devices, data analysis through IoT devices, asset tracking through IoT devices, responding to global business changes through IoT devices,
	Artificial intelligence	Database management, content creation, translation, typing, photoshop, website management, social media management, SEO, work calendar management, handling emails and communication management, work calendar management, planning for a wide range of tasks, building sustainable communication and Long-term with the client, managing assets and investments, accurate data analysis and forecasting market trends, better and more optimal decision-making in the face of financial challenges, risk management, optimal management of financial servers.
Develop flexibility	"just-in-time" production systems	Eliminating primary problems, eliminating activities that do not add value, embedding systems to identify problems, implementing more understandable management systems, saving time and money, taking responsibility, checking and maintaining machines.
	Flexible extensibility techniques in supply chain	The ability of a chain to make active and passive adjustments in its position, the ability of a system to make active and passive adjustments in its position in order to overcome internal and external doubts, increase the complexity of value-added processes and shorten the response time to demand changes, transparency, Simplicity
Sustainable and social development	Sustainable suppliers	Sustainable development, meeting the needs of the present while considering the risks for the future, managing the flow of raw materials, environmental monitoring, considering the environmental quality, considering the company's value network, integrating economic, environmental and social issues.
	Sustainable goals	Attention to economic, environmental and social issues, waste reduction and cost savings, product obligations, balance between economic, environmental and social issues.
Improving logistics processes	Optimizing logistics processes	Optimizing logistics processes to reduce delivery time and costs, improving the performance and efficiency of warehousing, transportation and business management, choosing the most suitable tool for automating processes, maintaining intra-organizational communication, troubleshooting in supply chain matters, paying attention to cost-effective outsourcing, saving money in all stages, Optimizing routing, accelerating logistics processes, reducing manual planning, investing in digital solutions
	distribution network	Creating an effective distribution network to provide better services to customers, focusing on shared information, paying attention to direct and indirect distribution channels,

Based on the results of the table and figure number 1, 328 open codes were identified in the open coding stage. In the second stage of these codes, there are 26 core codes including: using new technologies, responding to dynamic demand, outsourcing, understanding customer needs, personalizing services, providing quality services, active communication with customers, providing new services, using new business models. Cooperation with innovative companies, identifying and evaluating risks, creating preventive programs, using risk management tools, building strong relationships with partners, sharing information, collaborating on innovation, identifying customer preferences in the mobile

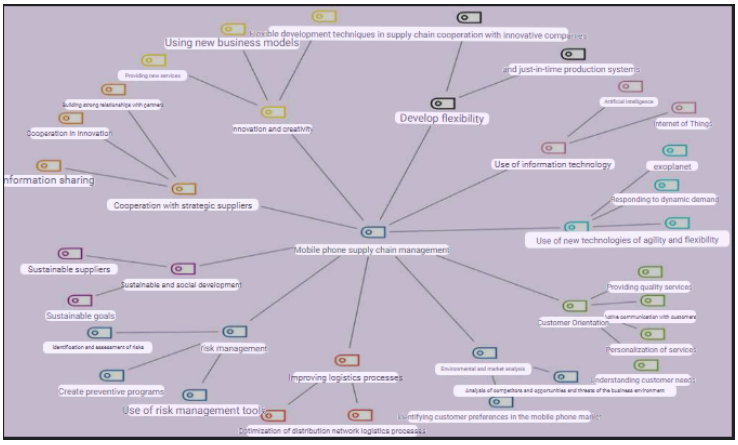

Figure 1: The network of themes of supply chain management of mobile phone value-added services

phone market, analyzing competitors and opportunities and threats. Business environment, internet of things, artificial intelligence, just-in-time production systems, flexible expansion techniques in the supply chain, sustainable suppliers, sustainable goals, optimization of logistics processes and distribution network were reduced and finally the number of 10 selected codes under the headings of strategy strategies Supply chain management of mobile phone value-added services were identified. These strategies include agility and flexibility, customer orientation, innovation and creativity, risk management, cooperation with strategic suppliers, environmental and market analysis, use of information technology, flexibility development, social and sustainability development, and improvement of logistics processes.

4 Model validation

Confirmatory factor analysis is one of the oldest statistical methods used to investigate the relationship between hidden variables (main variables) and observed variables, and it represents the measurement model. Factor analysis is based on two types of exploratory factor analysis and confirmatory factor analysis. In exploratory factor analysis, the researcher tries to discover the underlying structure of a relatively large set of variables, and the initial assumption is that each variable may be related to each factor. In other words, the researcher does not have any initial theory in this method. In confirmatory factor analysis, the basic assumption is that each factor is related to a specific subset of variables. The minimum necessary condition for confirmatory factor analysis is that the researcher has a certain presupposition about the number of factors in the model before performing the analysis, but at the same time, the researcher can also express his expectations based on the relationships between variables and factors. Enter analysis. In order to evaluate the validity of measurement models, we calculated the following values and if the conditions listed in table 2 are met, we can claim that the research model has appropriate and favorable conditions.

Table 2: conditions for establishing reliability and validity

Indicator	Limit
Reliability	Composite reliability and Cronbach's alpha should be above 0.70.
Convergent validity	Factor loadings should be significant (t>1.96).
	Standard factor loadings should be greater than 0.4.
	CR>AVE
	AVE>0/5
	Rho_A>0/6
Divergent validity	AVE>MSV, HTMT<0/9

Figure number 2 shows the multilevel confirmatory factor analysis model and structural equations in standard coefficient estimation mode. According to figure number 2 of the strategy model for the supply chain management strategy of mobile value added services including 10 strategies of agility and flexibility, customer orientation, innovation and creativity, risk management, cooperation with strategic suppliers, environmental and market analysis, use of information technology It is the development of flexibility, the development of social and sustainability, and the improvement of logistics processes. According to this model, the coefficients that arise from the relationships between the main variable (oval) and the model components (rectangle) are called factor loadings, and the coefficients between the main variables are path coefficients or structural equations.

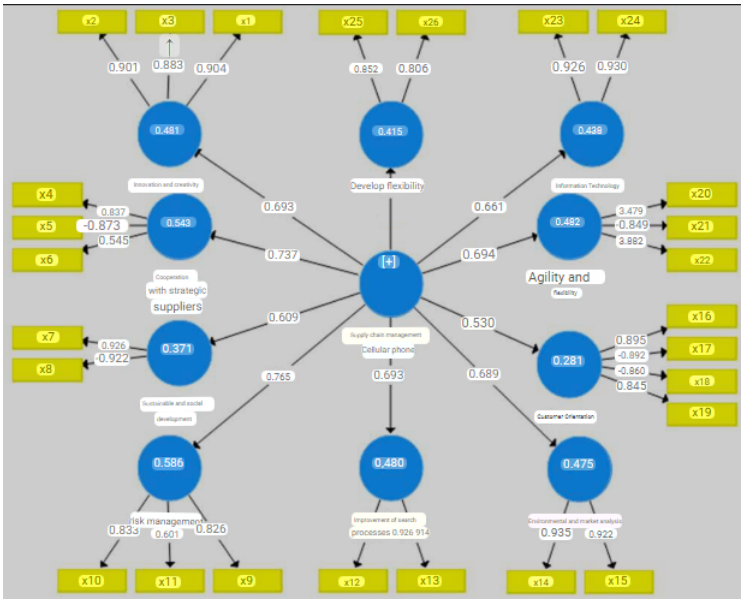

Figure 2: Model in standard coefficient estimation mode

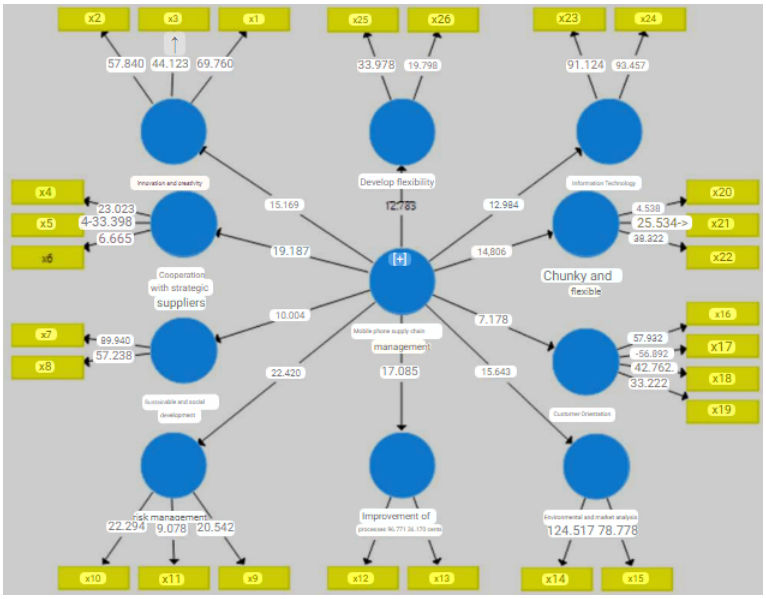

Figure 3: The model in the mode of estimating significant coefficients

Figure number 3 tests all measurement equations (factor loadings and path coefficients) using T-statistics. According to this model, factor loading is significant at 95% confidence level. If the value of T statistic is outside the range of -1.96 to 1.96. Based on the studies of Henseler et al [9], the range of determination coefficient and adjusted determination coefficient has been determined from (0.19 weak, 0.33 moderate and 0.60 strong). The findings listed in table 3 show that among the components of the mobile phone value-added service supply chain model, all components were calculated at a relatively strong and moderate level. Among the components of the risk management model, it is the strongest with a coefficient of determination of 0.586 and an adjusted coefficient of determination of 0.583, and customer orientation is evaluated as the weakest with a coefficient of determination of 0.281 and an adjusted coefficient of determination of 0.277.

According to Taber's studies [22], when the Cronbach's alpha of any construct is higher than 0.6, it can be said that that construct has good reliability. According to the results of the table, Cronbach's alpha coefficient is all higher than 0.6, it can be claimed that all the components of the model have good reliability. Among the components of the environmental and market analysis model, it has obtained the highest amount with a coefficient of 0.841. Henseler

Table 3: Examining the indicators of the coefficient of determination and the adjusted coefficient of determination of the research components

Strategies	R	R^2	F
Improving logistics processes	0.480	0.477	0.924
Environmental and market analysis	0.475	0.472	0.904
Develop flexibility	0.415	0.412	0.709
Sustainable and social development	0.371	0.368	0.591
Information Technology	0.438	0.435	0.778
risk management	0.586	0.583	1.413
Customer Orientation	0.281	0.277	0.391
Innovation and creativity	0.481	0.478	0.926
Cooperation with strategic suppliers	0.543	0.541	1.190
Agility and flexibility	0.482	0.479	0.930

Table 4: Validity and reliability indicators of model dimensions

Strategies	Cronbach's alpha	Rahu coefficient	Composite reliability	AVE
Improving logistics processes	0.820	0.823	0.917	0.847
Environmental and market analysis	0.841	0.845	0.926	0.862
Develop flexibility	0.648	0.754	0.815	0.688
Sustainable and social development	0.829	0.830	0.921	0.854
Information Technology	0.838	0.839	0.925	0.861
risk management	0.620	0.712	0.802	0.579
Customer Orientation	0.896	0.902	0.928	0.763
Innovation and creativity	0.878	0.886	0.924	0.803
Cooperation with strategic suppliers	0.618	0.747	0.804	0.586
Agility and flexibility	0.688	0.740	0.794	0.576

et al [8] believe that the Rahu coefficient of each of the constructs of the time model is above 0.7, and the results of the table show that all ten components of the strategy model of supply chain management strategies for mobile value added services in This research was approved. Referring to the studies of Baggozi and Yi [1], when the combined reliability of the structures is above 0.6, that structure has good reliability. According to the results of the table, all dimensions of the model are above 0.6, so they have good reliability. Customer orientation has gained the highest amount with 0.928. According to the studies of Kline [12], the extracted average of the model structures above 0.5 is confirmed. Based on the results listed in table 5, the variance averages of all the dimensions of the model were above the mentioned number, so they are approved from this point of view. Fornell and Larcker [6] believe that when the diameter of the table in the Fornell and Larcker index is larger than its subset, the model structures have good validity. Based on the findings in Table 6, all dimensions of the model have been confirmed in terms of divergent validity index.

Table 5: evaluation of the Fornell and Larcker index to check the validity of different dimensions of the research

Strategies	logistics	Environmental analysis	flexibility	social stability	Technology	risk management	Customer	Innovation	Strategic suppliers	Agility
Improving logistics processes	0.920									
Environmental and market analysis	0.834	0.929								
Develop flexibility	0.330	0.252	0.830							
Sustainable and social development	0.257	0.315	0.279	0.924						
Information Technology	0.374	0.322	0.703	0.301	0.928					
risk management	0.546	0.557	0.331	0.748	0.356	0.761				
Customer Orientation	0.236	0.262	0.278	0.210	0.209	0.277	0.873			
Innovation and creativity	0.370	0.380	0.340	0.284	0.297	0.411	0.268	0.896		
Cooperation with strategic suppliers	0.373	0.386	0.305	0.518	0.304	0.594	0.246	0.807	0.766	
Agility and flexibility	0.363	0.325	0.706	0.260	0.742	0.337	0.453	0.302	0.289	0.759

In working with the SmartPLS program, each of the indicators obtained for the model alone is not the reason for its

Table 6: Model fit indices

Model fit indices	symbol	Estimated value	Limit
Model fit	GOF	0.663	More than 0.36
Softened fit	NIF	0.909	More than 0.8
The second root of the approximation error variance estimate	SRMR	0.086	Less than 0.012

Source: Henseler et al [8]

suitability or lack of suitability, but these indicators should be interpreted together. There are several fit characteristics to evaluate the confirmatory factor analysis model and path model. In this research, to evaluate the confirmatory factor analysis model, model goodness of fit (GOF), smoothed goodness of fit (NIF), and the very important index of the second root of the estimated variance of approximation error (SRMR) were used. The GOF index shows the agreement between the quality of the structural model and the measured model. The high goodness of fit index of 0.36 shows the fit of the model. The value of the fit index for the validated model in the present study is equal to 0.663, so it is greater than the permissible limit and indicates the appropriate fit of the model. Another index of model fit is the SRMR index. The limit of this index is 0.12. For this model, the value of this index is less than 0.12 and it can be said that the model has a good fit. The smoothed fit index for this model is estimated to be higher than 0.8 and it shows the good fit of the model. In general, according to all three fit indices, it can be said that the data of this research has a good fit with the factor structure and the theoretical foundation of the research, and this indicates that the dimensions are aligned with the theoretical structures.

Table 7: Results of structural equations and quality indicators of structural equations

Components	Variable	original sample	Average	standard deviation	T	Sig	Results	
							Condition	direction
Improving logistics processes	Mobile phone supply chain management	0.693	0.695	0.041	17.085	0.000	confirmation	+
Environmental and market analysis		0.689	0.690	0.044	15.643	0.000	confirmation	+
Develop flexibility		0.644	0.644	0.050	12.783	0.000	confirmation	+
Sustainable and social development		0.609	0.606	0.061	10.004	0.000	confirmation	+
Information Technology		0.661	0.660	0.051	12.984	0.000	confirmation	+
risk management		0.765	0.768	0.034	22.420	0.000	confirmation	+
Customer Orientation		0.530	0.527	0.074	7.178	0.000	confirmation	+
Innovation and creativity		0.693	0.690	0.046	15.169	0.000	confirmation	+
Cooperation with strategic suppliers		0.737	0.736	0.038	19.187	0.000	confirmation	+
Agility and flexibility		0.694	0.694	0.047	14.806	0.000	confirmation	+

Based on the results of table number 7, it can be seen that the logistics process improvement component is 17.085, the environmental and market analysis component is 15.64, the flexibility development component is 12.78, the social and sustainability development component is 10.04, the information technology component is 12.98, the risk management component is 22.42, the customer orientation component is 7.17, Innovation and creativity component 15.16, cooperation with strategic suppliers component 19.18 and agility and flexibility component by 14.80 predict mobile phone supply chain management variables.

5 Discussion and conclusion

The aim of the current research was to identify the strategies for the supply chain management strategy of mobile phone value-added services. In order to achieve this goal, semi-structured interviews were conducted with 15 university professors, managers and heads of the Ministry of Communications and went to the stage of theoretical saturation. Based on the results of the research, in the open coding stage, 328 open codes were reduced, in the central coding stage, 26 codes and in the selective coding stage were reduced to 10 codes under the title of mobile phone value added service supply chain management strategy strategies. Therefore, strategies such as agility and flexibility, customer orientation, innovation and creativity, risk management, cooperation with strategic suppliers, environment and market analysis, use of information technology, flexibility development, social and sustainability development, and improvement of logistics processes are supply chain management strategies. Mobile phone value added services are considered. The results of this part of the research with the research of Ye et al [25], who maintained sustainability and social sustainability, Gupta et al [7], who acknowledged that the convergence of Internet and mobile technologies has led to the growth of service

innovations in the telecommunications sector. Digitization has transformed the telecommunications value chain from a linear web to a non-linear one, and shows the role of telecommunications operators in a dilemma and innovation is a suitable strategy for mobile phones, Kim et al Along with the intensification of competition in the market, mobile phone operators have been trying to find new business models to maintain profits and expand their business boundaries and have introduced strategies such as personalization, interaction and communication with customers and content creation, Madhani [15], which strategies Such as dynamic responsiveness capabilities, flexibility, reliability and realignment introduced for strategic supply chain approach to business performance, Bhattacharyya and Sivanand [3] who introduced product innovation and Bask et al [2] who identified stakeholder needs and Interacting with them, Xu and Yang [24] introduced risk management and flexibility as strategies of mobile phone supply chain strategy. In line with the confirmation of this part of the research results, it can be said that considering the high volume of mobile phones being produced and the large number of stakeholders involved in the process of designing, manufacturing and distributing these mobile phones, it is not surprising that the supply chain of mobile phones usually has a very high performance. compared to the supply chain of other companies and industries. Supply chain management is a set of approaches used to efficiently integrate suppliers, manufacturers, warehouses and stores, so that goods are produced and distributed in the right quantities, in the right places and at the right time. minimize system costs, while meeting service level requirements (Khan et al [10]; Pasi et al [18]). As mentioned, the goal of supply chain management is to minimize system costs while ensuring the quality level of service delivery. The level of service in this field indicates the time when the customer has access to the final and suitable product if desired. A low service level indicates that the products are normally in stock, while a high service level indicates that the customer is usually able to purchase the desired product.

The easiest way to increase the level of service is to increase the level of inventory, but the products kept in the warehouse can be expensive for the company. Similarly, the easiest way to reduce costs is to reduce inventory levels, but this leads to reduced service levels and lost sales. Traditionally, a company decides on a service level and increases inventories to meet that service level. The goal of supply chain management is to use practices that bypass this simple trade-off and enable companies to maintain service levels while simultaneously reducing costs. Although the supply chain represents the flow of goods from suppliers to customers, the set of practices that define supply chain management encompasses areas other than those that touch physical goods. For example, considering the supply chain during the design process can significantly improve supply chain performance and has been shown to increase profitability. Furthermore, the relationship between the end user and the manufacturer no longer ends at the point of sale. In the case of a defective product, warranties may require the manufacturer to have an effective return and repair process. This is especially important in the mobile phone industry, as mobile phones are usually paired with a mobile service contract. So an efficient repair process is very important to ensure that the user is not left without a mobile phone for a long time. The results of the research in the quantitative part showed that all the components of the model were able to predict the main variable which was the mobile phone supply chain management. And the designed model had a good fit. Note that there is not necessarily a "right" way to run a supply chain. Differences between products, such as demand uncertainty, supply uncertainty, and speed of technology, suggest that different supply chain strategies should be used. In line with the results of the research, it is suggested to pay attention to the type of product, supply chain strategy. Due to fluctuations in product demand, functional products are usually well established and have little change in demand from year to year, while innovative products are usually new and have very uncertain future demand. In general, according to the product features, it can be expected that mobile phones are placed in the category of innovative products. However, the wide range of cell phones, from very low to high end, shows that there should be variety in this dimension. Efficient supply chains focus on cost reduction through methods such as inventory minimization. Responsive supply chains, on the other hand, are designed to ramp up or down production quickly, depending on the market. We might expect that mobile phones are usually in the category of innovative products, and therefore it would make more sense to create a responsive supply chain. However, as mentioned, the wide range of product diversity in the mobile phone market indicates that companies should engage in product innovation.

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