

## **DIGITALIZATION – DIGITAL TRANSFORMATION OF BUSINESS PROCESS IN CREDIT SYSTEM**

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### **ABSTRACT**

The article discusses the key aspects of banking-credit sector development in digitalization conditions, which is expressed in the trends of digital development in banks, the changes of business process, banking products and services, their ecosystem services and development models under the influence of digitalization. The local and foreign assessment and analysis of the best practices in the use of modern digital technologies in the planning, monitoring and evaluation of governance decisions gave us the opportunity to formulate proposals and recommendations in relation to the priority direction of the use of digital technologies, in the framework of the further adoption of management principles and procedures according to the results. The research conducted based on the secondary data found by us determined that the digital transformation of the environment and business processes will be the main direction of development of any business (including banking and credit business). Moreover, the development of the banking system based on the use of innovative (digital) technologies provides opportunities for solving many problems, for example, penetrating technologies as artificial intelligence, Blockchain, P2P lending, will accelerate the implementation of technological calculations, increase the speed of banking operations, increase the accuracy of calculations, reduce reporting risk of intentional data distortion. We used the methods of analysis, modeling and analogy when setting and solving problems. As a result of the study, the concept of digital bank was defined, the problems of using digital technologies in the banking sector (both in general, and specifically at the level of the national economy) and prospects were identified, and the main directions for achieving success in the digital transformation of business and business

processes in the banking institution were proposed, which should be used in our country. It will bring quite a solid result for the banking-credit system in the short term.

**Key words:** digitalization, digital bank, Blockchain, banking field, artificial intelligence, robo-advising, digital technologies.

## **Introduction**

The development of information technologies has a huge influence on economics, people and in general, on society's behavior. The big part of the world bank sector changes were impacted by digitalization, which also affected business and general environment. The variety of technological achievements allows people to move on the next level of interaction. Clients that consume new platforms for communication with banks, use more and more new channels. Simultaneously, the technologies are adopted in the human behavior changes, which creates additional effective and low cost solutions for business development. Digitalization of banking processes broadens the client experience.

In modern times, the term "digitalization" is described as converting innovation to digital form. However, under business context, digitalization is understood as two types of organization model changes. First – transferring communication in digital channels and the second is automation of routine processes. Above-mentioned changes are closely related.<sup>1</sup>

The use of digital technologies and analysis of big data gives the opportunity to potentially created new banking products. Digital and technological companies enter financial service markets, and large traditional banks create ecosystem by focusing on the most profitable components that create value both inside and outside of banking chain.

Georgian banking sector moves the same direction as the World Bank system. Service types significantly change based on the influences of digital technologies (artificial intelligence, Blockchain, P2P crediting, robo-advising<sup>2</sup>), also, integral chain economy development. Barriers to market entry for new non-bank players are decreasing, telecommunications and IT companies are use financial services and products based on their own competencies. Large and technologically advanced banks are creating their own ecosystems that open up new, non-traditional sources of income. The mentioned trends determine the direction of development of the industry, it is important for banks to consider them in their strategies.

The banking sector is a typical example of consumer marketing. The demand for innovation here is mainly dictated by consumers. Their main requirements are - reduction of time for carrying out

<sup>1</sup><https://bit.ly/3DiGU0z>[Last checked12.10.2022].

<sup>2</sup><http://www.m-economy.ru/art.php?nArtId=6900>[Last checked21.10.2022].

banking operations, the possibility of carrying them out 24/7, more convenient use of banking products and services, the possibility of receiving other services together with banking through a single interface. These requirements are the "driver" of innovations in the field.

The rate of emergence of new ideas, technologies and business models is very high, so the speed of bringing products to market and their quality become key factors for competitiveness and customer loyalty.

In order to successfully develop and introduce innovations, banks should define a targeted long-term strategy in the mentioned field in relation to clear goals according to three types of innovations. Effective work with process innovations - it is impossible to connect internal processes to digitization without a plan; In order to ensure the necessary speed of bringing new products to the market, the key factor of productive innovations, it is necessary to create partnerships and ensure the existence of necessary components both in the field of technologies and in the field of working with personnel; When working with innovations in building a business model, it is important to focus on expanding non-bank sources of income by developing local ecosystems and partnerships.

The Central Bank can facilitate this process by prolonging to create a favorable climate for banks to work with innovations and actively support financial infrastructure, including non-traditional banking organizations such as accelerators, business incubators and independent fintech companies.

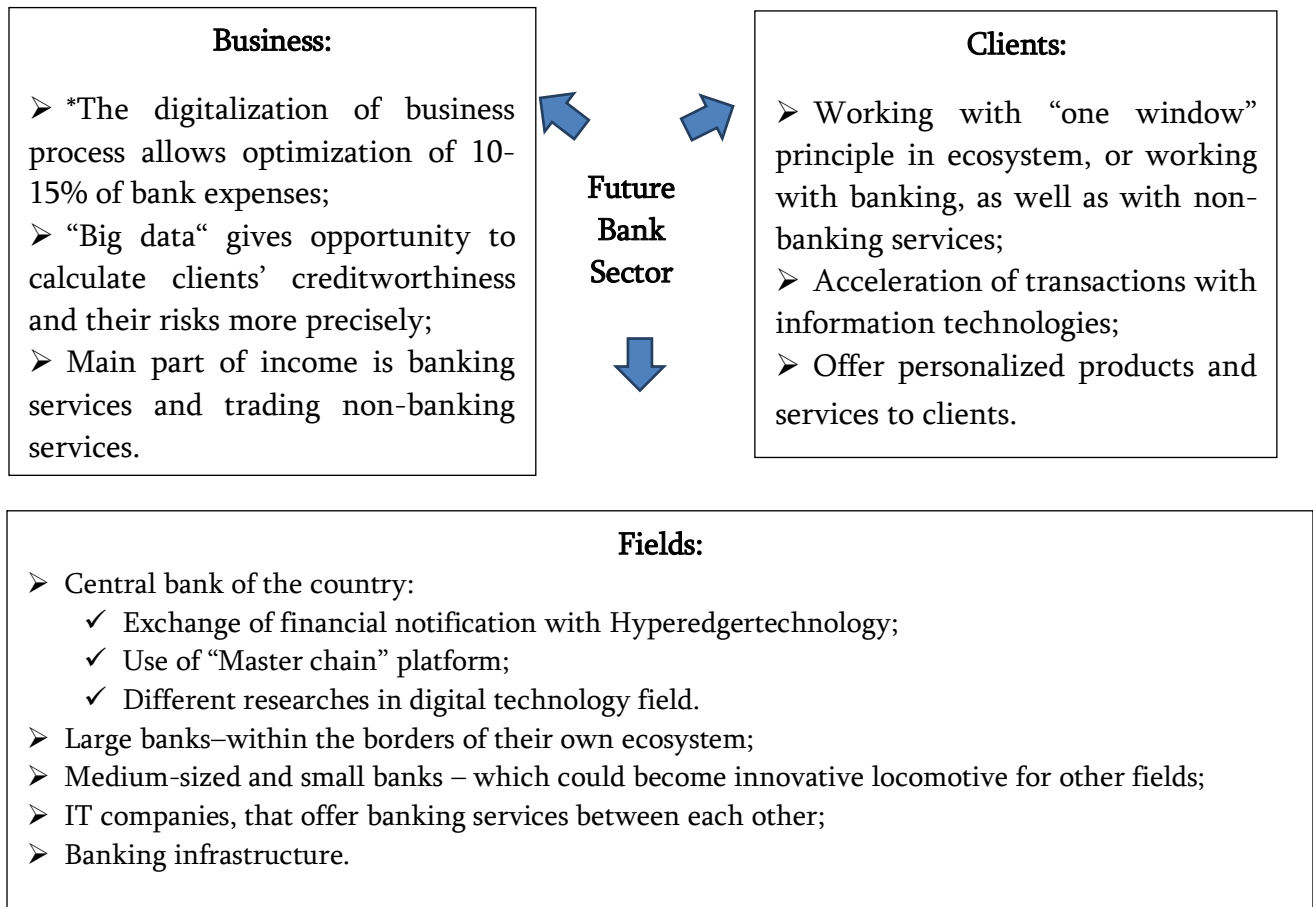
### **1. The future of state bank sector in future digitalization conditions.**

The banking sector is a "locomotive" for the implementation of digital and technological solutions and staffing in other sectors. Leading banks that implement digital transformation will be able to expand the range of products and services provided within the framework of their created ecosystem. Medium and small banks will become segmented players outside the ecosystem of leading banks. "Non-banking players (telecommunications and IT companies) will increasingly become full-fledged competitors of financial services and traditional banks."<sup>3</sup> Customers, in turn, will be able to receive additional services related to telecommunications, retail trade, education, health care in their bank. Proposals will be personalized, and the speed of banking operations will increase significantly (Figure 1.1.).

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<sup>3</sup>[https://ijsser.org/2022files/ijsser\\_07\\_203.pdf](https://ijsser.org/2022files/ijsser_07_203.pdf)[Last checked 19.10.2022].

**Figure 1.1. Targeted vision of state banking sector development<sup>4</sup>**



## **2. Digitalization of state commercial banks.**

As a result of the growth of prudential organizations, as well as changes in the structure of competition due to the emergence of financial-technological companies, neobanks and non-bank credit players, the profitability of traditional banking services decreases and the issue of finding new sources of income arises for market participants. The main directions can be new digital products and other products that will be created by collaboration with IT companies.

Favorable conditions for the digital transformation of the banking sector are being formed in the country. The number of clients using remote service channels is increasing every year. According to research conducted by Mckinsey in recent years, the number of clients who want to be served through other channels (mobile and internet banking) than the traditional ones, is

<sup>4</sup><https://oaji.net/articles/2020/8467-1595185001.pdf>[Last checked21.10.2022].

increasing and by 2021 it will be 65%. The mentioned level is typical for European countries (60-70%), which is higher than in North America (55%)<sup>5</sup>. But the level of penetration of remote banking services in our country still lags behind the level of Internet penetration, so there is a serious potential for growth. Many factors contribute to the rapid digitization of the country's banks' customer service, the main one of which is the spread of the internet.

Modern mobile and "online applications" have already spread in our country. Research by McKinsey showed that the country's leading banks perform 1.5-2 times more operations than the largest European banks when providing the client with mobile applications. Depending on the type of service, 58% of clients use remote banking (15% of them use only Internet banking, 10% - only mobile banking, and 32% - both platforms<sup>6</sup>). ATM formation in Georgia is already underway in the era of digitization, as evidenced by its entry into the top five leading European countries according to the level of development of digital banking.

### **3. Productive and process innovations.**

#### **3.1 Product innovations**

The drivers in the banking sector are represented by technological and digital trends that as the analysis of large data sets, machine learning, in-depth analytics, artificial intelligence, robo-advising, as well as blockchain, make it possible to carry out operations without the participation of intermediaries and backoffices. It is on the basis of penetrating technologies that fundamentally new banking products with commercial potential, services, opportunities and services are being created, which previously required the personal participation of individuals and legal entities in the bank for help in choosing products for clients, but now in the online environment, customized proposals, discounts, innovative services And they have moved to chatbots.

The main motivation for launching productive innovations in banks is to attract new customers and keep old ones, by satisfying their requirements as much as possible. It takes no more than a week to open a bank account and issue a card, in some banks - a day. Interbank transfers are made in minutes. The rapid acceleration of the processes made it easier for the client to move from one bank to another, which made increasing the loyalty of clients one of the main tasks for banks.

That's why banks launch new digital products to attract and retain customers. For example, some banks have introduced a mortgage broker service, which significantly reduces the number of

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<sup>5</sup><https://www.mckinsey.com/>[Last checked 19.10.2022].

<sup>6</sup><https://link.springer.com/article/10.1007/s12289-008-0390-8>[Last checked 15.10.2022].

online credit applications and visits to the bank, as well as the ability to remotely open a brokerage account and manage their assets online with an investment service. Some banks have implemented a user identification function based on photography when making money transfers, which is based on machine computer technologies. Biometric identification will continue to gain popularity in the future: it allows not only to identify the client, but also to sign a contract between the client and the bank remotely when opening a new account.

Most banks will provide personalized cashback services with select purchases, and some will use predictive analytics to create individual customized offers. Some banks, in addition to financial aspects, take into account the client's age and lifestyle, and the bonus program can distinguish clients by their interests and attitudes. Personalization helps maximize the benefits of loyalty programs. Relationships with the client develop: the number of interactions decreases, but at the same time they become more effective.

Communication plays an integral role in ensuring customer loyalty. In addition to personalization of proposals, banks need to develop omnichannel services. It provides not only communication with the client according to different channels (multi-channel), but also the integration of these channels into a single system, which provides the opportunity to create a more accurate and informative CRM-system<sup>7</sup> and then use the received data to create a more personalized approach. In order to release productive innovations, it is necessary to constantly generate new ideas. Continuous monitoring of trends and determination of customer requirements is a decisive factor for the formation of current ideas that have commercial potential. In addition, the speed of launching new products on the market is very important for the development of productive innovations: the faster the bank brings innovative products to the market, the more competitive advantages it gains.

Acceleration of the process of bringing products to the market is possible on the basis of cooperation with partners: by creating a strategic partnership with an IT company, the bank was able to reduce the average cycle of bringing products to the market from 290 to 120 days<sup>8</sup>.

### **3.2 Process Innovations**

The main benefits of moving towards digital transformation for commercial banks are cost reduction and faster operations. As McKinsey studies show, pervasive digitization of key processes in a traditional bank, more precisely sales of new products or service delivery in departments, provides the opportunity to cut their cost by 40-60%.

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<sup>7</sup>CRM - Customer Relationship Management.

<sup>8</sup><https://bit.ly/3zv1TyH>[Last checked 12.10.2022].

But across the national economy, there is a discontinuity in the financial services market between large banks and small and medium-sized credit organizations. The latter are significantly behind the leading banks and financial technology companies in terms of the level of development of digital competences. The largest banks, with the right staff and ambitious leaders, are investing in digital technologies and reaping significant benefits from their use based on economies of scale. The purpose of the money transfer service program introduced by banks (in the implementation of which photography serves as an identifier) is to create a fundamentally new approach to online transfers and to offer additional situational scenarios of transfers to users. For example, Bazisbank's implementation of artificial intelligence elements in its IT landscape enabled it to build a complex system for monitoring critical business processes and IT infrastructure.<sup>9</sup>

Major players must use their resources and competencies to implement full-scale digital transformations - which will enable them to further improve their position in the competitive environment and establish themselves as industry leaders. Small and medium-sized credit organizations, on the other hand, need to find their niche in the market in order to maintain a competitive advantage, as large investments in pervasive digital technologies are too risky for them. Therefore, medium and small banks need to find their productive segment and develop in it.

The lack of investment in the digitization of business processes should not stop "small/small" players willing to implement it. To do this, other options for developing key technological competencies can be focused on, such as using other platforms or outsourcing certain functions. Banks large and small alike can use cutting-edge technologies such as big data analytics to create scoring models to predict credit risk. Large banks are already using new approaches to work with large arrays of data on the basis of a unified platform (such as Data Lake), to use successful analytical methods, for example, external sources of information from mobile phone operators.

The use of analytical methods for in-depth analysis of large volumes of data provides an opportunity to increase the accuracy of calculations, for example, credit scoring, individual proposals for clients and efficient distribution of resources. Another example can be the method of optimization of the area coverage of branches or ATMs network, based on dynamic modeling and analysis of client flows.

#### **4. Transformation of business models in banking field**

The main directions of transformation of business models in the banking sector are the formation of its own ecosystem, the development of partnership relations with other companies, such as IT

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<sup>9</sup><https://bb.ge/ge/personal/distance-service>[Last checked 28.10.2022].

companies, and the creation of new business directions based on the use of cutting-edge technologies, such as blockchains.

In everyday conditions, the transition from the bank format in the form of branch and remote banking services to the financial ecosystem of both B2B ("business-to-business") and B2C ("Business-to-consumer") customers is underway, which will strengthen attention to the customer and his requirements, as well as It provides an opportunity to establish partnership relations with other companies. The services of the partners will facilitate the satisfaction of all the daily requirements of the clients, which will be a service provider according to the principle of "one window" for the owner of the ecosystem (Figure 1.4).

The demand for new competences in relation to Agnisnultan can include both certain risks and opportunities for the owners of the ecosystem to receive a certain share of the partners' revenues. Own ecosystem will also enable banks to increase customer base and increase loyalty. For example, a commercial bank, having realized that only "accrual of bonuses" is not enough to attract new customers and keep them interested, can supplement it with other incentive proposals, for example, at the bank's expense, "provide a two-day family trip to sightseeing places in the country" or "deposit dividend" An annual increase of two percent" and others. These proposals are best created jointly with partners, which will give the entire incentive program a "unique character" and make it more attractive for different categories of customers.

One of the important directions of investment development is the organization of collaboration with IT companies, in the development and implementation of innovative solutions, innovation outsourcing and other forms of cooperation.

Companies and networks that collect information about customers and provide it for creditworthiness, solvency assessment, "cross-selling" and other forms of sales are becoming important partners of banks. Examples of the results of such cooperation already exist - this is the scoring system of commercial banks.

Medium and small-sized banks, which have insufficient financial resources for the development of their own IT systems, can choose alternative options for solutions, for example, switch to outsourcing (from cloud data storage and processing services to the use of in-depth analytics and analysis methods of large data sets).

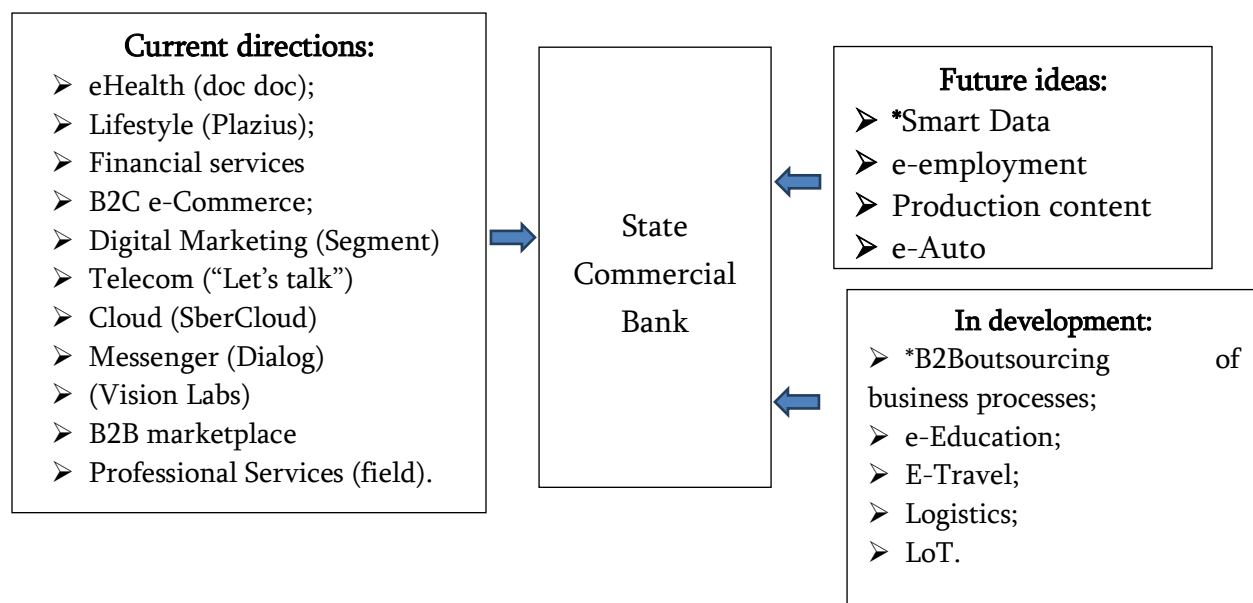
Banks with insufficient digital capabilities can focus more on providing basic services, such as accounting and transaction processing. Such a scenario of development can be even when working under someone else's brand (White Label), then the bank's strategic competitive advantage is determined by substantially reducing costs. The mentioned option of development does not take into account high incomes and so far banks are less interested. But it may be



attractive to some banks from the point of view of lower level of risk. Such a scenario of activity development may become most relevant in the conditions that financial technology companies take on themselves the functions of driving relationships with end users.

In conclusion, the banking sector can be greatly changed by blockchain. Already now, new business models are emerging based on this technology, such as blockchain applications, cryptocurrencies for trading various assets, payment systems, B2B payments and P2P money transfers with integration, as well as exchanges and platforms for trading cryptocurrencies and assets based on blockchain technology, as well as blockchain platforms for the transfer of assets<sup>10</sup>.

**Figure 4.1. Ecosystem in banking field<sup>11</sup>**



The use of blockchain is effective in two areas: recording and documentation (registration of new data, identification of users, smart contracts) and transactions (dynamic registration - exchange of digital and physical assets on a digital platform, payment infrastructure, verifiable data). Companies in the banking sector are faced with the tasks of optimizing transactions, working with data and ensuring security, so the implementation of blockchain can be an effective innovation that will be the starting point for identifying new opportunities and creating unique commercial propositions.

<sup>10</sup>[https://www.turiba.lv/storage/files/konference-xxiii-2022\\_1.pdf#page=95](https://www.turiba.lv/storage/files/konference-xxiii-2022_1.pdf#page=95) [Last checked 27.10.2022].

<sup>11</sup><https://oaji.net/articles/2020/8467-1595185001.pdf> [Last checked 21.10.2022].

## **5. Activities of state central bank in digitalization processes of banking systems.**

For a long time, an obstacle to the growth of sales of banking products and services through the Internet was represented by normative-legal documents in relation to the remote identification of clients, which prevented the full realization of the potential of digital innovations. Banks were forbidden to open accounts and deposits without the personal presence of a physical or legal person and mandatory presentation of an identity card. Today, the already mentioned obstacle has been removed from the agenda, and persons who have passed authorization in the unified identification and authentication system and/or unified biometric system are allowed to open bank accounts, receive credit and make transfers without mandatory personal participation.

At the legislative and institutional level, the National Bank of Georgia (NBG) creates the ground for the development of innovations and jointly develops relevant legal norms with market participants, which provides an opportunity to take into account the interests of both parties. So, for example, SEB has developed a legislative normative base for perfecting the norms of the country's legislation and generating effective solutions - in relation to the use of penetrating technologies, such as open service interfaces (open banking API), blockchain and remote identification.

NBG is active in creating a favorable environment for digitization. In order to promote the use of the latest financial technologies, to improve the efficiency of the payment system and financial inclusion, NBG is considering the issue of Central/National Bank Digital Currency (CBDC). SEB conducts analysis and formulates recommendations for market participants regarding the implementation of RegTech technology, for increasing the effectiveness of risk regulatory requirements and management performance, as well as for more productive performance of supervisory and regulatory functions.

NBG is working to create a fast payments system that will allow transfers to be made based on simple identifiers such as a phone number or email address. Work is also underway on such an element of the financial infrastructure as a platform for registering financial transactions, a system for transferring financial messages, a client-penetrating identifier, a platform for cloud services and a platform based on distributed ledger technology.

NBG supports the development of innovations in the financial sector by all means, and due to the speed of technological change, it requires more flexibility, and the success of their implementation depends on the quality of its cooperation with all market participants. Timely changes in the norms of the country's legislation will make the market and banks relatively safe from risks and will promote the development and introduction of technological innovations.

## **Conclusion**

- The success of the innovative transformation of the banking sector depends on a number of factors, such as: credit organizations should review their strategy and determine further development directions in relation to full-scale digital transformation and subsequent transformation and creation of business processes in the form of an ecosystem;
- It is necessary to create a favorable climate within the company for working with innovations, success factors can be: existence of a clear strategy and ambitious goal setting;
- It is necessary to develop partnership relations with banks, financial technology companies, non-bank credit companies. It is also important to actively cooperate with the Central Bank of the country, as a regulator, in order to facilitate the development of favorable conditions for the development of innovations;
- It is necessary to develop digital competencies and establish a program of digital transformations to acquire new habits, such as: searching and collecting information using digital devices, processing large volumes of unstructured data using artificial intelligence, finding young talented specialists who want to use digital technologies in the framework of personnel management and have a deep understanding of customer requirements, the need to transform the company's corporate culture, the introduction of intangible factors of motivation;
- A digital bank can be understood as a bank, the majority of products and services of which are provided in digital (electronic) form. In addition, its clients mainly use digital channels in their daily communication with the bank. The infrastructure of such a bank is optimized for digital interaction in real time, and the internal culture takes into account the high speed of decision-making and technological changes.

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