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Digital Transformation Formulation AT PT. Rohto Laboratories Indonesia

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Keywords
Digital Transformation; Formulation; Technology; People; Management or Process

Abstract
Accelerating digital transformation has become one of the main focuses for facing global challenges and competition. Companies must adopt a holistic approach and build an integrated strategy to succeed in transformation. There are three categories needed to implement digital transformation, namely involving the use of technology, competent human resources, and management or process changes. This study aims to formulate digital transformation at PT. Rohto Laboratories Indonesia. This research uses a mixed methods case study design, combining qualitative and quantitative methods. Next, a purposive sampling technique was chosen to determine the data source sample based on specific considerations and objectives. This research consists of five stages in formulating digital transformation. These five stages refer to the development guidelines for digital transformation strategy from Albukhitan (2020). The final result of this research is a digital transformation roadmap for PT. Rohto Laboratories Indonesia obtained data from the four previous stages. The roadmap is divided into two parts: the first part is dominated by the management/process and people categories, while the second part is dominated by technology. Suggestions for further research are to conduct a broader exploration by comparing the application of digital transformation in more than one industrial sector.

1 Introduction

Accelerating digital transformation has become one of the government's main focuses to accelerate economic recovery and growth in Indonesia. This aligns with the government's strategic plan regarding the Digital Indonesia Roadmap for 2021 - 2024. There are ten priority sectors to accelerate the realisation of Digital Indonesia, one of which is industrial digitalisation, better known as Industrial Revolution 4.0 (Indonesia.go.id, 2021). Through the Making Indonesia 4.0 program, which has been running since 2018, the government is trying to revitalise the industry by encouraging digital technology to increase productivity, efficiency, and effectiveness in various business sectors. Several industrial sectors in Indonesia are priorities in this program, including the automotive, textile, and clothing sectors, the chemical industry, electronics, and food and beverages (Kemenperin.go.id, 2018). Then, two sectors

were added after the COVID-19 pandemic, namely the pharmaceutical industry and medical device sectors (Tribunnews.com, 2021). In 2019, the Ministry of Industry measured the industrial readiness index using INDI 4.0. These results show that the industrial readiness index in Indonesia is at the medium readiness stage with an average score of 2.14 (Katadata.co.id, 2019). In 2022, 31 companies will receive the INDI 4.0 award, two of which are companies operating in the pharmaceutical industry, namely PT. Bintang Toedjoe and PT. Paragon Technology and Innovation (Voi. id, 2022). This indicates that the pharmaceutical sector has started to focus on implementing Industry 4.0 or digital transformation.

PT. Rohto Laboratories Indonesia is a company operating in the pharmaceutical industry that is facing increasingly competitive business conditions. Companies must involve technology holistically (digitalisation) to compete in domestic and global markets and improve their business performance. Digitalisation in the pharmaceutical industry: What should be focused on during the digital implementation process? (Hole, Hole, & McFalone-Shaw, 2021) (Hole et al., 2021). In the last two decades, the company has shown consistent business growth and development (Wartaekonomi.co.id, 2022). This is also supported by growth in the number of employees, with an average increase of 3.76% per year (Figure 1), and business growth, with an average increase in revenue of 13.4% per year (Figure 2) in the last ten years.

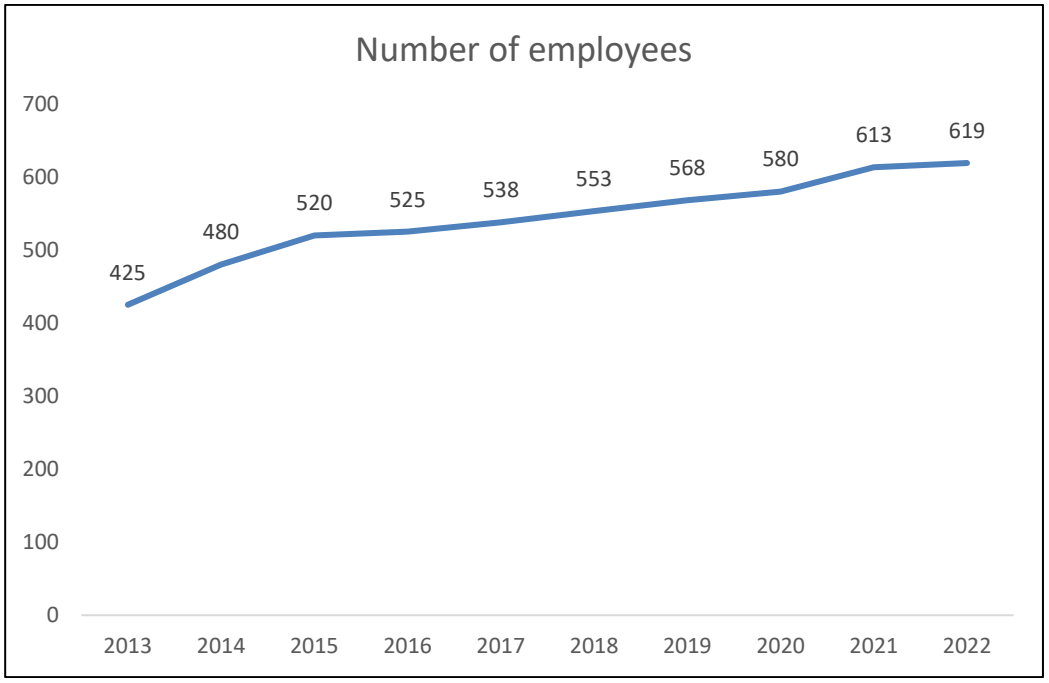
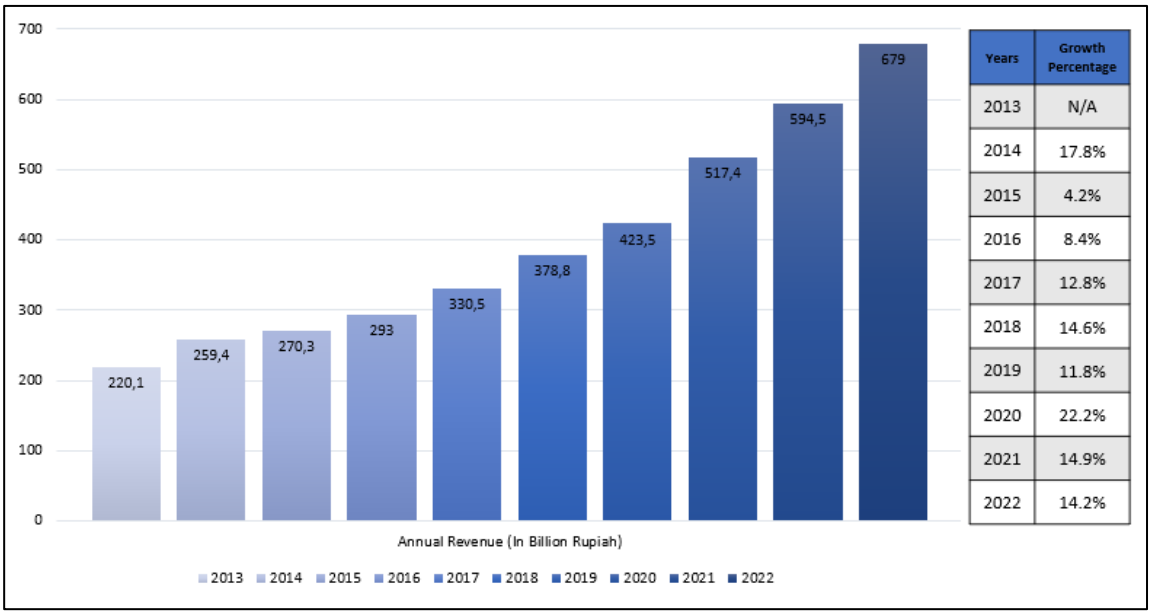


Figure 1. Growth in the Number of Employees
PT. Rohto Laboratories Indonesia (Factory) 2013 - 2022
Source: Personal Documentation (2023)



Years	Growth Percentage
2013	N/A
2014	17.8%
2015	4.2%
2016	8.4%
2017	12.8%
2018	14.6%
2019	11.8%
2020	22.2%
2021	14.9%
2022	14.2%

Figure 2. Annual Revenue PT. Rohto Laboratories Indonesia 2013 – 2022
Source: Personal Documentation (2023)

On the other hand, the company is transitioning from a small company to a large one. The current business model still tends to be conventional. At the same time, the company's need to compete and become an agile organisation in responding to change has yet to be implemented optimally—an overview of this gap in more detail in Table 1.

Table 1
Description of the Gap at PT. Rohto Laboratories Indonesia

Problem	Role of Digital Transformation
PT. Due to its low visibility, Rohto Laboratories Indonesia faces challenges in forecasting its business's future. The low visibility is reflected in several conditions: The company does not yet have a strong capability in identifying and mapping the talents of its employees. This has an impact on the company's role in enhancing employee competencies accurately and designing career paths that are suitable for them. The company does not yet possess strong capabilities in supply chain management. This includes the management of inventory, vendors, and forecasting. The company does not yet have strong capabilities in accurately managing sales data of products to consumers. The company does not yet have strong capabilities in managing data in other functions, such as data management in quality functions related to product quality data and R&D functions related to product development data. Additionally, the engineering and maintenance function does not have an integrated data	The role of digital transformation for PT. Rohto Laboratories Indonesia, in addressing existing issues, utilises or implements digital technologies that can support the company's achievement of good visibility. This enables the company to analyse its needs better and formulate strategies to achieve business efficiency.

system that supports the implementation of intelligent maintenance. The impact of low visibility is inefficiency in business management. Therefore, the company must enhance its visibility capabilities to improve operational efficiency and responsiveness to market changes.	

Source: Research Results (2023)

As a company operating in the pharmaceutical sector, one of the challenges it faces is implementing a business model that tends to be conventional and conservative (Reinhardt et al., 2021). To overcome the gaps mentioned above and challenges, it is expected that the company can undertake digital transformation. In this context, digital transformation is viewed as a means for the company to address its issues. The company has no business strategy for implementing digital transformation, even though it has implemented and updated technology in its business processes (Manufacturing & Research Director PT. Rohto Laboratories Indonesia, 2023). Therefore, this study aims to formulate digital transformation at PT. Rohto Laboratories Indonesia. Through digital transformation, companies can overcome existing gaps and challenges, compete in an increasingly competitive global market, and succeed.

Therefore, this study aims to (1) understand the company's future vision and goals in implementing digital transformation, (2) determine the company's ability to carry out digital transformation, (3) find out the end user and employee experience needed in digital transformation, (4) find out the solutions needed by companies in implementing digital transformation and (5) design a digital transformation roadmap at PT. Rohto Laboratories Indonesia.

2 Materials and Methods

This descriptive research study attempts to describe and explain in detail the problems related to digital transformation formulation. The methodology in this research uses a mixed methods case study design, which combines qualitative and quantitative methods. The combination method was chosen because researchers must collect two data types in the research stages. This research was conducted at PT—-Rohto Laboratories Indonesia, which is located on Jl. Raya Cimareme No. 203, Ngamprah, Kabupaten Bandung Barat. Furthermore, data collection in this research consisted of four stages: (1) The first stage concerns the company's vision and mission (goals). Data collection uses qualitative methods, such as interviews with three sources determined based on purposive sampling techniques. (2) In The second and third stages, data collection was carried out by distributing questionnaires online to 14 respondents. The questionnaire used in the second stage is the Ministry of Industry's questionnaire, namely INDI 4.0. The variables measured in this questionnaire consist of 5 pillars and 17 areas (Kementrian Perindustrian RI, 2018). Meanwhile, in the third stage, to determine the impact and urgency of the five pillars and seventeen areas of INDI 4.0, researchers prepared a simple questionnaire with a measurement scale using a Likert scale. (4) The fourth stage is data collection by re-interviewing three sources to confirm the data obtained in the third stage. (5) The fifth stage is creating a digital transformation roadmap at PT. Rohto Laboratories Indonesia was carried out based on the analysis results from the previous four stages.

3 Results and Discussions

This study's primary data was obtained through an interview method involving three sources respectively, with the Research and Manufacturing Director, the Manufacturing and Production Planning Deputy General Manager, and the PPIC Manager. Meanwhile, quantitative data was obtained by completing a questionnaire involving 14 sources of various company functions.

In the early stages of the research, the data obtained from the study of the company's vision and objectives were: (1) digital transformation was not explicitly stated in the company's vision, (2) the company's vision had not yet led to the implementation of digital transformation, (3) the role of digital transformation was assessed as tools to achieve the company's vision, (4) the company needs digital transformation in the future, (5) the company does not yet have a clear mission that is connected to the vision, (6) the company's mission needs to be evaluated and updated, and (7) the implementation of digital transformation needs to be implemented immediately carried out by the company. According to Schwertner (2017), in digital transformation, a company's strategy must be dynamic and have a clear vision for company growth, supported by the unlimited potential of the technologies related to the chosen strategy. He says a solid strategy and good leadership influence success in digital business transformation. The connection to this research is that a harmony of views is essential for PT. Rohto Laboratories Indonesia will evaluate and update the company's mission and strategy so that the implementation of digital transformation can run well.

In the second stage, measuring the company's capability to transform using INDI 4.0 obtained an index score of 1.71. This score shows that the company is currently only in the initial readiness stage, which shows that the company has started to move towards digital transformation.

Table 2. INDI 4.0 Index Assessment and Weighting

Pillars of INDI 4.0	Score Each Pillar	Weight	Weighting Results
Pillar 1: Management & Organization	1.57	17.5%	0.28
Pillar 2: People and Culture	1.76	30%	0.53
Pillar 3: Products & Services	1.91	17.5%	0.33
Pillar 4: Technology	1.39	17.5%	0.24
Pillar 5: Factory Operations	1.88	17.5%	0.33
INDI 4.0 Index Score			**1.71**

Source: Research Results (2023)

As one of the pharmaceutical industry companies in Indonesia, the index score results are still relatively low. This is supported by data on Indonesia's average industrial readiness index score in 2019, which reached 2.14. The comparison results show that the index score of PT. Rohto Laboratories Indonesia is still below the average industrial score in 2019. Based on these results, the company's capability to implement digital transformation is still relatively low.

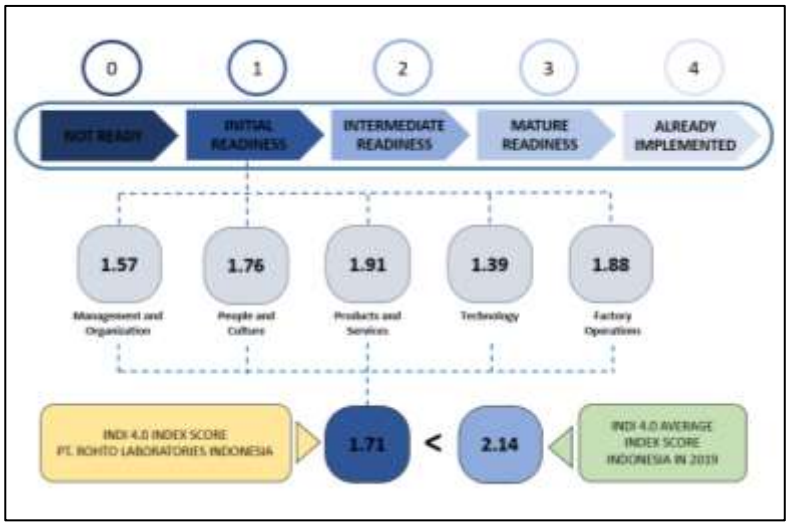


Figure 4. INDI 4.0 Index Score PT. Rohto Laboratories Indonesia
Source: Research Results (2023)

In other research discussing the industrial readiness model 4.0, it is stated that there are different dimensions between the manufacturing, service, MSME, and enterprise sectors (Antony, Sony, & McDermott, 2023). Based on the results of this research, it is known that some of these dimensions have similarities with the dimensions of the industrial readiness model used in this research, namely INDI 4.0, such as strategy, culture, supply chain, employee adaptation, and intelligent products and services.

In the third stage, data was obtained regarding end user and employee experience in the form of a series of priority company needs that were deemed necessary to be improved in implementing digital transformation, either generally (five pillars) or specifically (seventeen areas) obtained through measuring the 2x2 matrix impact vs urgency.

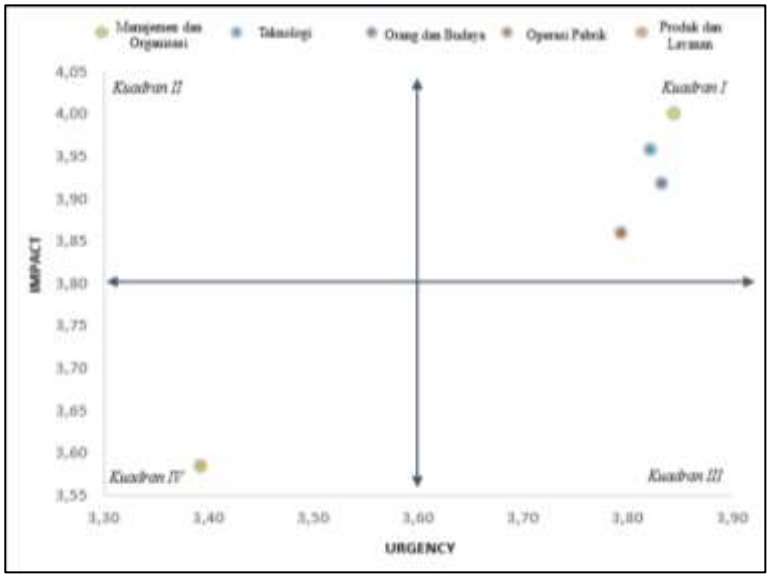


Figure 5. 2x2 Matrix: Impact vs Urgency (Five Pillar of INDI 4.0)
Source: Research Results (2023)

Based on the information in **Figure 5**, there are four quadrants in the 2x2 matrix, namely: (1) Quadrant I: High impact – High urgency, (2) Quadrant II: High Impact – Low urgency, (3) Quadrant III: Low Impact – High Urgency, (4) Quadrant IV: Low Impact – Low Urgency. From the 2x2 matrix above, it can be seen that four pillars fall into Quadrant I, and one pillar falls into Quadrant IV. The following pillars are included in Quadrant I: management and organisation, technology, people and culture, and factory operations. Meanwhile, the product and service pillars are included in Quadrant IV.

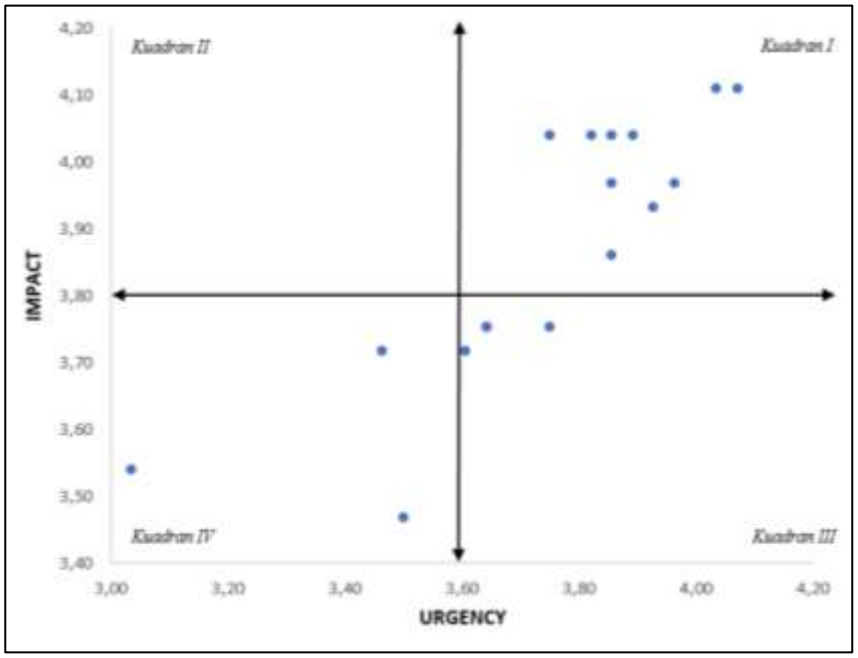


Figure 6. 2x2 Matrix: Impact vs Urgency (seventeen areas of INDI 4.0)

Source: Research Results (2023)

Based on the information in **Figure 6**, ten areas fall into Quadrant I, four in Quadrant III, and three in Quadrant IV. The following is an explanation for each quadrant: Quadrant I has a significant impact and is considered urgent for the company to implement immediately by companies which include [1] data storage and sharing, [2] cyber security, [3] openness to change, [4] strategy and leadership, [5] connectivity, [6] investment for industry 4.0, [7] digitalisation, [8] competency development, [9] innovation policy, and [10] intelligent supply chains and logistics. Quadrant III has a relatively low impact but is considered urgent to be implemented by companies, which includes [11] culture, [12] data-based services, [13] autonomous processes, and [14] intelligent maintenance systems. Quadrant IV has a low impact and is considered not urgent for companies to undertake, which includes [15] intelligent machines, [16] intelligent products, and [17] product customisation.

From the explanation above, it shows that the priority order that is considered necessary by companies according to 14 sources is [1] data storage and sharing which is part of the factory operations pillar, [2] cyber security which is part of the technology pillar, [3] openness to change which is part of the people and culture pillar, [4] strategy and leadership which is part of the management and organization pillar, [5] connectivity which is part of the technology pillar, [6] investment for Industry 4.0 which is part of the management and organization, [7] digitalization which is part of the technology pillar, [8] innovation policy which is part of the management and organization pillar, [9] competency development which is part of the people and culture pillar, [10] intelligent supply chain and logistics which are part of the factory operations pillar, [11] culture which is part of the people and culture pillar, [12] data-

driven services which are part of the products and services pillar, [13] autonomous processes and [14] intelligent maintenance systems which are part of the factory operations pillar, [15] intelligent machines which are part of the technology pillar, and finally [16] intelligent products and [17] product customization which are part of the product and service pillar.

In the fourth stage, after obtaining data regarding the end user and employee experience required by the company. Researchers reviewed and determined solutions for implementing digital transformation in companies by justifying the results to the three speakers regarding the results obtained from previous data. Based on the justification results, the company must implement the pillars of management and organisation as the main priority. According to the three speakers, management and organisation's role is the company's most important. With direction from management, the company can implement digital transformation. The second priority is the pillar of people and culture. The three speakers agreed that the readiness of people and culture to carry out digital transformation would have a significant impact. They believe that human resources which are not ready or, in this case, need to be more competent and open to change will hinder other processes and cause losses because the process does not run effectively and efficiently. Therefore, the results of the previous 2x2 matrix, which recommended technology as the second priority, have been justified by the considerations of the three speakers. The next priority is the pillar of technology. This pillar was chosen because the role of technology, in general, will help companies accelerate work processes. Two of the three speakers agreed that technology was the aspect that needed to be improved after people and culture. However, they all agreed that improvements to both are better carried out simultaneously. Next, the fourth priority is the factory operations pillar. The first speaker argued that the product and service were more important than the factory operations because, in her opinion, factory operations should be designed based on the needs of the products and services made by the company. Meanwhile, according to the second and third speakers and the results of the 2x2 matrix, factory operations are considered more important than products and services. The third speaker believes that providing infrastructure that supports companies in running their business is critical currently in implementing digital transformation. When factory operational activities are adequate, the company's products will be easier to fulfil. Moreover, the final priority is the pillar of product and service. This pillar was determined as the last because the comparison showed that two speakers and the results of the 2x2 matrix chose this pillar as the last priority that needed improvement. The third speaker believes that product customisation on a mass scale will only be effective if the company's entire infrastructure is adequate and supportive. Meanwhile, the justification results related to more specific solutions are sorted into the following areas: strategy and leadership, openness to change, culture, competency development, investment for Industry 4.0, data storage and sharing, connectivity, cyber security, digitalisation, innovation policy, intelligent supply chain and logistics, data-driven services, autonomous processes, intelligent maintenance systems, intelligent machines, innovative products and finally product customisation.

In previous research, Reinhardt et al. (2021) stated that many technologies are still unsuitable for use in the pharmaceutical sector. This happens because the technology used in the pharmaceutical industry must meet strict criteria imposed by companies and regulators. The connection with this research is regarding plans for implementing technology in companies. Based on previous research, pharmaceutical companies will face regulatory challenges in implementing technology in the future. Therefore, to realise these seventeen areas, companies must pay attention to the regulatory provisions in force in Indonesia when implementing technology.

In the fifth stage, based on all the data obtained, researchers created a digital transformation roadmap for PT Rohto Laboratories Indonesia, as shown in **Figure 7**. The roadmap was prepared by considering the main problems occurring in the company, namely focusing on increasing the company's visibility. From the seventeen areas that need to be implemented, researchers have determined twelve areas as priorities that need to be implemented in realising digital transformation. Researchers determined twelve priority areas to provide more targeted solutions for

companies in solving their problems. The researcher considers that apart from implementing the areas included in quadrant I, it is also necessary to add the areas of intelligent supply chains and logistics and data-based services as solutions for companies.

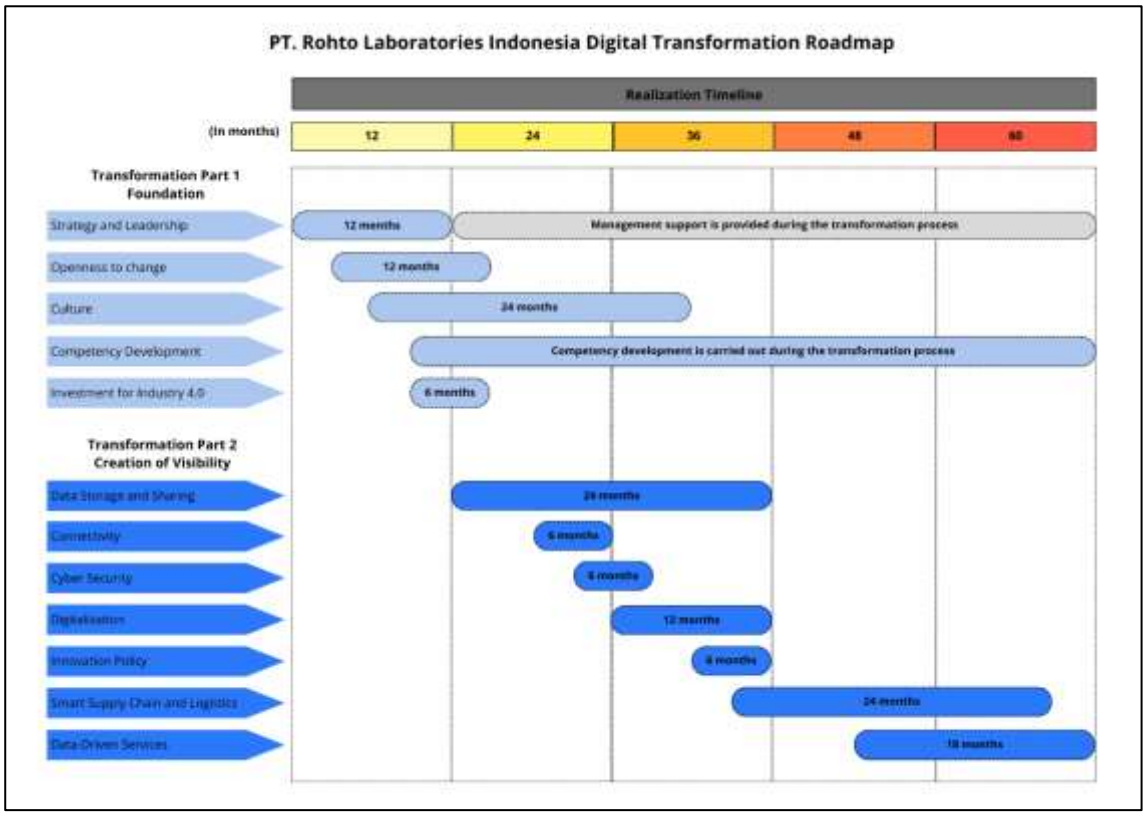


Figure 7. PT. Rohto Laboratories Indonesia Digital Transformation Roadmap

Source: Research Results (2023)

Digital transformation roadmap at PT. Rohto Laboratories Indonesia is divided into two main parts. The first part consists of five areas. These five areas are considered fundamental to implementing digital transformation, including strategy and leadership, openness to change, culture, competency development, and investment in digitalisation. Realising digital transformation requires a clear strategy, supportive leadership, good human resource readiness, and investment support. The second part comprises seven areas: data storage and sharing, connectivity, cyber security, digitalisation, innovation policies, intelligent supply chains and logistics, and data-based services. These seven areas are advanced parts of implementing digital transformation that focus on solving the problem currently faced by companies, namely low visibility. Therefore, this section is called the creation of visibility section. According to the third speaker, good data management is an essential next step in realising digital transformation. By having integrated, accurate, and real-time data, companies will be greatly helped in making operational and strategic decisions. Not only that, the company's visibility is also getting better. Verina and Titko (2019) state that digital transformation comprises three main categories: management/process, people, and technology. Based on the digital transformation roadmap, grouped into the two parts above, researchers identified that the first part of the transformation is dominated by the management/process and people categories. Meanwhile, the technology category dominates the second part of the transformation.

According to Abdallah et al. (2022), human capital is the foundation for organisational change. According to him, collaboration and integration of various elements in the company are needed to obtain strong transformation results. Top management must foster an organisational culture that encourages digital transformation and encourages employees to participate. Apart from that, the role of leaders is considered very important in determining the success of digital transformation. Furthermore, digital technology is the backbone of digital transformation in the manufacturing industry, and it includes artificial intelligence (AI), IoT, cyber security, cloud computing, robots, and ERP. Companies must choose the right combination of digital technology according to their needs and financial capabilities. Based on this explanation, the roadmap researchers have prepared will be implemented at PT. Rohto Laboratories Indonesia has similarities with previous research regarding priority aspects in implementing digital transformation in the manufacturing industry.

Companies face several challenges when implementing digital transformation (Albukhitan, 2020). PT will face the main challenges assessed. Rohto Laboratories Indonesia, based on information obtained from three speakers, is as follows: (1) The first challenge is the absence of relevant knowledge. Low digital literacy is considered one of the biggest challenges in implementing digital transformation in companies. All three speakers agreed that a relatively limited understanding of digitalisation could risk company decision-making in starting digital transformation and planning its implementation appropriately. (2) The second challenge is budget restrictions. Apart from low digital literacy, the next challenge is the limited budget to realise digital transformation. The first and second speakers assessed that the challenge for companies to realise digital transformation is how companies must allocate limited budgets appropriately. (3) The third challenge is resistance to change. Resistance to change is considered the next challenge in implementing digital transformation in companies. Based on the views of the second and third speakers, some employees have the potential to show resistance to change. One of the reasons for this is low digital literacy, which results in employees having difficulty realising the importance of using technology in their work or being unable to use it.

4 Conclusion

In this research, the implementation of digital transformation is formulated as a digital transformation roadmap. Based on the results of the research that has been carried out, the following conclusions are obtained: (1) Currently, the company does not have a clear vision and goals for implementing digital transformation, but the company views that implementing digital transformation is necessary to achieve the company's vision. The company also considers that there is a need for connectivity between vision and mission, so it is necessary to evaluate and update its mission. (2) INDI 4.0 index score results at PT. Rohto Laboratories Indonesia is 1.71, which shows that the company is still at the initial readiness stage. However, the index score obtained is still relatively low compared to Indonesia's average industrial readiness index score in 2019, which is at the medium readiness stage. Therefore, it can be concluded that the ability of PT. Rohto Laboratories Indonesia's in carrying out digital transformation is still relatively low. (3) The results of the 2x2 matrix: impact vs urgency show that, in general, priorities in implementing digital transformation need to start from improving the management and organisation pillars, technology pillars, people and culture pillars, and factory operations pillars, all of which are included in Quadrant I. Meanwhile, the product and service pillars are not included in the main priority. Furthermore, the specific priorities that need to be improved are the areas included in Quadrant I, namely data storage and sharing, cyber security, openness to change, strategy and leadership, connectivity, investment for industry 4.0, digitalisation, innovation policy, competency development, and intelligent supply chain and logistics. Then, for the cultural, data-based services, autonomous processes and intelligent maintenance systems are included in Quadrant III. Meanwhile, intelligent machines, innovative products, and product customisation are included in Quadrant IV. These two quadrants are considered to be the company's continued priorities. (4) Based on the results of the speaker's justification for the 2x2 matrix, Impact

vs urgency, the solution obtained the pillars that need to be improved first are management and organisation, people and culture, technology, factory operations, products and services. Furthermore, the areas that need to be improved first are strategy and leadership, openness to change, culture, competency development, investment for industry 4.0, data storage and sharing, connectivity, cyber security, digitalisation, innovation policy, intelligent supply chain and logistics, data-driven services, autonomous processes, intelligent maintenance systems, intelligent machines, innovative products, and product customisation. (5) Digital transformation roadmap at PT. Rohto Laboratories Indonesia is divided into two main parts, namely transformation part one, which consists of five areas: strategy and leadership, openness to change, culture, competency development, and investment for Industry 4.0. Transformation part two comprises seven areas: data storage and sharing, connectivity, cyber security, digitalisation and innovation policy, intelligent supply chains and logistics, and data-based services.

The implications of this research are expected to be considered as a reference for PT. Rohto Laboratories Indonesia in implementing digital transformation and becoming a reference for other companies in the pharmaceutical sector and other sectors, preparing a digital transformation roadmap. It is hoped that this research can provide new insights or knowledge for academics regarding digital transformation in a more specific context, namely in the formulation process and carried out in pharmaceutical industry companies, which in this industry have cultural characteristics that tend to be conservative. Researchers suggest that further research can explore digital transformation more widely, namely by comparing the application of digital transformation in more than one industrial sector. Researchers believe that each sector has unique characteristics, so by carrying out this comparison, it is hoped that they will learn more about the differences in implementing digital transformation.

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