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Digital Transformation in Insurance Services: A Conceptual Framework of Smart Applications

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Abstract

In contrast to previous times, the majority of insurance policies in developed nations are now provided on the internet. However, insurance companies are weary in digitizing their procedures and continue to allocate their products through conventional channels. The implementation of TD in the service sector, particularly in insurance, is in its nascent phase. The insurance industry, mostly reliant on information, might be significantly influenced by TD application. Enhanced revenue and transparency, reduced expenses, improved productivity, and superior marketing are benefiting that insurers and their clients can realize with the implementation of TD in their interactions. The implications of TD and digitization are issues of vigorous discourse within the insurance sector, and several studies have been conducted to evaluate the influence of e-commerce and IT applications on insurance businesses and client satisfaction. A prospective study to investigate the influence of TD on DIS and its effects on client operations is urgently required. Assumed the COVID-19 pandemic, it is important to ascertain the extent to which insurance companies possess high-specification devices and technology capable of addressing the current circumstances. In addition to owning systems and databases for managing all transactions effectively. Furthermore, networks that are capable of continuing the demands of established transactions while interacting with customers.

Keyword: Digital Information Systems (DIS); Digital Marketing (DM); Insurance; Online Sales (SO); Online Security (OS); Technology Development (TD)

المستخلص

هدفت الدراسة إلى تحليل تأثير التحول الرقمي في قطاع التأمين، ولا سيما في ظل التوسع المتزايد في تقديم وثائق التأمين عبر الإنترنت مقارنة بالفترات السابقة، مع استمرار تردد العديد من شركات التأمين في رقمنة عملياتها واعتمادها على القنوات التقليدية. تناولت الدراسة – بوصفها دراسة تصورية مفاهيمية – أهمية التحول الرقمي في صناعة تعتمد بشكل كبير على المعلومات، وما يمكن أن يحققه من فوائد تشمل زيادة الإيرادات والشفافية، وتقليل التكاليف، وتحسين الإنتاجية، وتعزيز فعالية التسويق، بما ينعكس إيجاباً على أداء الشركات وتجربة العملاء. كما سعت إلى استكشاف جاهزية شركات التأمين من حيث امتلاك الأجهزة المتقدمة والأنظمة الرقمية وقواعد البيانات والشبكات القادرة على إدارة المعاملات بسلاسة، خاصة في ظل جائحة كوفيد–١٩. وتشير النتائج المتوقعة إلى أن التحول الرقمي يسهم في رفع كفاءة العمليات وتحسين رضا العملاء وتعزيز القدرة على مواجهة الأزمات، فيما توصي الدراسة بضرورة الإسراع في تبنّي التقنيات الرقمية، وتطوير البنية التحتية التقنية، وتمكين الكوادر البشرية رقمياً، لضمان تقديم خدمات تأمينية أكثر فاعلية واستدامة.

الكلمات المفتاحية: نظم المعلومات الرقمية **(DIS)**؛ التسويق الرقمي **(DM)**؛ التأمين؛ المبيعات عبر الإنترنت **(SO)**؛ الأمن الإلكتروني **(OS)**؛ تطوير التكنولوجيا **(TD)**

Introduction

Digitalization is now a key force behind economic growth, changing how businesses operate and deliver services in many industries. As companies use the Internet more in their services and adapt to a fast-changing environment, the insurance industry faces both new opportunities and major challenges. This shift requires innovation to keep up with the digital economy. The COVID-19

pandemic sped up digitalization worldwide and exposed weaknesses and slow adoption of digital tools in the insurance sector [1].

Insurance companies form an integral part of the current economic infrastructure with high economic and social implications. One of the major challenges faced by the insurance companies is their ability to evolve with structural and technological changes brought about by digitalization. In this context, digitalization is one of the major factors that influence the competitiveness of insurance companies. Moreover, the importance of the services linked to insurance is expanding with rising uncertainty levels in economic systems, with various crises occurring concurrently, including climatic, health, political, economic, and military crises that heighten the need for effective risk management solutions [2].

This research explicitly emerges as a conceptual study, with the objective of integrating and critically analyzing the existing literature on digital transformation in the context of the insurance sector. Instead of testing a hypothesis through empirical research, the research focuses on identifying the major themes, gaps, and challenges that are linked with digitalization and its subsequent impacts on the insurance business models, value chains, and their relationships with customers. A major strength of this research is the development of a conceptual framework (or model) that encompasses the drivers of digital transformation, organizational capability, and customer outcome perspectives to understand the potential impacts of digitalization on the performance of insurers. However, with the current research being a conceptual one, it is faced with limitations in regard to generalization, as the developed framework is based on the existing body of literature that needs to be empirically verified in various national settings.

It is observed that current literature work is primarily concentrated on the implementation of information technology by insurance companies, as well as the danger of digital transformation that challenges the value chain in the insurance sector. Meanwhile, the direct effect of digitalization on the business processes of insurers, as well as more importantly, its effect on their economic efficiency, remains insufficiently investigated. Additionally, there is no universal methodology or set of criteria for measuring the degree of digitalization of insurance companies or, more broadly, the insurance industry as a whole. Digitalization of the sales of insurance products requires substantial economic investment, and the efficiency of innovative solutions calls for sophisticated economic instruments, indicators, and models of analysis. Notwithstanding current trends of becoming more client-oriented as a key strategic issue for insurers, crucial questions about the current role of digital solutions in creating client loyalty remain insufficiently elaborated [3].

Finally, while advances in technology in recent years have made it possible for companies to be more responsive, customized, and flexible in their respective industries on a global scale, they have also made businesses more complex, led to more demands from regulations, and caused technological advancements to progress at a rapid rate. This is especially true for companies like insurers, who face challenges in their internal business environments as numerous technologically driven opportunities are discovered, but still some ambiguity remains in their simultaneous application [4].

Concepts and abbreviations

Digital Transformation is the most encompassing term, while Digital Transformation in Insurance is used for digital transformation in the insurance industry. A definition of each term is included in their first appearance in the introduction. All inconsistent abbreviations found in previous texts (e.g., TD/DIT) were omitted, while a scheme of standardized abbreviations consistent with current literature practices, the research title, as well as a proposed conceptual framework, is adopted.

Moreover, with respect to abbreviations of the channels as well as the insurance services, the analysis standardizes and defines the following abbreviations in their initial appearance, for their consistent application in any section of the document:

- DIS (Digital Insurance Services) - Digital Insurance Services
- DM (Digital Marketing) - Digital Marketing

- OS (Online Sales) Online sales
- SO (Smart Operations)

It is established that all abbreviations refer to one concept without semantic ambiguity, in conformity with the two conceptual models brought forth in the study, especially with respect to the influence of digital distribution channels and smart applications on customer satisfaction, value, and performance of insurers.

The network theory (NT) defines the system as a network of external factors and important actors working in cooperation in order to create value for the customer. The network theory focuses on the presence of a central coordinating mechanism controlling the actions of all participants and underlines the need for constant coordination of activities in order to accomplish the desired value. Based on this coordinating tool, the network theory is mainly interpreted in relation to governing operations among firms in the organizational setting with an objective of ensuring all participants in the network work within an integrated system in a way that they can reach their optimum level of performance.

In the insurance industry, the application of technological advancement is inextricably bound to digitalization, and a strategy known as Digital Insurance Strategy (DIS) is used to describe a concept where digital technology (DT) is incorporated into the insurance industry. DIS serves as a guideline for digital transformation in the insurance companies, demonstrating how advanced digital tools such as artificial intelligence and cloud computing (AI/CC), big data, predictive analytics, wearables, and telemetry can be harnessed for improving efficiency in the value chain and improving service delivery. It is evident that DIS is marked by the characteristics of 'VUCA': fraud, uncertainty, complexity, and ambiguity, among others, which describe the current state of the insurance industry with reduced profit margins.

Digital technology (DT) is an embodiment of DIS and comprises all technology elements used in the organization instrumental in digital operations, such as NT networks, telecommunications systems, and computer hardware (HW) and software (SW). Software (SW) is considered an element of DT, referring to programs running in hardware (HW) systems with users carrying out procedures involved in these operations. Such a connection highlights the significance of HW investment in being a fundamental driver in providing support for digital technology and how efficiency in HW usage is optimized through SW.

Additionally, DT includes sophisticated applications such as Artificial Intelligence/Cloud Computing, Big Data, Predictive Modeling, Wearable Technology, and Remote Sensing. Such applications not only increase the capabilities of these companies in handling data and making strategic decisions but also assist in building this organization's digital platform. In this connection, it is apparent that NT, DIS, DT, SW, and HW are linked in such a way that digital transformation success is reliant upon the development of network organizational theory, digital strategy, technology, software, and hardware. Research and development in these elements not only promotes competition but achieving organizational aims in a dynamic digital setting.

The hypothetical model of the effect of digital distribution channels on the satisfaction of customers and their families

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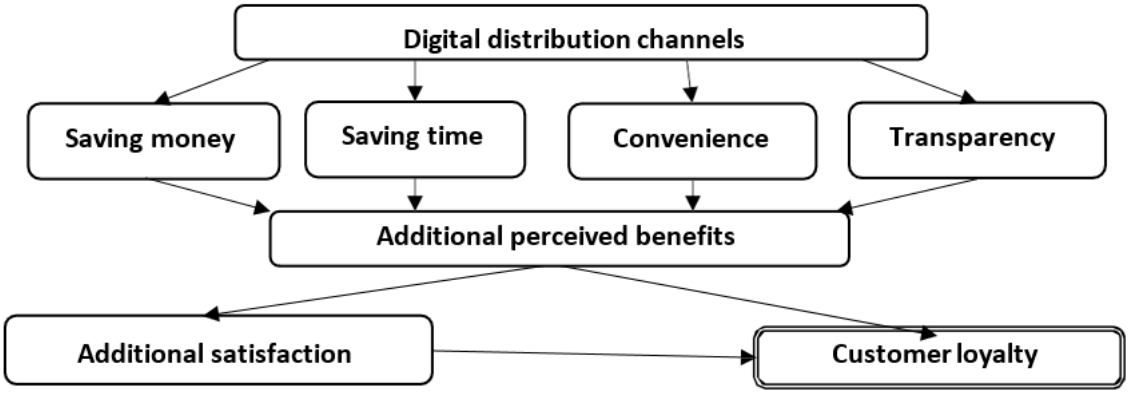


Figure 1. A conceptual framework of an empirical study on the impact of digitalization of sales on client loyalty within insurance companies [5].

At the peak of the model, digital distribution channels are recognized as the major independent variable that enables the delivery of online services, digital applications, as well as online platforms. These digital distribution channels directly generate four core benefits for the perception of the customer, including cost savings, time savings, convenience, and transparency. These factors form the basis of driving the preferences of the customers in favor of digital platforms.

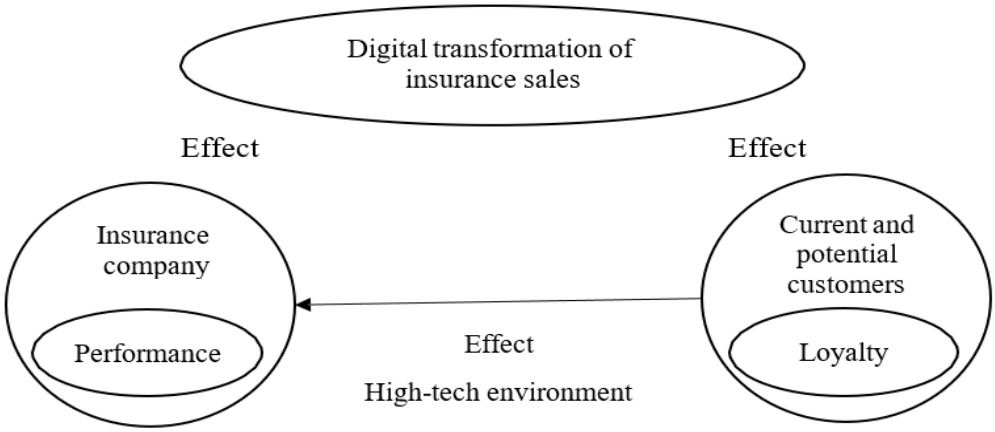
These four benefits taken together are called additional perceived benefits. Satisfaction with the realization of these benefits, in turn, influences total customer satisfaction, with direct and indirect forces on customer loyalty. It is shown by the model that customer loyalty is not entirely dependent on satisfaction but that the direct influence of perceived benefits suggests that value, ease, and clarity can extend loyalty before high levels of satisfaction are reached.

Overall, the results show that digital transformation in distribution channels leads to enhanced customer loyalty by increasing perceived value, adding to satisfaction, and improving the overall customer experience. This explains why investment in digitalization is a valid means of ensuring customer loyalty.

At the present moment, individuals are well aware of the far-reaching effects of technological progress (TD) on their interpersonal relations and the economy base of their nation [6]. The extent of the influence of TD implementation, be it large or small, eventually relies on the environmental conditions within which TD is utilized and the attitude of the authorities implementing them. The primary difficulty lies in using the internet and other technological developments to harness their potential for generating enhanced economic opportunities and alleviating poverty. It is unequivocal that, when applied in a productive context, technological developments are expected to enhance the living standards of individuals by influencing various commercial and service sectors.Numerous service sectors, particularly insurance, utilize various sorts of TD to enhance their operations. TD is mostly utilized in the insurance sector for informational purposes, application submission, proposal formulation, online contract finalization, claims notification, potential address modifications, and access to client and contract information [7]. According to the 2003 e-business watch report, out of all businesses, the insurance sector had the greatest rate of TD application. When compared to other sectors, it has the greatest penetration of Internet users, the second-highest extranet consumption, and the third-highest intranet and WAN application usage. Currently, the insurance industry employs more IT professionals than any other because to the high volume of TD applications.Much like the Industrial Revolution of the past 150 years, the digital revolution is changing the way we live and work [8]. It is necessitating a fundamental transformation of business, altering customer relationships, introducing new competitors and their disruptive technologies, fostering new channels, products, and services, dismantling industry barriers, and often compelling a reevaluation of the business model. The speed of change makes forecasting turn out to be almost impossible to determine with any degree

of accuracy [9]. Here, insurers have to move quickly. They need to quickly adapt to the digital world and use digital technology to reap the benefits of it. As e-books and mobile banking have made other industries, such as publishing, tourism, and banking, so versatile, turn your business upside down, so too can digital technology turn the insurance industry upside down [10].

Figure 2. Conceptual research framework



A conceptual framework for the effect of digital transformation in insurance sales on the performance of companies and customers

The figure clearly highlights the importance of digital transformation in insurance sales as the main variable that influences both direct and indirect factors among the key actors in the insurance sector. In this regard, it is evident that the first party is the insurance companies, where digital transformation impacts the performance of institutions through efficiency improvement, better sales management, and competitiveness of institutions. In regard to the second party, which is the current or potential consumers of services, digital transformation is important for improving consumer loyalty through better user experiences, improved accessibility of services, and consumer trust.

Moreover, the figure highlights the presence of a high-tech context as a mediating or context-variable that strengthens the mutual relationship between firm performance and customer loyalty. This shared influence implied in the figure seems to establish a relationship where the role of digital transformation is no longer limited to its individual effects on either of the parties involved but sustains an interactive relationship between firm performance and customer loyalty in a high-tech context. It is, therefore, implied that the success of digital transformation in insurance sales is dependent on the simultaneous development of technology, organization, and behavior.

The insurance industry has established a vital part of an individual's life. With the importance of many risk factors increasing, the need for purchasing varied insurance products is also growing. The customers are opting for insurance products, making the question of which mediums they will use for their purchase unavoidable. In today's digital age, it can be seen how digital platforms are greatly impacting the selling and purchasing of insurance. The insurance sector is undergoing widescale digital transformation, and this has greatly impacted the functional practices of institutions in the industry. New technologies are insurers, and they are empowering banks and other conventional finance amenities companies to revolutionize their business and find new ways of engaging clients. [11] have listed a number of factors determining technological disruption (TD) on digital information systems (DIS), such as digital marketing (DM), online sales (SO), and online security (OS).

Technological Progress and Related Concerns/Needs

With the spread of the IT revolution, TD has attracted much attention from social guard and insurance sector stakeholders. In addition, it allows insurance organizations to achieve strategic rewards and

improve relationships with customers through advanced DIS programs and cooperative applications that provide accessibility to insurance services and explain their ramifications to beneficiaries in many ways [12]. In the same vein, TD facilitates expansion in the client base by executing a wide-ranging system for customer relations that assists individuals through all stages of the contract with the insurance organization [13]. Additionally, there are data banks available that outline criteria for current and potential clients based on investment levels and risk exposure. This marks the behavior of insurance consumers, separating those who have an adventurous spirit and risk appetite, those who have an aversion to the future and take broad-spectrum risk coverage, and those who view insurance as a profitable investment channel for prospective financial and social rewards [14]. Here, TD improves service quality through sustained interaction with customers, tracking their insurance decisions and social protection desires [15]. The Internet, as well as intelligent and mobile devices, has become an important platform for the facilitation of services, where customers can remotely prepare insurance contracts, send them to insurance organizations online, track services and offers without bodily movement, and send documents and photos from their intelligent mobile phones to the relevant insurance organization in case of accidents. In addition, technology bridges temporal gaps, allowing both consumers and insurance organizations to make efficient use of time, and also bridging spatial differences to extend insurance to distant and rural areas, thus eradicating barriers to insurance services in all geographical areas [16].

TD has high potential for innovation in the insurance industry, especially in bringing valuation activities that produce estimates of insurance according to evaluative methods and knowledge of financial systems and levels of risk [17]. The estimation is based on estimating risks by evaluating probabilities of events and assessing their consequences, while making recommendations of focused measures to forestall loss. Evaluators use TD programs and analysis systems to identify risks and make predictions. They use tools for communication to conduct questionnaires and surveys to determine damage from three points: the type of the damage, its extent, and its impact on institutional structures and personal budgets, and on the overall economic profit, plus the expenses of repairing damage [18]. Therefore, social protection and insurance have become an economically vital sector as it contributes to the gross national product as well as improves development rates, in addition to extending assistance to people and families during times of disaster. However, TD is a powerful vehicle to further develop this sector and streamline its services [19].

Another perspective on TD is to assess the technical competitiveness of nations. This would provide insight into the actions taken by various countries that enhance their competitiveness. Two notable publications in this domain that assess national competitiveness are the IMD World Worldwide Competitiveness Report and Competitiveness Yearbook from the World Economic Forum. Economic performance and the factors influencing it are the primary foci of the Global Competitiveness Report (GCR) [20]. The 12 pillars of competitiveness identified by the GCR are as follows: institutions, infrastructure, macroeconomic stability, health and primary education, higher education and training, labor market efficiency, market size, technological readiness, financial market sophistication, innovation, industry, and business sophistication. TD has an impact in many areas, such as innovation and technological preparedness, institutions (such as the number of phone lines, which indicates the availability of technology), infrastructure (such as the sophistication of production processes in businesses), and higher education and training (such as the availability of internet access in educational institutions). Based on the country's developmental stage, the GCR found that several pillars affect economic performance differently. Economy driven by factors, economy driven by efficiency, and economy driven by innovation are the three phases identified by the GCR. In the first stage, known as "factor driving," the emphasis is on things like health care, basic education, and infrastructure; in the second stage, known as "innovation driving," the spotlight is on things like corporate innovation and sophistication (Schwab, 2009). This suggests that different countries' developmental stages dictate the kind of technical advancement that benefit them the most.The technological Policy and Assessment Center at the Georgia Institute of Technology establishes the

technological competitiveness ranking, which mostly applies to TD. Three outcome variables—technological standing, technological emphasis, and pace of technical change—and four input variables—national orientation, socioeconomic infrastructure, technological infrastructure, and productive capacity—form this ranking [20]. As of late, the status of technical advancement has been the only metric used to measure production. Indicators that measure present competitiveness are known as output indicators, whereas those that measure future technology-driven competitiveness are known as input indicators. A primary problem in this body of study is whether nations are genuinely competing with one another, and hence, whether a competitiveness ranking is warranted [21]. Nonetheless, the TD offers significant insight by elucidating the assessment of several technological facets of nations. Regrettably, the TD metrics exhibit same difficulties to those outlined for the techno-economic policy analysis framework in the preceding section. In other words, concepts are defined and quantified, yet their connection to reality or their status as abstract theoretical constructs remains undetermined. The TD indicators are predicated on the existence of input indicators that provide insights into future performance. However, while this assertion and the existence of a definitive theoretical model that correlates the input indicators with the output, specifically technical standing, this relationship remains unvalidated. This expresses that the indicators of input, in fact, are not able to guarantee in any way a very strong link to a future indicator of the technological standing 15 years from now. A part of the argument related to the recent ranking may be explained by this, i.e.; the one from 2007, where China was first in terms of technology status. The disagreement regarding the ranking, so visible among others like the GCR, has not changed the fact that if the output ranking of China is wrong, it should have been at or near the top on the input indicators throughout the years as it is supposed to be a predictor; however, this was not the case at all. Thus, the TD method continues to be under a cloud regarding its reliability. What's more, it is a hint at the difficulty technology assessment in terms of progress area. The GCR cites that there are different nations which, due to their various levels of development, will have divergent impacts from technology [22].

Equipment

TD's contribution was expressed through a study aimed at the identification of the methods for the technical data management and the organization of its changes [23]. The TD process can be divided into two major categories: programs and processes; computer programs are executed by the HD while users are responsible for carrying out the procedures [24]. They have implied that users represent the most important part of the HD. The HD and users are the ones doing and controlling these things. The investing in HD shows a strong relationship with TD being consumed. State that lessening the amount of TD being used is a complicated issue and might involve changes in the company's policies. The company will have to invest a lot in HD in order to make it a part of their operations and at the same time change their business strategy. Thus, companies will have to invest in HD in order to keep up with the competition and to create a bigger gap between them and other competitors. Numerous studies indicated that investment in HD enhanced the productivity of the sampled firms, despite the resultant benefits from greater production being accrued by consumers. The hardware, as a critical resource, possesses the ability to generate competitive advantage. The SD investment is crucial and enhances the effectiveness of HD investment use [25]. Furthermore, high-income countries must enhance the management of equipped healthcare delivery by acquiring greater experience in internal expenditure. A higher investment in HD enables firms to enhance infrastructure and HD, hence supporting TD and achieving their aims.

Software and Database Management

Numerous researchers have aligned themselves to incorporate TD components into their SD packages to provide a fully integrated enterprise application architecture for the commercial community. Organizations frequently perceive software development as a collection of discrete software applications. Most principal TD activities possess distinct software integrated within the organizational program. Several significant organizations have endeavored to consolidate several SD

applications into a unified framework or, at the very least, to interconnect them through interfaces; however, none have yet developed a comprehensive package of their own. The integration of several application components may be a continuous endeavor. At now, the most effective approach to conceptualize TD is to distinguish between SD that facilitates planning and SD that aids in executing organizational processes.

SD utilizes mathematical methods to improve the TD's flow and efficiency. Information is the only source of the software's accuracy. There are planning applications for all five main TD processes, the most important being demand planning because it determines how much stock will be needed to cater to different customer requests. The TD SD execution is aimed at facilitating the automation of a variety of company processes [26].

The difficulty in the maintenance, enhancement, and upgrading of TD solutions makes their integration and upgrades challenging for the managers. To improve the operational efficiency and customer coordination, the companies either have to combine their TD solutions or upgrade them frequently to the level of the business SD. Besides, as TD tries to unify their solutions by including SD in one integrated suite, the managers face a dilemma whether to go with TD by upgrading the SD to get additional services or not.

Using SD means having a connection with suppliers, distribution channels, or clients. These connections make it possible for the organizations to use SD to either enhance their performance or to improve their partnerships with other companies. The main purpose of SD is to create value by connecting a large number of companies through TD apps using the internet. Besides, SD allows taking better control of the customer interactions, which in turn, will lead to the formation of globalization and the extension of the company's operations. SD is developed according to the company's needs and it has a unique upgrading process. These upgrades will drive the companies to take up the latest changes and versions of their SD. SD is in line with the market needs, where companies assess the key factors to solve the recognized problems that might pop up. Also, the company’s SD process. In addition, the company's software development (SD) process must be regularly monitored and evaluated to ensure its reliability. The enterprises raise their strategic development performance in order to obtain overall development that is superior. The evolutionary software development maintenance has flourished due to the ease of new functionalities' integration, but at the same time, it has raised new risks [28].

Networks

The premise behind the network theory (NT) is that it considers the system as a web made of external entities and core actors that are interlinked and collaborate to create value for the customer. They understood that the NT needed a hub and that there had to be some way to manage and coordinate everyone's efforts. The creation of the NT marks the beginning of the beginning of continuous coordination that must permeate all endeavors undertaken to create value. Managing and executing critical business processes proficiently, communicating and coordinating effectively among firms within the NT, and establishing a productive interface between the NT and its external environment are the three essential criteria that ensure the efficient functioning of a networked team (NT). Hence, a framework of corporate processes and technological growth is used to carry out these tasks.

The literature on NT is still in its early stages, but authors have identified some important characteristics of good NT, such as: (1) participants improving their own value; (2) self-renewal behavior that remains consistent over time as an NT; (3) producing more profitable outcomes than other cooperative or competitive strategies; (4) engaging in innovative interactions; and (5) building a common understanding of ethics, meanings, and symbols (Boyer, 2020). New technology boost companies' capacity to innovate and undergo transformation. The need for adaptability is implicitly acknowledged by all these SBN features. But agents still need to set aside funds to foster adaptability. Therefore, the amount of resources required is a crucial component of NT adaptability. Overspending on accomodation processes makes it inefficient to solve clearly recognized assimilation concerns. Addressing accommodation concerns without sufficient effort will also lead to failure. Therefore,

differentiating between assimilation and accommodation and reacting with the right amount of resources is the challenge [29].

Although investing in TD can be costly, it is worth it since NT can improve distribution, responsiveness, product quality, decision-making, and coordination. Similarly, spending money on NT can improve communication and save down on operating costs. Investment in TD has several benefits, including as improving information flows, creating opportunities for arbitrage, making it easier to find prices, and expanding markets to replace costly physical transit. This points to a two-way causal relationship between TD and GDP growth, including both direct and indirect impacts. Economic product development, community enhancement, research and education, small and medium company advancement, and media networks are the five TD applications that help firms develop. One cannot exaggerate the importance of TD to a nation's progress. Direct benefits, such as increased demand and employment, and indirect benefits, such as social returns, are both shown. In addition, for a country's economy to foster the necessary structural links for long-term growth, efficient national technology (NT) transmits vital data needed by the business, agricultural, service, and manufacturing sectors [30].

Therefore, insurance companies may use TDs to their advantage by using NT to make quick choices that provide them a competitive edge. In a similar vein, the insurance industry stands to gain a great deal from NT adoption in the areas of operational methods, client service offerings, the optimization of customer information management, and the facilitation of multi-channel communication between the company and its customers. TD has the potential to help insurance businesses create and maintain a flexible network of relationships amongst different organizations in the insurance sector.

Embracing Digital Revolution in the Insurance Sector

Data from Capgemini's "World Insurance Report 2020 Infographic" shows that consumers' tastes in insurance products have been steadily evolving alongside the expansion of internet access. This change has become increasingly noticeable among younger customers and has an impact on their attitudes and behaviors as well. The TD allows DIS and agents to provide consumers better services and more discounts. The processing and transmission of data has become much more efficient, dependable, easy, and rapid thanks to digitization. The most preferred method of acquiring life insurance is still face-to-face interaction with an agent, 83 percent of consumers would use the Internet to research policies before buying them, according to the Life and Health Insurance Foundation for Education (LIFE) Foundation and LIMRA. In addition, they stated that the top insurance companies of the future would have better digital skills, new competences, measurements, tools, and cultures. Insurers need to move quickly now if they want to reach that objective tomorrow. Stagnation or just keeping things running well leads to digital obsolescence [31].

Improving the customer experience and strategically managing customer connections are the main components of a successful digital strategy. Earning consumer share is becoming more expensive as a result of increased market competition in the insurance business. As a result, keeping customers is crucial for businesses. To achieve this goal, it is necessary to continuously improve the quality of the digitally-oriented customer experience. Using a convenience sample, surveyed people about their thoughts and feelings about E-insurance and how well they were aware of the concept. Using one-way ANOVA, the hypothesis was tested. There is no relationship between gender or age and E-insurance use, digital sales and marketing would influence three out of four insurance purchase decisions in the next two to three years. It is a staggering amount. It shows how digital media has an impact and how important it is becoming in the insurance sector.

Utilization of technological advancements in the insurance business is closely related to the digitization process. The term DIS to describe how TD is integrated into the insurance market. In the case studies of individual insurers, the digital transformation framework was used to clarify the Digital Insurance Strategy (DIS). These two things are included in some of the most all-inclusive choices. DIS is characterized by a number of traits, including volatility, uncertainty, complexity, and ambiguity. Also linked to technology upheaval, falling profits, and the need to minimize costs is the

present DIS process in the insurance industry. Applications of Big Data, AI/CC, predictive modeling, wearable tech, telematics, and value chain development are highlighted, as ways in which DIS has an impact. Green TD also showcased the features of TD in insurance. One level below the DIS is the SD. An SD is a TD subtype. TD includes NT, telecoms equipment, and HD and SD [32].

The main goal of TD in the insurance industry is to create and use knowledge while also making it easier to communicate information. Following the economic integration of Big Data, TD's function has expanded from that of a data processing tool to that of a method for producing new types of data. According to the DIS is totally dependent on the ability to turn raw data into insight about business environments, markets, rivals, and consumers. In the face of rising risk prices, the modern insurance business is working to reduce information asymmetry. Novel understandings of risk probability are sought after by insurers. Data is changed into information, which is then incorporated into knowledge; knowledge elucidates information and processes data, according to the relationship between knowledge, information, and data. The use of new technology is associated with vertical integration in distribution construction of DIS. Regarding the connection between banking and TD certain aspects of TD integration within financial institutions were investigated. Based on financial data from the research, we looked at how life insurers' TD spending correlated with the efficiency of their operations. The link between a company's investment in computers and its market value is one of numerous studies that show how the TD budget, which is a part of intangible assets, is related to the financial health of organizations from multiple angles [33].

Web-Based Advertising

When it comes to the need of swift and effective digital transformation, digital marketing is all about using all the digital channels to sell a product or service or to build a digital brand. Direct marketing (DM) first arose from online business methods, and it has since proven resilient by directing users to the advertising industry and bidding platforms. According to digital marketing over the Internet is a practical and aesthetically appealing medium. In order to evaluate digital marketing's value for online businesses, it's important to take into consideration the viewpoint of a group of CISCO experts. These experts describe digital marketing as including all efforts made by marketing and sales teams to find, attract, convert, and retain consumers through digital channels. Digital Marketing (DM) is different because of its seven operational functions that are personality, secrecy, customer service, community, security, and sales promotion. These functions present the unique relationship traits. Digital marketing has been a major force and will keep on being one to change the massive consumer habits and business practices. The particular method of advertising offers businesses a remarkable opportunity to know their customers' needs and desires, which in turn facilitates the creation of chances based on such factors as time and place. As a result, there is a reduction in costs due to the cutback in unnecessary transactions. DM in the last ten years has been nothing but a continuous and quick evolution. The great number of international businesses that are mostly using the internet for advertising and marketing purposes is the proof of this. It is the key factor in the digital age for the business' design and development, and some companies have depleted all the internet services in their operations [34].

The internet, in particular, has redefined the way people communicate. For marketers, the internet is a means to bring customers closer to their brand. In addition, the marketer argues that conventional marketing approaches are failing miserably at encouraging long-term viability inside businesses. Because of this, a lot of marketers are trying to shake up old marketing strategies and frameworks. Incorporating the manner of communication. Consequently, marketing communication is designed to help the marketer and potential customers create long-term connections. The main focus of marketing communication through internet access should be interaction. Online resources, especially evaluations and comments left by previous customers, might have a significant impact on vacationers' decisions. Customers place more faith in comments and reviews made by those who have been there before when choosing a vacation spot, as they are more likely to follow the advice of those who have been there and done that. Electronic word of mouth, or e-WOM, describes this phenomenon. By

providing information about tourism goods and allowing users to express their preferences when choosing and interacting with them, social media plays an important role in the industry. People shared photos, videos, and their thoughts and feelings about items and services on social media. Since social media allows tourist destinations and organizations that oversee the tourism industry to collaborate on information generation, the way tourists use social media to access that information will change. A growing body of research suggests that eWOM and s-WOM, an abbreviation for "social media word of mouth," are beginning to merge. In addition, many new businesses in this space reach out to customers using email, a widely used digital marketing communication mechanism. According to email allows for the adjustment of communication in order to deliver messages to potential customers [35]. You can't ignore the fact that, depending on user preference, modern web browsers interact not just with one other but also with brands. This occurrence presents a chance for the business to communicate with customers on a more personal level and learn more about their tastes.

Digital Trade

Traditional paradigms for studying offline customer behavior may be applied to SO to a significant extent. There are a number of comprehensive theories in consumer behavior that try to explain how people make purchases. The following steps are typically included in these frameworks: identifying a need, searching for alternatives, making a purchase, and finally, evaluating the purchase. These processes are quite general and don't take the medium the consumer uses to make a transaction into consideration. Consequently, the procedures might be executed in SO on behalf of the client. At least two separate issues differentiate online consumer behavior from physical consumer behavior, as pointed out. In the beginning, people have to use technology to get what they need. Online shopping, and more especially TD, has completely replaced traditional brick-and-mortar stores. This creates technical difficulties that have always been associated with TD. The second difference between a conventional store and a social online setting is the degree of trust that is required. Participants in online trade must prioritize trust, according to a now-popular idea. Building trust helps customers feel more at ease when they are shopping at a new store, dealing with unknown owners, and not knowing how well a settlement would go through. When dealing with online purchases, these kinds of things are likely to happen [36].

A plethora of technology-based self-service items have recently entered the market, thanks to recent technical breakthroughs. Changes in the way service providers and customers engage have resulted from these technical advancements. An emphasis on service is becoming more important in determining the fate of online shopping and improving the customer experience via two-way communication (Santos, 2003). Within the context of retailing in particular, service operations are distinguished from alternate ways of service delivery, such as brick-and-mortar shops. SO is best understood as a service that provides users with interactive information. Companies are now forced to carry out more intricate operations with several business partners due to the internet. Greater personalization in the banking industry's open marketplace is a direct result of the adoption of universal standards. Like other areas of finance, online start-ups have benefited from TD, and the internet has had a huge influence on equities markets throughout the world. We were all taken aback by the response to our internet insurance offerings. People are enthusiastically buying a product that sparked their interest. In only two months, companies have achieved their year online sales targets. Unit Linked Insurance Products (ULIPs) comparison tools were recently released by the insurance regulator. Imminently, the public sector life insurance business plans to launch a revolutionary online term insurance product. Searching online for insurance quotes is no longer a luxury; it has become a necessity for many people. The insurance industry is ready to be transformed by the internet, much like many others, including the travel and retail sectors. In order to increase insurance penetration, regulators and insurers have been working hard [36].

Internet safety

The Technology Acceptance Model, an individual's acceptance of technology is contingent upon their attitude towards utilizing the operating system. The simplicity and utility are crucial factors in the acceptance of the TD. Subsequent research introduced an additional quality to the previously listed characteristics. The utilization of operating systems is enhanced when users experience delight in their usage. The operating system service experience is improved by the interactive and enjoyable aspects of the website. The technology adoption and customer happiness are linked to characteristics like reliability, customization, and informational content. Customer responses play a very important role in their perceived ease of use and usefulness of websites' operating systems. The implications of any innovation can be evaluated based on the level of utilization and its suitability for consumer needs.

Use of technology in services has made it possible for service providers to offer customized services to clients. The acceptability of technology in the insurance industry is of importance to the insurance sector. Knowing customer receptivity is important for effecting suitable modifications to the operating system on websites. The trust is an important aspect of facilitating consumer satisfaction in financial services, especially in the case of insurance services. Technology is able to address customer trust expectations since technology is naturally linked to security and system integrity [37].

Technical SD challenges can cause functional malfunctions and affect customer satisfaction. Availability of dysfunctional links on websites dissuades customers from visiting the site. Service companies can reduce these technical flaws by eradicating unfunctional or unavailable links. Quality and organization of information on websites are crucial in providing client comfort in their usage. If the technical requirements are simple and the instructions are simple to understand, the buyer will feel comfortable browsing the website. The customers' skepticism comes because of their lack of experience in using operating systems for insurance services. Researchers have been concerned about selling insurance over the internet, thinking that the internet would remain secondary to traditional direct interactive channels. Supports understanding client conduct in terms of the design of the site and technical qualities of online products. Ease of navigation and easy-to-use features are major players in online shopping.

Customers prefer direct routes for getting information about insurance products. Many customers prefer interacting with an insurance agent while purchasing a policy and feel uncomfortable purchasing insurance over the internet. Customers value operating system qualities, and the network's technical security from fraud or hackers is a key concern. Customer concerns can be divided as financial and non-financial, impacting their evaluation. Customer satisfaction with online financial services depends upon navigation simplicity, information availability, graphical presentation, and operating system performance at transaction time [38].

Global market analysis reports for modern digital insurance sector

1. Report on the Digital Insurance Market 2023-2028

A leading publication forecasted in March 2025 that the digital insurance market will reach a value of nearly $67.23 billion with a compound annual growth rate of approximately 12.8% during the forecast period of 2023-2028. The main reasons for this growth, according to this analysis, include increased digitalization in the insurance service sector, InsurTech technology in digital insurance solutions, digital insurance policies, smart apps, virtual claims handling, and cyber insurance. DIGITAL INSURANCE MARKET: TYPE WISE Vivek Jain

Importance to the insurance industry: The digital transformation affects the conventional business model of the insurance companies. The companies are using digital solutions to produce documents, settle claims, and improve customer experience.

2. Digital Insurance Solutions Market Report (2023-2033)

The Digital Insurance Solutions Market report, published in February 2025, shows that the market revenue was 11.2 billion dollars in 2024. It is expected to reach 35.9 billion dollars by 2033, with a compound annual growth rate of about 13.6%. The report analyzes different types of insurance,

including life and health, distribution channels, and technologies like artificial intelligence and blockchain.

Importance in the insurance sector:

The report explains how digital solutions help expand various types of insurance and distribution methods. Increased investment in technology leads to more products designed for customers.

3. Report Digital Insurance Platform Market 2023-2032 / 2025 Forecast

Several reports on the Digital Insurance Platform Market are constantly being updated. The market volume hit around 135 billion dollars in 2023, and it is expected to grow from 150.88 billion dollars in 2024 to 363.04 billion dollars by 2032, with a compound annual growth rate of about 11.6%. Mordor Intelligence's independent report predicts that the market size will reach about 148.16 billion dollars in 2025 and grow to around 256.71 billion dollars by 2030, at a rate of about 11.62% CAGR.

Importance in the insurance sector:

Digital insurance platforms connect insurance companies and customers through electronic channels, which supports full digitization of operations. This change reshapes the processes for subscriptions, services, and claims in a digital format.

4. Vision and expectations of Insurtech (2025-2035)

The Insurtech Market report shows that the global market for insurance technology reached about 5.3 billion dollars in 2024. It is expected to grow at a rate of around 36% CAGR between 2025 and 2034, with strong support from artificial intelligence and machine learning to cut costs, improve claims automation, and enhance customer experience.

Importance in the insurance sector:

The Insurtech sector plays a key role in bringing technological innovations directly into traditional insurance companies. The rise of applications like smart apps, chatbots, and predictive analytics contributes to a larger market.

Conclusion

The study shows that digital transformation in the insurance sector is more than just updating internal processes. It is a crucial factor influencing both financial performance and customer satisfaction. The results revealed that integrating modern technology into commercial insurance activities, supported by strategic vision and solid management practices, leads to measurable improvements in financial performance. This includes increased revenue, better operational efficiency, and lower long-term costs. The study also indicates that customer satisfaction with digital distribution channels is closely tied to their loyalty to the company. Therefore, we treat digital transformation as a strategic tool to boost customer value and strengthen the relationship between the company and its clients.

In the short term, we need to improve the efficiency of current digital distribution channels, such as mobile apps and websites. This will help create a smooth and quick experience for customers. We should also launch campaigns to educate customers about the benefits of digital services to encourage more interaction and use of these channels. Additionally, we must train our internal team to use digital analysis tools. This will help us assess current performance and improve direct interactions with customers, which should enhance their satisfaction.

In the medium term, we need to create integrated digital solutions that include artificial intelligence, predictive analytics, and process automation. These tools will help reduce operational errors and speed up decision-making. It is also essential to establish digital loyalty programs tied to customer satisfaction with digital services. This will provide tangible benefits and strengthen our ongoing relationship with customers. Furthermore, we must improve the integration between digital and financial operations to ensure that digital transformation positively impacts financial performance and meets our goals.

In the long term, we clearly need a digital strategy that incorporates sustainability and environmental awareness into insurance products. This approach encourages customers to adopt eco-friendly behaviors while also increasing their loyalty to the company. We must continue investing in research

and development to apply the latest technologies, such as blockchain, cyber insurance, and the Internet of Things. This supports innovation and broadens our product and service offerings. Establishing a competitive internal system will help monitor the effects of digital transformation on financial performance and customer satisfaction. Regular adjustments to policies and strategies are vital for ensuring sustainable results and gaining a competitive edge.

In conclusion, digital transformation in the insurance sector is a comprehensive strategy. It extends beyond technology to encompass financial performance, customer experience, and sustainability. This approach aims to secure a sustainable and prosperous future for all stakeholders, strengthening the ability of insurance companies to compete in a rapidly changing digital landscape.

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