Journal of Business and SMEs June 2024 Vol.11 No.28 1-10
Article

Evolution of micro and SME's innovating senior management supply chains

Evolución de mipymes innovando cadenas de suministro de alta dirección

Vázquez-Valerio, Gabriel Adrián[a], Cortés-Hernández, Patricia[b], Pecina-Rivas, Erika María[c] and Cuellar-Orozco, Armando[d]

[a] Tecnológico Nacional de México - Tecnológico de Estudios Superiores de Cuautitlán Izcalli • KHD-6509-2024 • 0000-0001-8109-4608 • 733494
[b] Tecnológico Nacional de México - Tecnológico de Estudios Superiores de Cuautitlán Izcalli • KHD-6677-2024 • 0000-0002-1881-05411 • 10664391
[c] Tecnológico Nacional de México - Tecnológico de Estudios Superiores de Cuautitlán Izcalli • KHE-1673-2024 • 0000-0001-6723-6139 • 1027569
[d] Tecnológico Nacional de México - Tecnológico de Estudios Superiores de Cuautitlán Izcalli • JVZ-8348-2024 • 0000-0002-1881-0541 • 1007431

CONAHCYT classification:

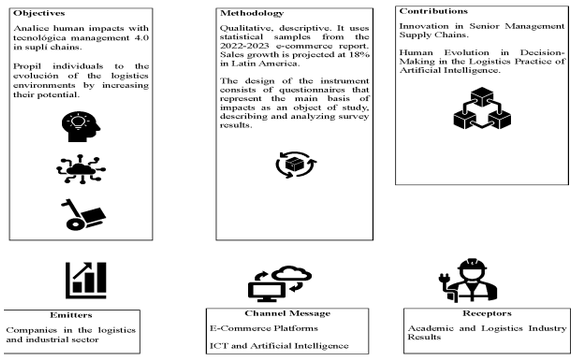
Area: Social Sciences
Field: Business and Management
Discipline: Administration and Management
Subdiscipline: Business Administration

https://doi.org/10.35429/JTI.2024.25.10.1.10
History of the article:
Received: January 15, 2024
Accepted: June 30, 2024

* ✉ [gabriel.vv@cuautitlan.tecnm.mx]

Abstract

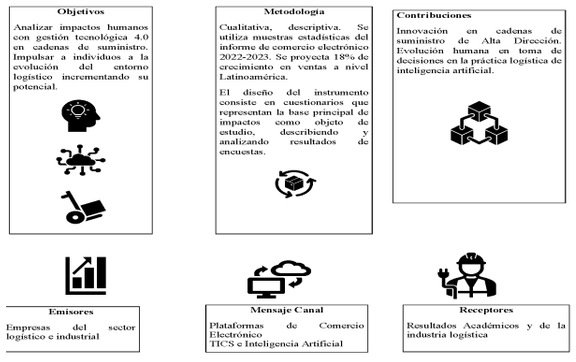
Post-pandemic technology guides individuals to evolve strategic thinking by creating logistics solutions. The digital paradigm of MSMEs must innovate by linking administrative thinking with technology. Objectivity analyzes impacts on management 4.0 in supply chains, driving the individual to disrupt the logistics environment.The methodology is qualitative, descriptive. Using statistical samples. The design of the instrument consists of questionnaires that represent the main basis of impacts as an object of study, describing and analyzing survey results. The results represent 52% of MSMEs that sell online in Mexico and 48% sell through other channels, in addition productivity losses are explored with the impact of COVID-19. It is concluded that business evolution 4.0 generates adaptability to human evolution in the design of new visions of creating supply chains with a digital focus in the state of Mexico, resulting in an increase in operations by electronic commerce.Human evolution and its adaptation to a technological cognitive level is decisive to positively impact challenges in industry 4.0 and create strategies to balance occupational human wear to improve the quality of work and productive life in business entities.



Supply chains, digital evolution, management thinking

Resumen

La presente investigación tiene por objetivo evaluar el efecto de la composta salina La tecnología en postpandemia orienta a individuos a evolucionar creando soluciones logísticas. El paradigma digital microempresarial debe innovar vinculando al pensamiento administrativo con la tecnología. La objetividad analiza impactos humanos con gestión 4.0 en cadenas de suministro, impulsando al individuo a la disrupción del desempeño aplicado al entorno logístico. La metodología es cualitativa, descriptiva. Utilizando muestras estadísticas del informe de comercio electrónico durante 2022 y perspectivas para 2023. Según e-Marketer México tiene 18% de crecimiento en ventas de comercio electrónico a nivel Latinoamérica. Y Statista estima que México crecerá anualmente un 16.8% de manera anual hasta 2025. El diseño del instrumento consiste en cuestionarios que representan la base principal de impactos como objeto de estudio, describiendo y analizando resultados de encuestas. Los resultados representan un 52% de MiPymes que venden por internet en México y un 48% venden por otros canales, además se exploran pérdidas de productividad con el impacto del COVID-19. Se concluye que la evolución empresarial 4.0 genera adaptabilidad a la evolución humana con nuevas visiones de crear cadenas de suministro con enfoque digital en el estado de México, teniendo como resultado un incremento de operaciones por comercio electrónico. Es determinante la evolución humana y su adaptación para impactar positivamente en la industria 4.0 y crear estrategias que equilibren el desgaste humano para mejorar la calidad de vida laboral y productiva en entes de negocios potenciales.



Cadenas de suministro, evolución digital, pensamiento administrativo

Citation: Vázquez-Valerio, Gabriel Adrián, Cortés-Hernández, Patricia, Pecina-Rivas, Erika María and Cuellar-Orozco, Armando. Evolution of micro and SME's innovating senior management supply chains**.** Journal of Business and SMEs. 2024. 10-25:1-10.

Journal of Business and SMEs June 2024 Vol.11 No.28 1-10
Article

Introduction

The objective of the article is to analyse and describe impacts of companies in the post-pandemic COVID-19 transition that affected businesses by a new digital paradigm deriving economic, financial and business health challenges worldwide. Most micro, small and medium-sized enterprises in Mexico experienced financial disadvantages due to a structural technological insufficiency in supply chains to support customer demand through e-commerce and logistics innovation. This altered supply chain arrangements and generated the evolution of human, strategic and administrative thinking to create the required solutions.According to (García, 2021: P. 12) "the world is experiencing a health, humanitarian and economic crisis". Therefore, the top management strategist designs tactics to face adversity in the face of these crises. Thus, innovation factors are proposed in supply chains that evolve in the business and technical management of individuals in operational interaction through digital processes and subsequently at the organisational innovation level in MSMEs.

Therefore, the importance of analysing and describing the impacts to which the internal actors of the organisations were ejected and to transcend evolutionarily in the constant doing of activities that add up to productivity.

Problem statement

The problem statement analyses the level of adaptation of individuals to digital technology as an initial impact on the use of logistics operations of MSMEs in the retail sector, resulting in an insufficient response capacity in warehouses and inventories. Therefore, a primary action related to the affectation of the worker's occupational health with an impact on work stress is originated and as a second action is the technological business management with an evolutionary approach to digitalisation. Therefore, the added value of the approach of this research is directly related to the advancement of human intelligence and the sensitivity of the individual to adapt to the post-pandemic technological environment that involves the disruptive learning of learning new digital dynamics of logistics, making the final action of thinking and executing the operational tactics in land freight transport companies using digital technology and artificial intelligence.

The research is carried out in the state of Mexico, exploring the logistics corridor of the municipality of Cuautitlán Izcalli. The problem to be solved consists of identifying the advantages of technological business management in Industry 4.0 and simultaneously the repercussions that affect individuals due to the operational wear and tear of the logistics activity that affects the top management of micro, small and medium-sized companies.

Analysing and describing the proposed dimensions with impact on the reduction of economic income, delays in the delivery of products, decrease in cash flow, human-technological impact and cancellation of orders. Therefore, the evolution is a necessity for the adaptation of competitive environments in a digital context for companies in the logistics operations and supply chain optimisation sector.

Central hypothesis

Does technological business management in supply chains create positive impacts on micro, small and medium-sized enterprises in the logistics corridor of the municipality of Cuautitlán Izcalli to evolve at the human-technological-business level with the guidance of senior management, increasing productivity and affecting worker performance by adapting to virtual and digital environments?

Therefore, digital evolution drives individuals to transcend and interact technologically, accepting the techno-digital paradigm and cognitively adapting to evolve towards innovation in supply chains to immerse themselves in a new digital paradigm of artificial intelligence that increases productivity. At the same time, evolving the individuals of the organisational entity has as a trend the business evolution and the strategic conduction of the new design in supply chains.

ISSN: 2444-5010
RENIECYT-CONAHCYT: 1702902

Vázquez-Valerio, Gabriel Adrián, Cortés-Hernández, Patricia, Pecina-Rivas, Erika María and Cuellar-Orozco, Armando. Evolution of micro and SME's innovating senior management supply chains. Journal of Business and SMEs. 2024. 10-25:1-10.
https://doi.org/10.35429/JTI.2024.25.10.1.10

Development

In the post-pandemic, the design of business strategies to optimise processes through digitalisation depends on human and management thinking with a focus on supply chains. From this moment a disruptive process begins from 2020-2024 and a point of projection towards human evolution in the coming decades.

In the way of thinking and manipulating technology that unify economic and commercial frontiers with digital reach towards a human technological disruption of innovation design at the administrative and strategic thinking level towards logistics evolution with artificial intelligence with greater interaction via the internet that impact distribution centres. Influencing the increase in working hours that detonate work stress impacting worker health. Another important impact of supply chains is at the human level, as a first step towards the projection of innovation is the set of ideas among collaborators to reconcile collective interests and execute an action plan. Within this, the social, environmental and corporate responsibility behaviours of individuals are established to achieve goals. And they will have to show their social evolution by demonstrating techno-digital management to interact with artificial intelligence artefacts.

Therefore, the problem to be solved is based on the economic contraction that made it impossible for MSMEs at micro and macro business level in relation to their business system and sales platform for the sustainability of this. Since it caused a decrease in economic income, delays in product deliveries, decreased cash flows, human and technological impacts, as well as cancellation of customer orders. Opting for the tactic of remote teleworking with internet coverage for workers at management level. Identifying e-commerce as a major advantage in the execution of operations reflected in financial income. And as a logistics strategy executing distribution for products from main company warehouses.

This resulted in a high level of operations and occupational attrition in the Mexican logistics business sector, affecting individuals inserted in this area of work. This caused a decrease in human performance.

This generates the opening of entrepreneurs to manage digital tools immersed in logistics 4.0, specialise supply chain processes and mentally evolve towards new models of strategic thinking to face the challenges of the post-pandemic and adopt strategies now in the new digital era.

In the first instance, the evolution at the individual level and as a consequence directing the business evolution of micro, small and medium-sized enterprises with the technological direction of top management applied to supply chains for greater control of operations in times of economic and commercial instability with technological inference.

According to Rosenberg quoted by (Benavides, 1982: P. 53) "technology configures physical reality by creating artefacts of natural transformation turning it into an extension of the human body". Therefore, it is suggested to extend the evolutionary analysis of nature proposed by Darwin: from natural technology to the transition of man's productive organs that design thinking strategies and human evolution through time. Consequently, the business evolution of MSMEs is based on the adaptation to different practices based on digital technology that will lead the disruptive thinking of senior management towards a new digital paradigm in the coming decades. The supply chain is a constant and evolving dimension to generate competitive advantage and efficiency in relation to time, resource utilisation and process design in the logistics industry.

Thus, from 2020 onwards, we have moved from the conventional technological transition to the technological-digital transition, where the productive organs of man form the fundamental cognitive design that impacts on the construction of strategies to apply new knowledge in supply chains and obtain economic and financial returns in businesses in the logistics field through e-commerce.

Postpandemic orients companies to maximise operations, the human disruptive effect is adaptive to the causal impact. The acceleration of processes represents dependent and independent variables that impact the occupational health of the individual in the logistics activity.

ISSN: 2444-5010
RENIECYT-CONAHCYT: 1702902

Vázquez-Valerio, Gabriel Adrián, Cortés-Hernández, Patricia, Pecina-Rivas, Erika María and Cuellar-Orozco, Armando. Evolution of micro and SME's innovating senior management supply chains. Journal of Business and SMEs. 2024. 10-25:1-10.
https://doi.org/10.35429/JTI.2024.25.10.1.10

Therefore, the productive organs of workers must be in favourable conditions to increase their working power. That is to say, operations are potentiated to increase productivity and the human cost has repercussions on the level of health of the worker, impacting their working life and emotional state.

This is one of the main contributions with social impact to this article. In this digital human evolutionary transition, both the independent variables are related: business productivity and the dependent variable, the emotional state of the human factor from the perspective of occupational health. Therefore, a qualitative methodology with a descriptive study is proposed.

Thus, a conjunction is established between the operations of supply chains and worker health in an organisational environment that both argue the dichotomy of the behaviour of a new digital paradigm with economic, social, political, technological and health management interaction that takes shape with the adaptation of the individual to the virtual environment of supply execution.

Faced with the insertion of the new paradigm, the structural reaction capacity demonstrated by business leaders to contain the economic demand for digital platforms in e-commerce has generated the evolution of supply chains. The redesign of these has generated innovation in the first instance human and in the second instance techno-digital that links MSME operations in smart industry. Therefore, the business evolution of micro, small and medium enterprises is driven by leaders who guide change in the area of logistics and supply chains.

Thus, according to (Macías, 2021: Pag.1659) "Any change involves factors that impact the attitude of people".

This attitude is elemental in the digital human evolution to thrive in business and global competitiveness scenarios.

Faced with this situation, top management must evolve by aligning their organisational culture and human skills with the current paradigm of the current decade 2020-2030.

According to (Casillas, 2020 Pag. 1641) "The supply chain integrates international policies, and is not exclusive to the distribution of products" Therefore, smart business technology management in Industry 4. 0 of supply chains generates positive advantages in digital human evolution, integrating material supplies and global policies that impact the evolution of the human syndrome of digitalisation of continuous activity.

(SHDAC) affecting their psychomotor health as the individual's productive organs are immersed in logistical and digital operations managing e-commerce activities with involvement in warehouses and inventories that monitor supply chains. Having a scope with a primary action related to occupational human attrition and the independent variable: business technology management with an evolutionary approach to business digitalisation.

Therefore, as a contribution to science, it is essential to analyse the collateral effects of the individual inserted in MSMEs in the long term, as the trend will be standardised in the digital context of global trade, generating incremental economic impacts and damage to the worker's health. These impacts are related to the chain of problems, mainly human health, mental health, visual and occupational wear and tear. Therefore, human evolution in the digital and business context in the fourth digital revolution 4.0 is oriented towards empowering top management to achieve better results considering productivity and occupational health variables in a business. That is, the human evolution of the quality of time in processes for better occupational health and not for an increase in operations that wear the individual down with information saturation on digital platforms. Therefore, balancing human health benefits and emotionally preparing the worker for technological evolution by performing quality activities at the scale of productivity in occupational health and digital efficiency is the scope of this article. According to (Araujo, 2020: p. 155) "e-commerce gives rise to a global expansion of operations" Therefore, top management minds must innovate processes, and interconnect needs on a global scale to engage individuals in the disruptive digital paradigm shift.

ISSN: 2444-5010
RENIECYT-CONAHCYT: 1702902

Vázquez-Valerio, Gabriel Adrián, Cortés-Hernández, Patricia, Pecina-Rivas, Erika María and Cuellar-Orozco, Armando. Evolution of micro and SME's innovating senior management supply chains. Journal of Business and SMEs. 2024. 10-25:1-10.
https://doi.org/10.35429/JTI.2024.25.10.1.10

(Valerio, 2021: Page 1671) He states "the COVID-19 exposed the vulnerability of people to change and technological interaction". Therefore, the new normal in Mexico integrates the construct of human modification that gives the preamble to the evolution with tools focused on productivity in supply chains and an increase in work stress.

According to (Enriquez, 2020: Page 185) "the Blockchain is a tool that has revolutionized supply chain management".

Being this a logistic model of evolution performance in smart supply chains according to human evolution and understanding the complexity of categories explored in companies.

Methodology

The type of methodology is qualitative, carrying out a descriptive study. Integrating a questionnaire instrument of exploration of categories of companies and dimensions of impacts for data collection with structured questions using the Likert scale, which was applied to the top management of 10 MSMEs in the state of Mexico in the logistics corridor of the municipality of Cuautitlán Izcalli.

Box 1

Table 1

Questionnaire Categories

Company Categories	Impact Dimension
A1: 5PL	Decreased revenues: Affecting economic revenues to businesses due to economic contraction in the pandemic.
B2: 5PL	Delays in product delivery: Deficiencies in distribution processes due to the absence of e-commerce platforms.
C3: 4PL	Decrease in cash flow: Decrease in business sales due to low consumption trend.
D4: 4PL	Human-technological impact: Recognition of the need to evolve and innovate processes in supply chains in micro, small and medium-sized enterprises.
E5: 5PL	Cancellation of customer orders.
F6: 4PL	Low productivity of transport operators
G7: 3PL	Lack of training of transport operators
H8: 2PL	Deficiencies in reverse logistics programmes
I9: 1PL	Deficiencies in last mile programmes
J10: 1PL	Lack of technology in warehouses and inventories.

Source: Own elaboration

Each dimension of impact represents the most representative value of the current situation that integrates the problem statement, where through the design of the questionnaire and the information collected when generating the surveys, relevant information is obtained to describe, correlate with the dependent and independent variables and analyse the object of study.

The article uses for its analysis categories of companies in terms of their constitution and operation and the dimension of impacts on supply chains and digital human evolution as a need to evolve entrepreneurially from the perspective of the top management of MSMEs, which is the preamble to the global economic contraction and the beginning of the current post-pandemic health in the foreground and secondly at the business economic level. Since, by impacting the economic effects on entrepreneurial business models, it therefore affects the individual's ability to increase skills and generate effectiveness in processes. Hence the need to innovate micro, small and medium enterprises through the evolutionary strategic thinking of top management.

The problem statement exposes the impact of the COVID-19 pandemic as a whiplash effect on economic contraction affecting consumption and business sales. This impacts on the operation of warehouses and inventories, generating an insufficiency in the production and distribution response capacity to the goods market, as the personnel in the companies were not adapted to this post-pandemic digital operation dynamic, which covers the beginning of a decade from 2020 to the current year 2024.

Population and sample

N= 10 economic units in the State of Mexico.

Each economic unit (EU) corresponds to a company examined on the basis of its constitution and level of logistical operation. 1pl: Company that directly stores and transports its own merchandise independently, 2pl: Suppliers that are in charge of providing their means for the storage and transport of merchandise to contracting companies. 3pl: Suppliers that have their own warehouses and transport fleets and assume responsibility for managing these resources as part of their logistics services.

ISSN: 2444-5010
RENIECYT-CONAHCYT: 1702902

Vázquez-Valerio, Gabriel Adrián, Cortés-Hernández, Patricia, Pecina-Rivas, Erika María and Cuellar-Orozco, Armando. Evolution of micro and SME's innovating senior management supply chains. Journal of Business and SMEs. 2024. 10-25:1-10.
https://doi.org/10.35429/JTI.2024.25.10.1.10

4PL: Suppliers that take on the management of the entire supply chain of the contracting companies. 5pl: suppliers that have extensive capacity to manage multiple supply chains. Therefore, the following categories were given to the companies in order to maintain confidentiality of information:

A1, B2, C3, D4, E5, F6, G7, H8, I9, J10.

Company A1 is a transport company in classification 5pl. It has 50 employees, 32 of whom are men and 18 women.

Company B2, which offers parcel delivery services, is classified as a 5PL. It has 37 employees, 29 men and 8 women.

Company C3 is a logistics consultancy and advisory service, classified as 4pl. It has 23 employees, 13 men and 10 women.

Company D4, develops logistics and warehousing auditing and consultancy services, classified as 4pl. Classified as 4pl, it has 32 employees, 20 men and 12 women.

Company E5, develops e-commerce services and contracting of logistics operators, classified as 5pl. It has 49 employees, 36 men and 13 women.

Company F6, which carries out cross-docking activities, classified as 4pl, employs 27 workers. 20 men and 7 women.

Company G7 is engaged in warehousing and inventory management, classified as 3pl. It has 26 workers. It has 26 workers, 19 men and 7 women.

The company H8, corresponds to packaging, classified as 2pl. It has 19 workers. 15 men and 4 women.

Company I9 corresponds to warehousing, classified as 1pl. 13 men and 2 women.

The company J10, which is classified as 1pl and has 13 workers, 10 men and 3 women, carries out cargo transport and storage activities.

Proportions of 50%; Reliability: 95%; Margin of error: 5%.

Data collection

The required size was 10 economic units and we managed to survey 5 directors, 3 owners, and 2 people responsible for logistics operations at the head level of the MSMEs with between 1 and 50 employees. We proceeded to carry out the surveys, and obtained the results and quantified percentages of impacts that influence the evolution of supply chains in this representative sample of companies, and therefore, the need to innovate and evolve in senior management.

Box 2

Table 2

Main impacts detected in the companies

Company Categories	Technological Innovation Variables	% Impact
A1	Declining revenues	83
B2	Delays in deliveries	63.1
C3	Decreased cash flow	73.2
D4	Influence and technological innovation	57.3
E5	Supply Chain Management	51.2
F6	Low productivity of transport operators	54
G7	Lack of training of transport operators	46
H8	Deficiency in reverse logistics	36
I9	Deficiency in last mile	23
J10	Lack of technology in warehousing and inventories	38

Source: Own elaboration

Box 3

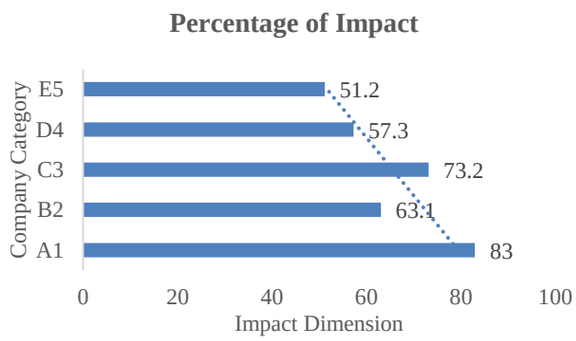


Figure 1

Source: Own elaboration

ISSN: 2444-5010
RENIECYT-CONAHCYT: 1702902

Box 4

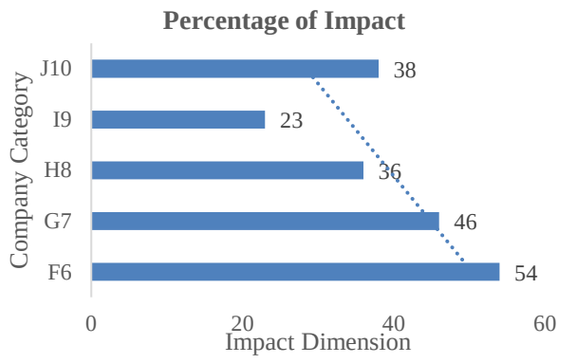


Figure 2

Source: Own elaboration

Methodology to be developed

This article is a qualitative research with a descriptive study. In which an administrative and logistical diagnosis was carried out in order to obtain information on the performance of the supply chains of micro, small and medium-sized enterprises in the logistics corridor of the municipality of Cuautitlán Izcalli in the State of Mexico.

The subjects of the study are 10 economic units located in the logistics corridor of the municipality of Cuautitlán Izcalli in the State of Mexico. In order to respect the confidentiality of these economic units at the level of MSMEs micro, small and medium enterprises, they are established in categories with dimensions of impact: A1, B2, C3, D4, E5, F6, G7, H8, I9, J10.

The categories in the questionnaire instrument for the research in this article show a tendency towards technology variables as an influence of human evolution in logistics and supply chain activity in a digital context.

Thus, the importance of promoting digital operations in the new normality of MSMEs is noted, with technology being an emotional stimulus of the human evolution of administrative, strategic and technological 4.0 thinking. That is, the nature of the pandemic covid-19 influenced countries and companies globally to maintain global trade operations and thus innovated processes in supply chains, this innovation influences the human evolution of management thinking with influence on top management.

Therefore, in the state of Mexico in the municipality of Cuautitlán Izcalli, according to table 1: Impacts and variables of technological innovation, the results of the scope in productivity in the surveys applied to the companies are obtained. Thus, the higher percentages have the greatest bias of opportunity to improve in order to empower operations with intellectual efficiency.

According to (Vera, 2019: Page 84) emotional intelligence "oversees emotions that facilitate thinking, promoting emotional and intellectual growth".

Therefore, human evolution in top management grows emotionally and intellectually by incorporating global and technological policies facilitating the standardisation of thinking in the business community creating value chains in the tangible and intangible goods that organisations produce.

According to (Goran, 2020 p. 1642) "the chain is the arrangement of business agents where goods can be traded".

Therefore, operations are managed from an electronic control panel. It evolves to get more business and more customers.

Therefore (Yang, 2020 Page 1643) states "The supply chain increases business efficiency and strengthens international advantages". Thus, MSMEs are in digital evolution from the human and administrative thinking of top management. Converging on technological innovation with evolutionary strategies in the new post-pandemic paradigm.

According to (AMVO, 2022 Pag. 13) mentions "e-commerce in Mexico reached $ 401.3 billion pesos in 2021, increasing by 27% compared to 2020". This 27% growth is the global war, commercial and economic trend with modification in consumer thinking to interact with digital devices weaving the whip effect in supply chains by online purchases that impact on warehouses and inventories.

According to (Cannella, 2010 p. 134) he states "the whiplash effect determines an alteration of production plans and instability of inventories".

ISSN: 2444-5010
RENIECYT-CONAHCYT: 1702902

Therefore, this impacted companies to innovate their supply chain processes by integrating agents.

According to (Cuervo, 2021 Pag. 335) "the integration of commercial agents has increased the optimisation of supply chains", which implies digital human evolution. Thus, the items proposed for use in the research questionnaire are integrated into the context of needs generated in the post-pandemic of digital technology and human evolution that underpin top management decision making.

It contributes to the article that the critical thinking of the business leader must cognitively evolve by understanding automation as an alternative to interpret simulation models for optimal decision making. Therefore, human digital evolution must be aligned with global trends of supply, demand and technological progression of international trade in the current post-pandemic.

Therefore, (Martí-Noguera, 2020 Pag. 395) states that "the progressive reorganisation of e-commerce requires the training of individuals" (Martí-Noguera, 2020 Pag. 395).Understanding that the mental evolutionary progress of individuals leads to concatenate human consciousness in the digitisation of operational processes in logistics and supply chain to implement strategic changes.

According to (Garcia-Humantumba, 2022 Pag. 96) "Competitiveness is an integrated multifactorial variable of innovation and technological progress".

This calls for individuals to evolve in a human and digital way to face adversity and compete globally.(Alba, 2016 p. 30) He states "promoting technology among individuals in supply chains must integrate human management components".Therefore, human evolution and hermeneutics converge to innovation to evolve in the current technological and digital paradigm.According to (Nugent, 2019 p. 1138) "Supply chain management sets goals from the human to the economic".The above connotation expresses the need to evolve, establishing the transition of human productivity from the context of occupational health to the transition of adaptability to virtual environments with a digital focus.

Thus, digital human evolution is part of the fourth industrial revolution to complement technological structures with scientific advances and productivity planning in supply chains with human impact and technological influence in Industry 4.0.(Mathison, 2007 p. 71) states: "Competitive advantage distinguishes between lower-order and higher-order advantages".

In itself, the cognitive design of human evolution is the priority reference for business leaders who determine supremacy in the face of changes among world powers and their strategic leaders to establish digital differentiation strategies through the creation of tangibles and intangibles.

Discussion

The final contributions of the article establish that the dimensions as an object of study analysed by means of the surveys guide the need to innovate organisations and evolve their leaders. The new post-pandemic trend adapts a new mental model to the impact of the COVID-19 health contingency, which has modified belief systems in the way of doing business and logistics operations with digital technology.

It is important to propose logistics models from top management to evolve from management thinking with human disruption as cognition in a productivity model. The main impacts on supply chains cause effects on companies to empower themselves and become more efficient. However, before this, top management must evolve in their strategic thinking.

Finally, it is concluded that business management 4.0 generates positivity to the digital human evolution of the logistics sector in the state of Mexico, resulting in increased operations and therefore productivity. The digital evolution guides the human being to transform and the top management to be sensitised to the digital human evolution to intellectually develop best practices by understanding inventory turnover in weeks of supply, average weekly sales at cost, annual sales at cost, weeks of supply and average aggregate inventory values.

ISSN: 2444-5010
RENIECYT-CONAHCYT: 1702902

Vázquez-Valerio, Gabriel Adrián, Cortés-Hernández, Patricia, Pecina-Rivas, Erika María and Cuellar-Orozco, Armando. Evolution of micro and SME's innovating senior management supply chains. Journal of Business and SMEs. 2024. 10-25:1-10.
https://doi.org/10.35429/JTI.2024.25.10.1.10

Finally, to decrease the negative impacts of table 1, it is crucial that the human factor evolves and adapts to a technological, virtual and digital level to positively impact supply chain operations in Industry 4.0 and balance occupational attrition to improve the quality of productive working life in micro, small and medium enterprises.

Conclusions

Based on the research and development of this article, it is concluded that the growth of the Mexican country in relation to Latin American sales is 18% between 2020 and 2023. And the estimated annual growth until 2025 will be 16.8%. This is due to the increase in e-commerce operations and the need for micro, small and medium-sized companies to sell their products online. Also, according to the information in table 1 and table 2, the results of the 100-item surveys applied to the selected companies are considered. And the impact factor of the selected answers is quantified.

Therefore, in the short and medium term, companies will have to evolve their logistics and supply chain systems in order to evolve their operations, designed from the top management.

Recognising possibilities for improvement through the incorporation of digital platforms and artificial intelligence models that will have a rapid impact in response to changes in the global economy and natural events such as the covid-19 pandemic at the international level.

Conflict of interest

The authors declare that they have no conflicts of interest. They have no known competing financial interests or personal relationships that might have appeared to influence the article reported in this paper.

Authors' contribution

Vázquez-Valerio, Gabriel Adrián: Main idea of the title, citation of authors, writing and original interpretation of the introduction, statement of the problem, central hypothesis, development, conclusions.

Cortés-Hernández, Patricia: Structuring of the sample of companies for the design of pilot research questionnaires. Synthesis of the development and completion of conclusions.

Pecina-Rivas, Erika María: Application of questionnaires and analysis of the results obtained and complementation of conclusions.

Cuellar-Orozco, Armando: Research approach of the categories of companies and dimensions. Completion of numerical discussion of categories and impacts.

Availability of data and materials

The data of this research are available according to the sources consulted.

Funding

The present research work called article received a one-time funding support for its publication from the Tecnológico Nacional de México campus Tecnológico de Estudios Superiores de Cuautitlán Izcalli.

Acknowledgement

Mention is made of the institution of the Tecnológico de Estudios Superiores de Cuautitlán Izcalli, thanking them for the general support they provide to teachers committed to their mission in the context of research.

Abbreviations

TECNM/TESCI

References

Antecedents

Benavides. (1982 : Pág. 53). LA INNOVACIÓN TECNOLÓGICA DESDE UNA PERSPECTIVA EVOLUTIVA. *Cuadernos de Economía*, *XXIII*(41), 49-70.

Cannella. (Segundo trimestre 2010 de 2010 Pag. 134). Los cuatro arquetipos de la cadena de suministro. *Universia Business Review*, *1*(26), 134-149. ISSN: 1698-5117

Cuervo. (8 de Junio de 2021 Pag. 335). Modelos logísticos estocásticos aplicados a la cadena de suministro: una revisión a la literatura. *Revista Ingeniería*, *26*(3), 334-366.

ISSN: 2444-5010
RENIECYT-CONAHCYT: 1702902

Martí-Noguera. (2020 Pag. 395). Sociedad digital: gestión organizacional tras el covid-19. *Revista Venezolana de Gerencia, 25*(90), 394-399. ISSN: 1315-9984

Basics

Araujo. (09 de Junio de 2020: Pag. 155). Cadena de suministros: una alternativa de planificación de productos en el sector industrial de Colombia. *CIENCIAMATRIA Revista interdisciplinaria de Humanidades, Educación, Ciencia y Tecnología, VI*(11), 150-164.

Casillas. (Diciembre de 2020 Pag. 1641). Los retos de la cadena de suministro ante la pandemia COVID-19. *VinculaTégica EFAN*, 1640-1646. Recuperado el 5 de Abril de 2022, de Alba. (2016 Pag. 30). Modelo de gestión del infoconocimiento para cadenas de suministro de ron a granel. *Cofin Habana, 10*(1), 28-38. Versión On-line ISSN 2073-6061

Goran. (Diciembre de 2020 Pag. 1642). Los retos de la cadena de suministro ante la pandemia de COVID-19. *Vincula Tégica EFAN*, 1640-1646. Recuperado el 5 de Abril de 2022

Yang. (2020 Pag. 1643). Los retos de la cadena de suministro ante la pandemia de COVID-19. *VinculaTégica EFAN*, 1640-1646. Recuperado el 5 de Abril de 2022

Supports

AMVO. (2022 Pag. 13). Estudio de Venta Online "El consumidor digital mexicano. México. Recuperado el 7 de Abril de 2022, de Nugent. (26 de Septiembre de 2019 Pag. 1138). Gestión de Cadena de Suministro: una mirada desde la perspectiva teórica. *Revista Venezolana de Gerencia, 24*(88), 1136-1143. ISSN: 1315-9984

Differences

Enriquez. (2020: Pag. 185). Tecnología Blockchain en cadenas de suministro: Mito, realidad o proyección. *RFCE Revista de la Facultad de Ciencias Económicas*, 174-188.

Mathison. (Julio de 2007 Pag. 71). INNOVACIÓN: Factor clave para lograr ventajas competitivas. *NEGOTIUM, 3*(7), 65-83. ISSN: 1856-1810 Directorio LATINDEX: 14.593

Vera, A. (2019: Pag. 84). Inteligencia emocional y rendimiento académico con estudiantes universitarios en nutrición. *Investigación en Educación Médica, 8*(31), 82-91.

Discussions

García, M. L. (2021 : Pág. 12). El Impacto de la crisis COVID-19 en México. *Publicaciones Empresariales UNAM FCA Publishing, 1*(1), 5-310. ISBNe: 978-607-30-4250-5

Garcia-Humantumba. (Septiembre-Diciembre 2021 de 2022 Pag. 96). Competitividad de operadores logísticos: un análisis bibliométrico en la base de datos Scopus, 2017-2021. *UIDE Revista de la Universidad internacional del ecuador INNOVA Research Journal, 6*(3.2), 92-117.

Macías. (2021: Pag.1659). Optimización del factor humano mediante procesos de negocio como evolución hacia la mype 4.0. *Administración y Negocios en Latinoamérica 2021*, 1-1852. ISBN: 978-607-99812-2-8

Valerio. (2021: Pag. 1671). Impacto de resiliencia al paradigma de liderazgo mype 4.0 post COVID-19. *RELAYN Administración y Negocios en Latinoamérica 2021*, 1-1863. ISBN: 978-607-99812-2-8

ISSN: 2444-5010
RENIECYT-CONAHCYT: 1702902

Vázquez-Valerio, Gabriel Adrián, Cortés-Hernández, Patricia, Pecina-Rivas, Erika María and Cuellar-Orozco, Armando. Evolution of micro and SME's innovating senior management supply chains. Journal of Business and SMEs. 2024. 10-25:1-10.
https://doi.org/10.35429/JTI.2024.25.10.1.10