

Research Article

# Identifying Metrics to Evaluate Enterprise Digital Transformation Levels and Supporting Strategies for Advancement

Le The Vinh

Department of Digital Economy and Digital Society, Ministry of Information and Communications, Vietnam

## Abstract

On November 7, 2023, the Ministry of Information and Communications issued Decision No. 2158/QD-BTTTT, replacing Decision No. 1970/QD-BTTTT, to establish a comprehensive framework for assessing enterprise digital transformation. This initiative, termed the Digital Business Index (DBI), provides standardized tools to measure and monitor the digital transformation levels of businesses, facilitating comparisons across industries. It aims to guide enterprises in formulating tailored digital transformation strategies while enabling authorities to develop supportive policies and build a national database on digital transformation progress. The DBI framework encompasses indicators designed for small, medium, and large enterprises, aligning with the National Digital Transformation Strategy. It evaluates businesses based on six critical pillars: Customers, Strategy, Technology, Operations, Culture, and Data. By analyzing the adoption and implementation of digital solutions across these domains, the study identifies gaps and proposes actionable solutions to enhance enterprise competitiveness and drive economic growth. The research highlights the practical benefits of the DBI, such as enabling self-assessment, identifying improvement priorities, and fostering a digital ecosystem. Additionally, it underscores challenges, including resource limitations and the need for consistent application, particularly among smaller enterprises. The findings advocate for collaborative efforts between enterprises and policymakers to optimize the adoption of digital transformation strategies, contributing to the broader goals of economic modernization and digital innovation.

## Keywords

Digital Transformation, Enterprise Assessment, Digital Business Index (DBI), National Digital Strategy, Digital Economy Development

## transformation of enterprises

### 1. The need to issue the indicators to assess the level of digital

The need to establish a set of indicators to assess the level of digital transformation of enterprises (DBI) comes from the

\*Corresponding author: Vinh Le The

Email addresses:

ltvinh@mic.gov.vn

Received: 01-11-2024; Accepted: 01-12-2024; Published: 25-01-2025



Copyright: © The Author(s), 2024. Published by JKLST. This is an **Open Access** article, distributed under the terms of the Creative Commons Attribution 4.0 License (<http://creativecommons.org/licenses/by/4.0/>), which permits unrestricted use, distribution and reproduction in any medium, provided the original work is properly cited.

following important reasons:

### 1.1. Meeting the need for digital transformation in the context of the digital economy

Digital transformation is not only a trend but also an urgent requirement for businesses in the era of the fourth industrial revolution.

The digital economy plays a central role in economic growth and enhancing national competitiveness, requiring businesses to innovate and digitize their operations to adapt to the market.

### 1.2. Provide assessment and orientation tools

The DBI index helps businesses self-assess their current position in the digital transformation journey.

From the assessment results, businesses can build a clear digital transformation roadmap, prioritize areas that need improvement and invest resources effectively.

### 1.3. Promote transparency and standardization

DBI creates a common benchmark, helping businesses evaluate and compare with competitors in the same industry or nationwide.

Ensure transparency in digital transformation reports of enterprises, creating trust with partners, customers and investors.

### 1.4. Support for state policy and management

The index is a tool for state management agencies to monitor and evaluate the level of digital transformation of enterprises.

Through DBI, the government can formulate policies to support and promote businesses to transform digitally more effectively.

## 5. Create motivation and raise awareness

DBI helps raise awareness of the importance of digital transformation, thereby promoting the participation of business leaders and stakeholders.

Create motivation for businesses to continuously improve and enhance competitiveness in the context of globalization.

6. In line with the national digital transformation strategy

DBI is built and deployed within the framework of Vietnam's National Digital Transformation Strategy, aiming to achieve the goals of developing a digital economy and digital society by 2030.

## 2. Results and Discussion

### 2.1. Develop a draft set of indicators to assess the level of digital transformation:

The Ministry of Information and Communications presides over and coordinates with the Ministry of Planning and Investment to research and draft a set of indicators to assess the level of digital transformation, ensuring the assessment principles: appropriate, objective and comprehensive for all types of enterprises.

The set of indicators to assess the level of digital transformation of enterprises is the focus of the Project to determine the Index to assess the level of digital transformation of enterprises and support the promotion of digital transformation of enterprises, including 02 sets of component indicators, suitable for 2 types of enterprises: Small and medium enterprises (SMEs) and Large enterprises.

Separating into 2 separate sets of indexes to evaluate SMEs and large enterprises is necessary, suitable for the scale, technology level and investment level for digital transformation of each type of enterprise.

Index to assess the level of digital transformation of small and medium enterprises:

Objective: to unify the use of a set of indicators to assess the level of digital transformation for SMEs with the program to assess the level of digital transformation for SMEs of the Ministry of Planning and Investment.

Adjust and rearrange the criteria to match the 06 Pillars (Customers, Strategy, Technology, Operations, Culture and Data) to synchronize with the pillars of Appendix 02 for large enterprises, which are also the 06 most popular pillars used today. Reason for adjustment: The index set of the Ministry of Planning and Investment is currently using 07 pillars that are not synchronized with the popular pillars today.

The Digital Transformation Readiness Index for Small and Medium Enterprises is a set of general criteria that support small and medium enterprises to comprehensively assess the level of digital transformation according to 07 main pillars (aspects) including:

Order	Pillar	Review content
1	Strategic direction	- Leadership awareness of the benefits and trends of digital transformation to business operations. - The level of integration of digital transformation solutions into the overall strategy of the enterprise.
2	Customer experience	- The level of application of digital transformation solutions in marketing,

	and omnichannel sales	distribution, and sales to improve customer experience. - The level of application of data analysis solutions to measure and forecast business performance.
3	Supply chain	- Ability to apply digital transformation solutions to connect with customer needs and with business suppliers ; - The level of application of digital transformation solutions into core business processes and operations.
4	Information systems and data management	- The capacity and ability to integrate the information system with other systems for upgrading. - Ability to update new digital transformation solutions on the market. - Data management processes and policies.
5	Network information security and risk management	- Awareness of risks when applying digital transformation solutions. business risks, including cyber security risks.
6	Financial, accounting, planning, legal and human resources management	- Level of application of digital transformation solutions in management, finance, accounting, planning, legal, and human resources operations. - Ability to support the finance, accounting, planning, and legal departments in implementing digital transformation for businesses.
7	People and organizations	- The degree to which a business is flexible in responding to changes in the business environment; - The capacity of the company's personnel to carry out digital transformation; - The level of application of digital transformation solutions to connect departments in the enterprise.

**Subject and purpose of application**

Evaluation participants: leaders of small and medium enterprises.

Purpose:

Help self-assess your business's readiness for digital transformation.

Consider proposing support policies suitable to the receiving capacity of small and medium-sized enterprises as prescribed in Article 11, Decree No. 80/2021/ND-CP dated

August 26, 2021 of the Government detailing and guiding the implementation of a number of articles of the Law on Support for Small and Medium Enterprises .

Rating scale

Based on the feedback from the assessment participants, the level of digital transformation readiness of small and medium enterprises is specified according to the following levels:

Basic: The business has not issued specific goals for digital transformation, has not implemented any digital transformation solutions or may have implemented basic solutions to digitize some internal processes or some products and services.

Developing: The enterprise's digital transformation goals have been built and issued. In addition , some individuals/management departments in the enterprise have recognized the role of digital transformation.

Development: Digital transformation is an indispensable part of the business strategy. The goals, tasks, and implementation plans for digital transformation have been formed, but the measurement and management of implementation are still challenging and not really effective .

Advanced: Digital transformation is integrated throughout the entire business, but scaling and successful implementation across multiple departments remains difficult.

Leading: The company is a pioneer in innovation, leading the digital transformation of the industry and aiming to become a digital company. The company constantly innovates and develops through researching new business and management models.

**Formula for calculating the score to assess the digital transformation readiness of small and medium enterprises**

- The readiness score of each pillar is equal to the average value of the total value of the component scores corresponding to the answers belonging to that pillar. The enterprise readiness score is calculated according to the following formula:

$$R = \frac{A \cdot a + B \cdot b + C \cdot c + D \cdot d + E \cdot e + F \cdot f + G \cdot g}{a + b + c + d + e + f + g}$$

- In there :

R is the level of readiness of the entire organization.

A, B, ...G is the readiness point of each pillar

a, b,... g is the weight of each pillar (The weight will be applied on the dbi.gov.vn Portal at different times)

Readiness score of each pillar	Pillar	Weight of each pillar
A	Strategic direction	a
B	Customer experience and	b

	omnichannel sales	
C	Supply chain	c
D	Information systems and data management	d
E	Network security and risk management	e
F	Financial, accounting, planning, legal and human resources management	f
G	People and organizations	g
	Total	100%

### Index to assess the level of digital transformation of large enterprises:

The Ministry of Information and Communications uses and localizes the latest version of the Digital Maturity Index of the TMForum forum ( <https://www.tmforum.org/> ) (ver 4.0.4).

The Ministry of Information and Communications supplements and guides the general assessment method for types of enterprises and groups of enterprises such as: Corporations, General Corporations, Parent companies according to the parent-subsidiary company model... Clearly guides how to calculate scores and synthesize assessment indexes for enterprises.

The set of indicators to assess the level of digital transformation for large enterprises is a set of advanced assessment criteria for enterprises to implement themselves or through consultants in the Network of consultants recognized by the two ministries to conduct the assessment. The criteria are built at an advanced level, closely following the activities of large enterprises, and are systematic to assess the level of digital transformation.

The structure of the Index to assess the level of digital transformation of large enterprises is divided into 06 pillars (Dimensions) including:

- (1) Customers: includes 04 groups of criteria, 25 component criteria;
- (2) Strategy: includes 06 groups of criteria, 24 component criteria;
- (3) Technology: includes 05 groups of criteria, 29 component criteria;
- (4) Operation: includes 04 groups of criteria, 22 component criteria;
- (5) Culture: includes 03 groups of criteria, 22 component criteria;
- (6) Data: includes 03 groups of criteria, 18 component criteria.

### Applicable objects

Applicable to large enterprises, cooperatives with large membership or total capital scale.

Encourage medium-sized enterprises to use *the Large Enterprise Digital Transformation Assessment Index* to evaluate and gain deeper insights into digital transformation, aiming to become large enterprises.

Other agencies, units and organizations can refer to the DBI Index to evaluate and determine their level of digital transformation. Agencies, units and organizations can adjust the evaluation coefficient accordingly based on their own characteristics.

### Rating scale

Based on the total assessment score, the digital transformation levels are transcribed into the following levels:

- *Level 1 - Start-up*: The enterprise has not yet implemented digital transformation, or has implemented it at the incidental level, without a process or orientation, or has an orientation but the conversion rate within the enterprise is less than 25%.

- *Level 2 - Beginning*: Enterprises have realized the importance of digital transformation according to the pillars and have started to have digital transformation activities in each pillar of digital transformation. The conversion rate on the enterprise scale ranges from 25% to less than 50%. Digital transformation begins to bring benefits to business operations as well as customer experience:

- *Level 3 - Formation*: The digital transformation of the enterprise has basically been formed according to the pillars in the departments, bringing practical benefits and efficiency to the enterprise's operations as well as the customer experience. The conversion rate on the enterprise scale ranges from 50% to less than 75%. Enterprises that achieve level 3 digital transformation begin to form a digital enterprise.

- *Level 4 - Advanced*: The digital transformation of the enterprise is advanced one step. Digital platforms, digital technology, and digital data help optimize many business production activities of the enterprise and customer experience, the conversion rate on the enterprise scale ranges from 75% to less than 100%. Enterprises that achieve level 4 digital transformation basically become digital enterprises, with a number of main business models based on digital platforms and digital data.

- *Level 5 - Leadership*: Enterprise digital transformation reaches a level of completion, the enterprise truly becomes a digital enterprise with most business methods and business models mainly based on and led by digital platforms and digital data, the conversion rate within the enterprise is 100%. The enterprise is capable of leading digital transformation, creating a satellite digital enterprise ecosystem.

### Principles and methods of calculating digital conversion points

*a) Principles for calculating scores to assess the level of digital transformation of enterprises*

- Each department or functional unit will select evaluation criteria that are appropriate to the functions and tasks of that department or functional unit. If a department or functional unit does not have functions and tasks related to any criteria, that criterion will be ignored and not evaluated (not included in the average score).

- Calculating the score to assess the level of digital transformation of enterprises is done according to the bottom-up principle in order: from the *criteria score* to the *criteria group score* and then to the *pillar score* : from there, calculate the score of the department, *functional unit* ; calculate the *overall score of the enterprise* . The average method is applied based on the scoring points of the criteria to determine the score of the criteria group, the score of the pillars, the score of the departments, functional units and the overall score of the enterprise. Specifically, the scoring method is as shown in the table below:

Level	Scoring for each criterion (calculated by the percentage of completion of tasks according to each criterion)	Score of each pillar (calculated as the average % score of the component criteria in the pillar)	Scoring scale for departments and functional units (calculated by the average % score of component criteria in the department, functional unit)	Overall score for business (calculated by average % of departments and functional units)	Level Description
1	[0 - < 25%]	[0 - < 25%]	[0 - < 25%]	[0 - < 25%]	Start
2	[ 25% - < 50%]	[ 25% - < 50%]	[ 25% - < 50%]	[ 25% - < 50%]	Begin
3	[ 50% - < 75%]	[ 50% - < 75%]	[ 50% - < 75%]	[ 50% - < 75%]	Formation
4	[ 75%-< 100%]	[ 75%-< 100%]	[ 75%-< 100%]	[ 75%-< 100%]	Advanced
5	100%	100%	100%	100%	End

*b) Scoring principles for types of corporate groups (economic groups, corporations, companies operating under the parent company and subsidiary model)*

- For types of corporate groups such as economic groups, corporations with parent companies, subsidiaries and other member companies, evaluation is based on the following principles:

+ Evaluate and score each subsidiary and member company

first as a basis for evaluating and calculating the overall score of the group of economic groups, corporations, and parent companies.

+ The aggregate score of a group of economic corporations, general corporations, and parent companies is calculated according to the weighted average formula, with the main weight being the ownership ratio of the economic corporation, general corporation, or parent company for each subsidiary or member company.

$$\frac{\sum(x_i \times w_i)}{\sum w_i}$$

In there :  $x_i$  is the digital transformation point of the i-th subsidiary and member company ;  $w_i$  is the weighted average weight , which is the ownership ratio of the Corporation and parent company towards the i- th subsidiary and member company respectively.

\* Why choose TMForum model to evaluate Large Enterprises:

Currently, there are many methodologies and frameworks for assessing the level of digital maturity (DMM - Digital Maturity Model) in the world. However, according to statistics, there are 18 most commonly used models today, these models are highly practical and have been verified by many businesses. Author Ayman El-Safadi, based on the research of Jimmy Bumann, Marc K. Peter, synthesized from these 18 popular models to identify the 6 most used pillars including: *Culture* (in 13 models), *Technology* (12), *Strategy* (11), *Organization* (10), *Customers* (10) and *People* (9).

TMForum's digital maturity assessment model is one of the most popular models today due to the large number of members who are members of the forum, about more than 850 member companies of TMForum have used it to assess and apply the measurement of digital maturity. TMForum has 06 pillars, similar to the 06 most used pillars today. In addition, TMForum is also used in businesses of many different types, not just in the Telecommunications industry. At the same time, the TMForum Index is elaborately and methodically built and has full instructions and assessment tools, has been widely accepted and applied by the business community around the world in many fields.

Therefore, the Ministry of Information and Communications proposes to use the TMForum model to assess the level of digital maturity for large enterprises. Using the TMForum Index to assess the level of digital transformation for large enterprises in Vietnam is legal and does not require paying copyright fees.

\*Benefits for businesses assessing the level of digital transformation

The benefits to businesses of conducting an assessment include:

- Assessing the level of digital transformation is the basis



for determining the position of the enterprise at the starting point in the digital transformation journey, helping the enterprise see the issues that need to be improved, helping to determine the focus of the digital transformation process, to set appropriate goals and roadmap.

- Evaluating the level of digital transformation is also the basis for determining the strengths and weaknesses of the business, comparing it with industry and sector averages, thereby helping to improve competitiveness compared to competitors.

- Assessing the level of digital transformation is also the basis for businesses to make comprehensive digital transformation plans, identify key tasks, and tasks that need to be done in the short, medium and long term.

- Evaluating the level of digital transformation is also a way to demonstrate efforts to transform business in the digital environment, creating trust and confidence of customers towards the business.

- Evaluating the level of digital transformation is also a way to measure and evaluate the effectiveness of digital transformation planning programs.

- Increase opportunities for businesses to access preferential mechanisms and policies of competent management agencies.

- \* Deploying a set of digital transformation assessment indicators for businesses

- The Ministry of Information and Communications is assigned to develop a set of indicators to assess digital transformation of enterprises in Decision 411/QD-TTg. The implementation and determination of the level of digital transformation of enterprises in industries, fields, and localities are assigned to ministries, branches, provinces, and centrally run cities. The confirmation of the level of digital transformation for all enterprises currently does not have sufficient legal basis for implementation.

- The Ministry of Information and Communications proposes to develop and promulgate a set of criteria with the main purpose of unifying the assessment method and determining the level of digital transformation for enterprises, as a basis for enterprises to self-assess ; the network of consultants is used to independently assess enterprises ; ministries, branches, provinces and centrally run cities assess enterprises within the assigned scope, fields and areas.

## Conclusion

The Index for assessing the level of digital transformation of enterprises according to Decision 2158/QD-BTTTT dated November 7, 2023 of the Ministry of Information and Communications was developed to provide tools for enterprises to self-assess, orient and promote the digital transformation process. Through the Index, the effectiveness of business support is demonstrated through: (i) Orientation and support for

enterprises (Determining the current level of digital transformation; Identifying priority areas that need improvement (e.g. governance, technology, operations); Planning to implement specific digital transformation solutions.). (ii) Motivating enterprises to digitally transform (Small and medium-sized enterprises (SMEs) can rely on this index to recognize the importance of digital transformation and build a specific roadmap; Supporting enterprises to measure digital transformation progress over time); (iii) Contributing to promoting the digital economy (The synchronous application of the Index in enterprises will create a strong digital transformation ecosystem, supporting the enhancement of national competitiveness); (iv) Practical applicability (The Index has been designed to suit many types of enterprises, from small to large scale, and different industries; The assessment tool on the digital platform makes it easy to deploy and minimize implementation costs); (v) Challenges and limitations that need to be improved (Popularity and awareness: Some enterprises may not be fully aware of the Index or do not have enough capacity to use it effectively; Implementation resources: Small or micro enterprises often face difficulties in resources to make necessary changes; Consistency in implementation: The application of the Index requires close guidance and support from competent authorities to ensure consistency); (vi) Long-term effectiveness (The actual effectiveness of the Index will depend on: The level of reception and application by the business community; Support policies from the government to promote the digital transformation process; Timely adjustment and updating of the Index to suit the development of technology and the market).

Overall, Decision 2158/QD-BTTTT has created an important foundation for measuring and promoting digital transformation in enterprises, but requires close coordination from stakeholders to optimize efficiency.

## References

- [1] Government (2021). Decree 80/2021/ND-CP dated August 26, 2021 of the Government detailing and guiding the implementation of a number of articles of the Law on Support for Small and Medium Enterprises.
- [2] Prime Minister (2020). Decision No. 749/QD-TTg dated June 3, 2020, approving the National Digital Transformation Program to 2025, with a vision to 2030.
- [3] Prime Minister (2022). Decision No. 411/QD-TTg dated March 31, 2022, approving the National Strategy for Developing the Digital Economy and Digital Society to 2025, with a vision to 2030.
- [4] Ministry of Information and Communications (2023). Decision No. 2158/QD-BTTTT dated November 7, 2023, approving the project to determine the index to assess the level of digital transformation of enterprises and support to promote digital

transformation of enterprises.

- [5] TM Forum (2023). Digital Maturity Model (ver 4.0.4). Retrieved from <https://www.tmforum.org>.
- [6] El-Safadi, A., & Bumann, J., & Peter, M.K. (2021). A Synthesis of Digital Maturity Models: Insights for Business and Innovation. Digital Innovation Framework.
- [7] Ministry of Planning and Investment (2023). Program to Assess the Level of Digital Transformation for Small and Medium Enterprises.
- [8] Vietnam Ministry of Information and Communications (2022). Guidelines on the Digital Transformation Readiness Index for Small and Medium Enterprises.