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DIGITAL TRANSFORMATION STRATEGIES IN PRIMARY AND SECONDARY EDUCATION INSTITUTIONS: CASE STUDY OF ABC EDUCATION FOUNDATION

Khansa Indah Oktaviany
Fakultas Ilmu Komputer, Program Studi Magister Teknologi Informasi, Universitas Indonesia, Indonesia
Email: khansaindahokta@gmail.com

ABSTRACT

This research investigates digital transformation strategies to improve the efficiency and competitiveness of ABC Education Foundation in Depok, West Java. Using Sunil Gupta's methodology, this study conducted internal and external SWOT analysis, value chain analysis, business benchmarking analysis, and education technology trend analysis. The findings show that improving information system integration, operational efficiency, and the role of the IT department are key in achieving digital transformation goals. The results also present a digital transformation roadmap based on the stages of value definition, rollout, and improvement. The implications of the digital transformation recommendations can be seen in changes to the business model and organizational infrastructure.

KEYWORDS *Digital Transformation, Operational Efficiency, SWOT Analysis*

INTRODUCTION

Globalization can lead to innovation, increased productivity and technological development. As a result, there are rapid changes in the way businesses operate and social life. Readiness in the face of technological change and innovation in various aspects is a must. (Office of the National Economic and Social Development Board, 2019). In the age of digitalization, digital transformation has become increasingly urgent, especially after the COVID-19 pandemic. The pandemic has pushed organizations, both in the manufacturing and service industries, to accelerate the implementation of digital technologies. They compete to enhance digital transformation to improve customer relationships, operational optimization, and business models. (Guo & Xu, 2021).

Digital Transformation has received significant attention in the higher education sector in recent years (Matthews et al., 2018). Digital transformation has led to major changes in education, including teaching and learning processes, educational activities, and educational structures. These changes have been able to

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increase global competitiveness and competitive advantage in the quality of education. (Katyeudo & de Souza, 2022).. In the academic context, educational institutions use diagnostic analysis to offer and evaluate solutions to their problems, descriptive analysis to describe current conditions, and also conduct predictive analysis to predict future events. In the campus environment, data analysis is used in a variety of ways such as marketing, recruitment, freshman selection, financial aid, student counseling, academic planning, financial projections, and even executive planning. (Alenezi, 2023).

Digital transformation activities in educational institutions include how to facilitate learning, provide online collaborative learning opportunities, enable better communication between students, teachers, and staff, and are supported by multimedia learning opportunities, including how to create positive learning processes that support students, and encourage the implementation of learning processes and school management. (Mayasari, 2023). With this activity, it can provide institutions with benefits such as flexibility and adaptability. (James, 2021), improving student experience, optimizing resources (Spear, 2019), and increased efficiency (McKinsey&Company, 2012) within the scope of digital transformation. Reflection on productivity is one of the advantages of digital transformation that can be provided to higher education institutions, including human resource efficiency (Betchoo, 2016). (Betchoo, 2016), efficiency of the teaching-education process with higher education staff who have digital skills (Faria & Nóvoa, 2017), and sustainability efficiency with smart campus applications (Musa et al., 2021) (Musa et al., 2021).

The Government of Indonesia, especially the Ministry of Education and Culture together with Commission X of the House of Representatives (DPR-RI), which is a working partner of the Ministry of Education and Culture, is initiated and fully committed to preparing the 2020-2035 PJPN and the Bill on Amendments to Law Number 20 of 2003 concerning the National Education System in order to provide adequate digital technology content in the national education system. In the context of national development towards the Golden Indonesia 2045, alignment of institutional and governance policy directions is carried out within the framework of implementing governance with integrity, agility, and collaboration, as well as implementing digital transformation with a focus on basic services, one of which is education services. (JDIH BPK, 2019).

This urgency is also related to the integration of technology, especially in the field of education, which has been supported by the Minister of Education and Culture Regulation Number 46 of 2019 concerning National Education Standards, this regulation mandates that education must utilize digital technology to improve the quality of learning. This is done to create learning that is more effective, efficient, and relevant to the needs of students. (JDIH BPK, 2019). This policy shows the government's support for technology integration in the education sector. Technology integration is expected to improve the quality of education in Indonesia and enable Indonesia's young generation to face global challenges.

At the organizational level, the presence of digital transformation is an important phenomenon that takes place quickly and revolutionizes all activities. (Mayasari, 2023). The existence of digital integration in each process chain is able

to reduce coordination costs, operational costs, and other costs through increased communication, transparency, and monitoring which ends in improving organizational performance. (Aral & Weill, 2007). Organizations that take advantage of digital innovation and potential can benefit in running and facilitating organizational activities so as to develop new capabilities and respond to the evolving business climate for the advancement of their organization. (Z., Wang & Wang, 2012).. If educational institutions do not immediately carry out digital transformation, negative impacts will be felt, including a decrease in the quality of education, less relevant teaching methods, decreased efficiency and productivity and limited collaboration. (Saprudin et al., 2023).. Educational institutions that lag behind in digital transformation risk falling behind and having difficulty competing in an increasingly competitive world of education.

ABC Education Foundation in Depok, West Java, was established in 2013 and aims to be a leading private school. However, its achievements are still far from the target, with a high school ranking of 25th in West Java by 2022. Digital transformation is an important step to improve efficiency and competitiveness, especially since only 40% of operations use digital systems. The main problems are related to operational efficiency and labor productivity, such as the increasing BOPO ratio. Based on root cause analysis, shortcomings were found in the use of information systems, particularly in data integration, student monitoring by parents, and the suboptimal position of the IT department. In addition, the high competition in the education industry in Depok also adds to the complexity of the challenges faced by ABC Foundation. Therefore, targeted improvement measures should include increasing the use of digital technology in school operations, increasing labor efficiency and productivity, and improving the integration of information systems and the position of the IT department (Idrus, 2014; Leliyanah, 2013).

RESEARCH METHOD

In the third chapter, we will discuss the methods used in dealing with research problems, the stages of research, how to collect and process data, the tools used in research, and the place of research implementation.

Research Design

This research was conducted by preparing a strategic plan for information systems / information technology at the ABC Education Foundation using the Sunil Gupta methodology. The use of this methodology is obtained through the results of a comparison between several *frameworks* that have been described in section 2.3.4. The following is a summary of the research design listed in table 3.1.

Table 3.1 Research Design

Component	**Description**
Classification	Case Study
Data source	Primary and secondary data
Research Category	*Applied Research*
Research Objectives	Develop a digital transformation strategy plan

Research Results	Recommended digital transformation strategy plan for ABC Education Foundation
Data Source	Primary and secondary data
Data Type	Qualitative
Primary Data Collection Method	Document study, Interview, Literature study, observation
Secondary Data Collection Methods	Books, Journals, Previous research
Source Selection Method	*In-depth Interview*
Data Processing Method	Thematic Analysis

Table 3.*1* describes the components in the research to create a draft digital transformation strategic plan at ABC Education Foundation. Primary data was collected by conducting interviews and making observations of structural officials and staff within the ABC Education Foundation. Secondary data was collected from books, journals and previous research related to the theories and frameworks used as references in this study. Then, the data was processed using thematic analysis method.

This research went through 12 stages to produce a digital transformation strategic plan document for ABC Education Foundation. The first stage is initial data collection, which involves document studies, interviews, and observations to understand the condition of the organization. Next, problem identification was conducted by analyzing the gap between actual conditions and expectations. Literature studies were used to support this analysis, followed by the preparation of research methods and instruments. Data collection on the internal and external environmental conditions of the organization was followed by data processing using thematic analysis. A SWOT analysis of the internal and external conditions of the business was conducted to gain an in-depth understanding. The next stage involved analyzing the ideal conditions and developing a digital leadership strategy. From here, a digital transformation strategy plan was formulated, followed by the development of a roadmap. The validation stage involved stakeholders to ensure the strategic plan was relevant. Finally, a final report was prepared based on the research results, followed by a presentation to relevant parties. The research instruments and data collection and processing methods used were developed based on references from various previous studies relevant to this topic, as described by Sukendra & Atmaja (2020), Sugiyono (2014), Fadhallah (2021), Ward & Peppard (2016), Osterwalder & Pigneur (2016), Porter (2016), and Creswell (2018). These methods include interviews, observations, document studies, and literature studies.

Data processing carried out in this study uses thematic analysis. In thematic analysis, researchers coded the qualitative data collected to find themes or patterns between one data and other data so that further analysis could be carried out related to research questions (Saunders et al., 2007). (Saunders et al., 2007). This thematic analysis is the basis or foundation for the purpose of analyzing in qualitative

research. Holloway & Todres, (2003). Data obtained through several methods in the data collection process is qualitative data in the form of text and has a certain pattern. Furthermore, identification is carried out to explore the interpretation of the data (Saunders et al., 2003). (Saunders et al., 2007).

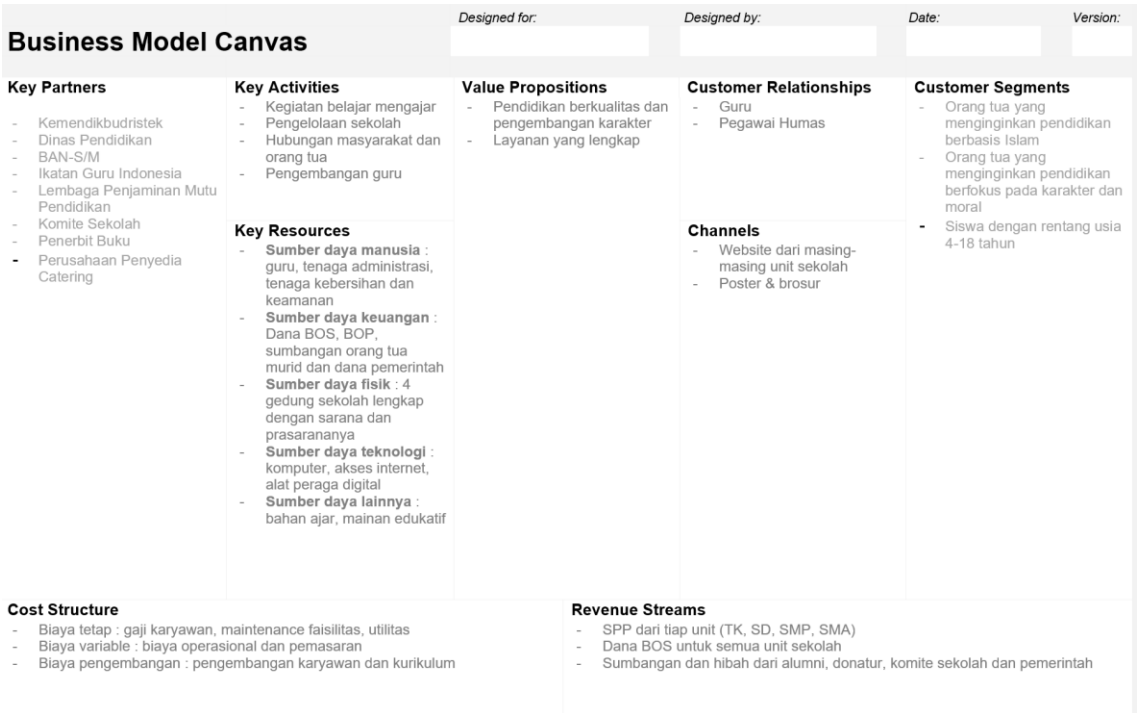
RESULT AND DISCUSSION

Internal Business Analysis

In analyzing the internal business environment, there are several analytical tool techniques used, namely: Business Model Canvas (BMC), Value Chain Analysis, Business Benchmarking Analysis and SWOT (Strength and Weakness) Analysis. From the results of the analysis, a mapping classification based on SWOT (Strength and Weakness) analysis will be carried out for the ABC Education Foundation.

1. **Business Model Canvas (BMC)**

   The analysis of the internal business model using BMC is sourced from the results of interviews and internal document studies of ABC Education Foundation (Appendix 2,). The resulting data is mapped into nine BMC blocks, as shown in Figure 5.xx.

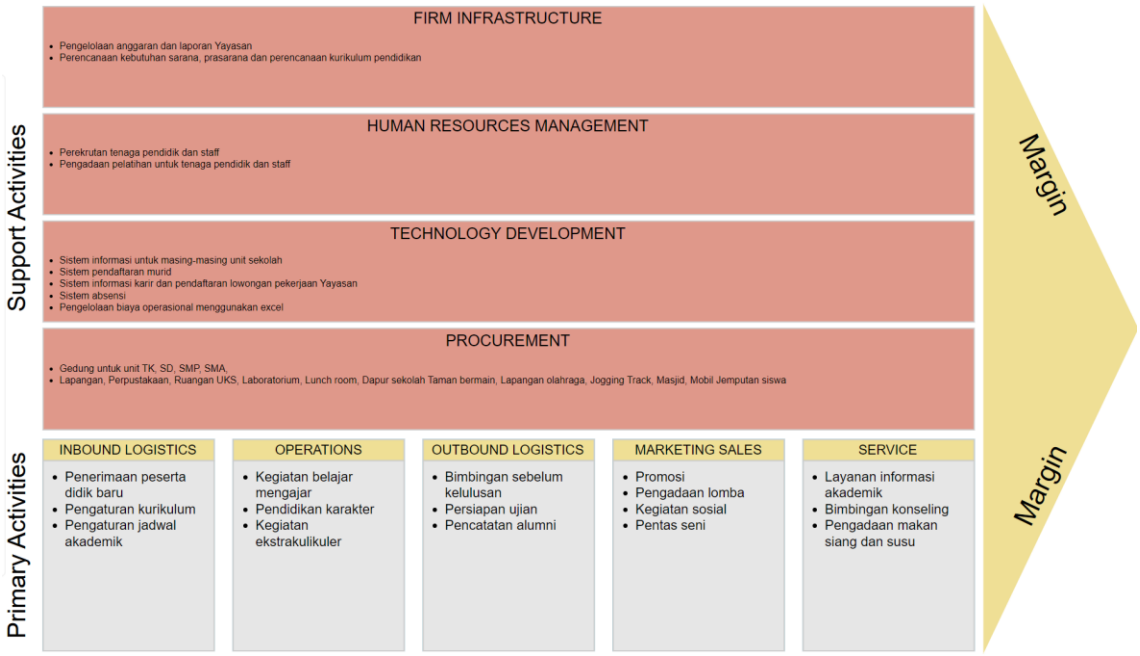


The BMC results in Figure 5.xx illustrate the existing business model of the ABC Education Foundation, which consists of 9 blocks, namely the ABC Education Foundation has several key partners that support its operational sustainability, including the Ministry of Education, the Education Office, and the National Accreditation Board for Schools/Madrasahs. The organization's key activities include teaching and learning, school

management, community and parent relations, and teacher development. Key resources include human, financial, physical, technological and other resources. Their value propositions include quality education and character development, as well as comprehensive services. Their customer relationships are built through teachers and PR staff, while the main communication channels involve the website and social media. Customer segmentation includes parents who want an Islamic-based and character-focused education. Their cost structure includes fixed, variable and other costs, while revenue comes from tuition fees, BOS funds and donations from various parties.

2. Value Chain Analysis

To know and understand the identification of business activities in the organization, value chain analysis is carried out. There are two components used, namely primary activities and secondary activities. The goal is to clarify the current business processes in accordance with the existing organizational structure.



Based on Figure 5.xx, it can be seen that ABC Education Foundation has several activities, namely ABC Education Foundation's main activities include inbound logistics such as admission of new students and curriculum arrangements, as well as operations such as teaching and learning activities and character education. They also involve outbound logistics such as pre-graduation guidance and alumni registration, as well as marketing and sales including promotions and social activities. Services such as academic information services and counseling guidance are also an important part of their activities. Secondary activities support the primary functions, including

procurement such as the provision of school facilities and physical resources. Human resource management includes the recruitment and training of educators and employees. Technology development includes information systems for school units, student enrollment systems and career information systems. Corporate infrastructure involves budget management and facilities and infrastructure planning.

3. **Business Benchmarking Analysis**

   To complete the analysis of strengths and weaknesses, observations were made by benchmarking against organizations with similar services and services that already have mature products and services. In this case the author compares with two competitors, namely the Indonesian College Board Foundation (BPI) and the Salman Al-Farisi Education Foundation (SAF). The author conducts comparisons obtained from the websites of each company and observation. The results of the benchmarking analysis can be seen in table 5.xx

SWOT (Strength and Weakness) Analysis

Furthermore, analysis is carried out with SWOT (Strength and Weakness) tools. From the analysis results of the previous sub-chapters, namely from BMC analysis, value chain, and benchmarking, the components that are the strengths and weaknesses of the ABC Education Foundation are obtained, as described in table 5.xx below. These components are given coding for each item classified into strength and weakness categories.

Business External Analysis

This subchapter discusses the external business analysis which consists of several analysis tools, including: PESTEL analysis, Porter's Five Forces, Technology Trends and SWOT (opportunity and threat) owned by the organization. From the results of this analysis, a classification mapping will be carried out based on SWOT (Opportunity and Threat) analysis for ABC Education Foundation.

1. **PESTEL Analysis**

   PESTEL analysis is carried out by mapping the company's products and services to external business conditions such as Political, Economic, Social, Technological, Legal and Environmental situations. The following are the results of the PESTEL analysis.

2. **Porter's Five Forces Analysis**

   In analyzing the external conditions of the company, the next method used is business competition analysis with Porter's Five Forces analysis model. This analysis is carried out to determine the conditions of weaknesses and strengths that can become opportunities and threats for the organization. Table 5.xx explains the results of the analysis identified.

3. **SWOT Analysis (Opportunity and Threat)**

To conduct an external analysis of the company, the next step is to map the results of the PESTEL analysis and Porter's Five Forces into a SWOT (Opportunity and Threat) analysis table.

Technology Trend Analysis

To complete the analysis, the author analyzed technology trends that are widely adopted in the world of education in 2024. This analysis was carried out to help the author get references in formulating the right strategy that can be applied to the Budi Insan Cendekia Education Foundation.

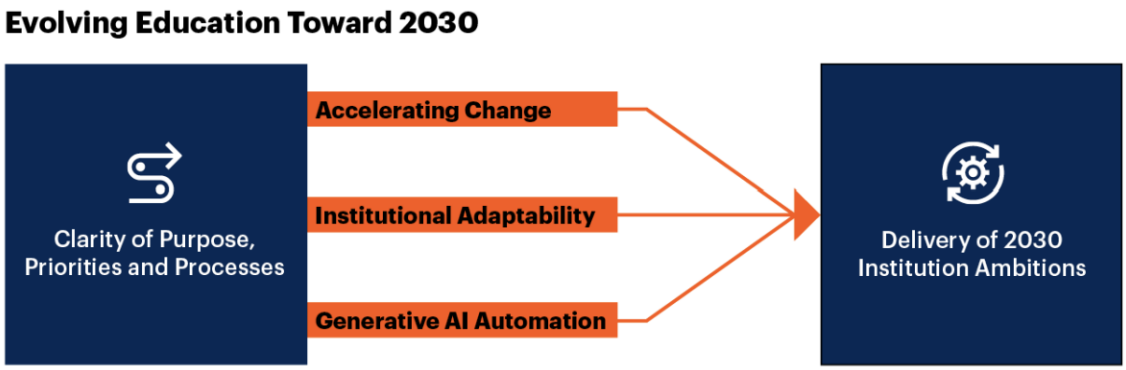


Figure 5.xx Technology Trends in Education
(Source: (Sheehan et al., 2023))

Gartner research notes (Sheehan et al., 2023) outlines key trends for 2024 and beyond, as well as recommendations for leaders responsible for digital transformation and innovation by way of:

1. Automation: Evaluating the impact of generative AI and managing its risks
2. Adaptability: Assess the alignment between the institution's strategy and the current talent ecosystem
3. Acceleration: Apply agile strategies with the right communication

Higher education continues to transform along with rapid technological advancements. One of the key steps to understanding the direction of higher education development is through research and analysis from leading research institutions such as Gartner cited by Bubblevy.com article. Here are some of the key trends revealed by Gartner in the context of higher education (bubblevy, 2024).

a. Adaptive Learning
   Adaptive learning technology has become a major focus in improving learning effectiveness. Using algorithms and artificial intelligence, adaptive learning systems are able to tailor learning materials to students' individual needs and abilities. This allows for a personalized learning experience, improving retention and accelerating student progress.
b. Education Analytics
   Data collection and analysis has become an integral part of various aspects of higher education. Educational analytics allows educational institutions

to collect data regarding student performance, teaching effectiveness, and learning trends. By analyzing this data, educational institutions can identify relevant patterns and take appropriate steps to improve the learning experience.

c. Virtual Reality (VR) and Augmented Reality (AR)
   VR and AR offer great potential in enhancing the learning experience in higher education environments. By utilizing these technologies, educational institutions can create immersive and interactive learning environments, allowing students to experience complex concepts first-hand. In both classroom learning and practical simulations, VR and AR provide a new dimension to higher education.
d. Artificial Intelligence
   Artificial intelligence has transformed many aspects of human life, including higher education. In the context of education, AI is used to analyze learning data, provide personalized feedback to students, and even provide teaching assistance through virtual assistants. This use of AI can increase teaching efficiency and help improve student academic performance.
e. Project-based and Collaborative Learning
   Project-based and collaborative learning has become a major focus in higher education. Through technologies such as online collaborative platforms and project management tools, students can work together in teams to complete real-world projects. This not only increases student engagement, but also develops collaboration and problem-solving skills that are essential for success in the workplace.
f. Internet of Things (IoT) in Higher Education
   The Internet of Things (IoT) refers to a network of physical devices connected via the internet, which enables data exchange and automated control. In higher education, IoT has been applied in a variety of ways, from optimizing the use of campus resources to improving student safety and comfort within the campus.
g. Mobile Learning (M-Learning)
   With the increasing penetration of smartphones and tablets, mobile learning (m-learning) has become a significant trend in higher education. Mobile-optimized online learning platforms allow students to access learning materials anytime and anywhere, according to their schedules and learning preferences. This provides greater flexibility for students to manage their study time and increases accessibility to higher education.
h. Blockchain in Credential Validation
   Blockchain technology has begun to be used in the validation of academic and administrative credentials in the field of higher education. By using blockchain, student credential records such as academic transcripts and certificates can be stored securely and immutably. This not only improves data security and integrity, but also facilitates a more efficient and transparent credential validation process.
i. Cloud-based Educational Content Availability

Higher education institutions are increasingly adopting cloud-based storage and distribution of educational content. By storing learning materials in the cloud, educational institutions can provide easier and faster access for students and staff, without being constrained by physical limitations or local infrastructure. It also facilitates collaboration between educational institutions and enables more dynamic and continuous development and delivery of educational content.

Aspects of Digital Transformation in Educational Institutions

This section discusses the aspects that constitute the ideal conditions of the digital transformation process in educational institutions. To support schools in navigating complexity, improving educational proposals and curricula, a system was created that combines the energies of teachers, managers, administrative staff, students, families, policy makers, publishers, application developers, associations and the entire educational community in the world to experiment with new learning models, share the risks faced and take advantage of the opportunities that arise, which has been approved by the Ministry of Education, University and Research (MIUR). (C. D. S. Paolo., 2020). The project builds on a system model aimed at technology, organization and innovation in education in primary and secondary schools. The project applies a multilayered development oriented towards a more significant and broader digital transformation. (Demartini et al., 2020a).

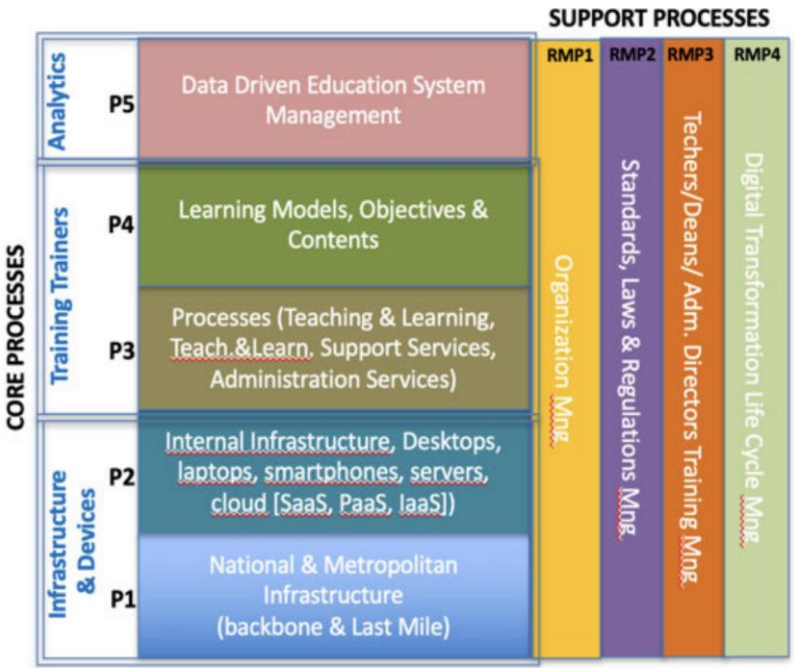


Figure xx illustrates Riconessioni's intervention model which consists of five functional layers assigned to three main domains: Infrastructure & tools, Teacher training, and Analytics and four layers as supporting domains: Organizational management, standards management, legal and regulatory, teacher training management, deans & administrative staff and digital transformation cycle

management. These layers describe the transformation core of the digital transformation process from Riconessioni's perspective. (Demartini et al., 2020b)..

1. Core Process
   a. Infrastructure and Work Tools
      This layer consists of bringing fiber optic internet connection to the whole school for network access and national network as internal infrastructure and laptops/PCs, smartphones, servers and cloud as work devices.
   b. Teacher Training
      This layer consists of learning processes and models. The process consists of the KBM process, support services and administrative services. The learning model consists of learning content and objectives. The training conducted to support both layers is to promote innovative ideas and practices, involving school managers, teachers, students and parents through continuous training courses that can utilize the potential of digital technology.
   c. Analysis
      This layer deals with data-driven management that addresses the adaptive education system, using the Data-Driven Education Management System.
2. Support Process

The supporting domains that represent Riconessioni Process Management include:

a. Organization Management
b. Standard, Legal and Regulatory Management
c. Training Management Teachers, deans and administrative staff
d. Digital Transformation Lifecycle Management

Analysis of the Ideal State of Digital Transformation

An ideal condition analysis was conducted to formulate a digital transformation strategy. According to (Demartini et al., 2020b)there is a layered digital transformation model that can be applied to achieve the ideal state of digital transformation in educational institutions. This model consists of two layers, namely the main layer and the supporting layer. The main layer consists of infrastructure and work tools, teacher training, and analysis, while the supporting layer consists of organizational management; management of standards, laws and regulations; management of teacher training, deans and administrative staff and digital transformation life cycle management. The author conducts an analysis by comparing current conditions with ideal conditions in digital transformation. The ideal condition component refers to the results of interviews and literature studies.

Formulation of Digital Leadership Strategy

The formulation of digital leadership strategy is based on the results of internal and external analysis of the organization, analysis of technology trends, benchmarking literature studies and interview results. The formulation of digital leadership strategy is adopted from Sunil Gupta's framework which consists of 4 stages, namely Reimagine your Business, Reevaluate your Value Chain, Reconnect with your Customer, and Rebuild your Organization. The formulation of this

strategy will be divided based on the scope of the Riconnesioni layered digital transformation model (Demartini et al., 2020b)..

In formulating a digital transformation strategy, the first step is Reimagine Your Business, where the organization analyzes its scope, business model, and ecosystem. The next stage is Reevaluate Your Value Chain, where the design involves aspects of digital technology and R&D models to improve value chain efficiency. Then, the Reconnect with Your Customer stage is done to create and maintain customer relationships with the help of technology and digitization. Finally, the Rebuild Your Organization step involves redefining the organization, considering the challenges in digital transition, and determining resource management competencies.

Digital Transformation Strategy

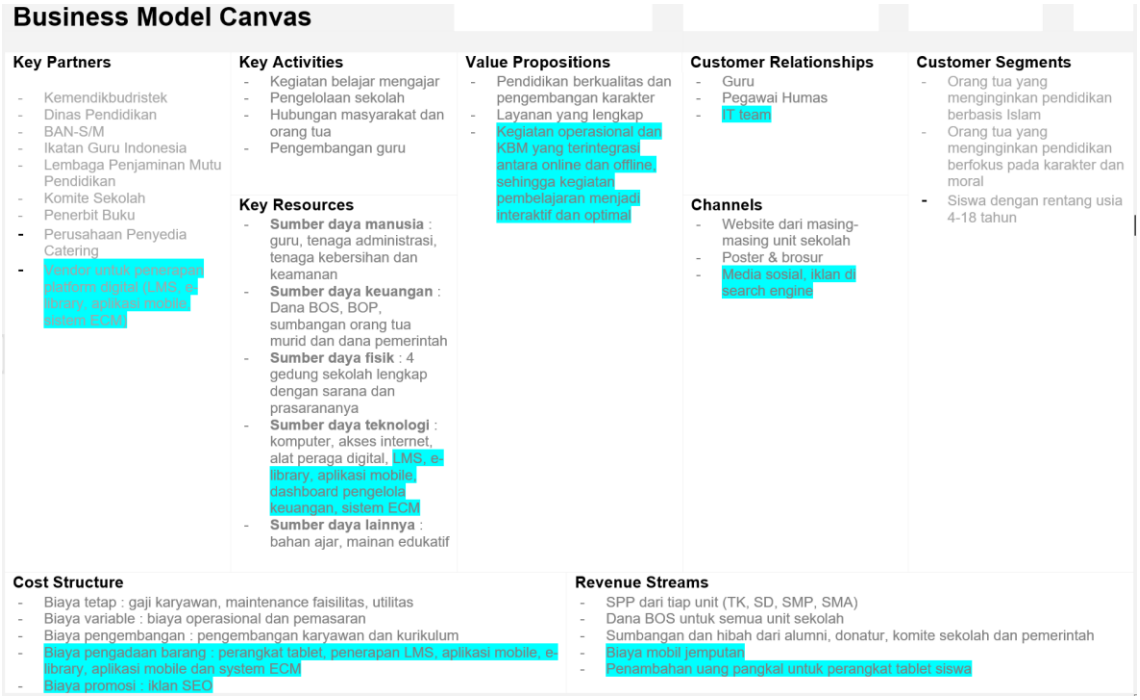
Based on the results of the analysis that has been carried out in the previous subsections, table xx below is the result of the analysis of digital transformation strategies carried out in this study. Digital transformation strategies are divided based on Riconnesioni's layered digital transformation model (Demartini et al., 2020b).

Digital Transformation Roadmap

From the results of the proposed strategy, a mapping plan is carried out to develop a digital transformation roadmap. The roadmap was prepared using the Digital Transformation Roadmap by Mckinsey & Co. (McKinsey & Co., 2017)which is divided into three stages, namely defining value, launching & accelerating and improving.

Implications of Digital Transformation Recommendations

In accordance with the digital transformation strategy that has been prepared previously, it will affect the company's current business model. The changes that will occur as shown in Figure xx below.



The new BMC with the addition of a digital transformation strategy and roadmap for ABC Education Foundation resulted in several changes to its xx building blocks. The changes are in the value propositions section where there are additional values, namely operational activities and KBM which are integrated between online and offline, so that learning activities become interactive and optimal with the application of digital platforms in the form of LMS and mobile applications, as well as interactive learning activities through the use of tools such as learning videos, interactive simulations, and augmented reality which will later be applied to LMS and teaching and learning activities in the classroom. With the addition of new value propositions, there are additional technological resources in the form of LMS, e-library, mobile applications, financial management dashboards and ECM systems in the key resources domain. To realize these value propositions and key resources, there will be additional key partners in the form of vendors or third parties who will help implement the LMS, e-library and mobile applications, these vendors will later be hired during the implementation of digital transformation. In addition to vendors, there are additional IT teams that will help implement digital transformation in the customer relationship domain, and additional domain channels for promotion, namely through social media and advertising on search engines. For the operation and implementation of this digital transformation strategy, there will also be a new cost structure in the form of procurement costs consisting of tablet devices, the application of LMS, e-library, mobile applications and ECM systems and there are additions to promotional costs. For the revenure stream, there will be additional revenue derived from the cost of pick-up cars and the addition of tuition fees for student tablets.

CONCLUSION

ABC Education Foundation in Depok, West Java, was established with the ambition of becoming a leading private school in 2013. However, until 2022, its achievements were still far from the target, with its high school ranking in 25th place in West Java. Digital transformation is an important step to improve efficiency and competitiveness, considering that only 40% of operations use digital systems. The main problem is related to operational efficiency and labor productivity, such as the increasing BOPO ratio. In addressing these challenges, a root cause analysis revealed shortcomings in the use of information systems, data integration, student monitoring by parents, and the suboptimal positioning of the IT department. Intense competition in the Depok education industry also added to the complexity of the challenges. A research methodology was used to develop a strategic plan for digital transformation at ABC Education Foundation, adopting Sunil Gupta's methodology. It involves primary and secondary data collection, with data collection methods that include document study, interviews, literature study, and observation. Data processing was done using thematic analysis. The results of SWOT analysis, benchmarking, and value chain analysis highlighted internal strengths and weaknesses as well as external opportunities and threats. Furthermore, technology trend analysis identifies key trends that can be applied in higher education. Then, the ideal condition analysis and digital leadership strategy formulation were conducted, taking into account the layered digital transformation model. The digital transformation strategy was formulated based on the Riconnesioni model, including the steps of Reimagine Your Business, Reevaluate Your Value Chain, Reconnect with Your Customer, and Rebuild Your Organization. The digital transformation roadmap is organized based on the stages of defining value, launching & accelerating, and scaling up. The implications of digital transformation recommendations include changes to the business model, such as the addition of value propositions, resources, partners, IT teams, promotion channels, cost structures, and revenue sources. This is expected to transform ABC Education Foundation into a more efficient, innovative, and competitive institution.

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