

# Strategic alignment maturity assessment on conventional bank's information technology

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## ABSTRACT

Strategic alignment between information technology and business strategy is needed to achieve an organization's performance excellence. Bank X is a bank that focused on serving the micro, small and medium enterprise (MSME) market segments. Bank X provided a variety of banking services which are generally grouped into activities of raising and distributing funds. Banking services are carried out conventionally. At the end of 2019, Bank X was acquired by an investment holding company. The objective of the acquisition is to develop Bank X into a bank with a digital platform. This study aims to measure the maturity level of strategic alignment of information technology with business strategies at Bank X. A conceptual framework is developed based on relevant literature. The level of strategic alignment is measured based on Luftman's Strategic Alignment Maturity Model (SAMM) framework. The results of the analysis show that the strategic alignment maturity level of Bank X is at level 3. Several recommendations are given to improve the maturity level of Bank X's strategic alignment.

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## 1. Introduction

Digital transformation can be defined as changes in the structure, process, function, and business model of an organization that is driven by digital technology adoption to increase its performance thoroughly [1], [2]. Some benefits can be attained from digital transformation, including organization process improvement, customer value proposition improvement, customer collaboration enhancement, customer service quality improvement, product and service cost reduction, competitive advantage creation, and customer experience improvement [3]–[6]. For this reason, numerous organizations have placed their investment in digital transformation [7]–[9]. The banking sector is considered to be one of the industries that reviewed digital transformation intensively [10]–[13]. In the Global Digital Transformation Survey 2019 that was published by Fujitsu, it is mentioned that financial services are the most advanced in digital transformation implementation [14].

Bank X, previously categorized as BUKU I (Bank category in Indonesia with under Rupiah 1 billion paid-up capital), carried out its banking services conventionally. At the end of 2019, Bank X published the Restatement of Acquisition Plan Summary, which served as the official acquisition plan document of a holding company to acquire Bank X. This acquisition aimed to develop Bank X as a bank with a digital platform, as there were only a few players with the same amount of capitalization in the digital bank market segment.

Companies from various industry sectors considered digital transformation decisions as a massive challenge that can affect the existing business model (conventional bank) significantly [15], [16]. Companies need to achieve strategic alignment of information technology and business strategy before they decide to invest in information technology [17]–[19]. Alignment between business strategy and information technology will direct the organization to be able to bring off the benefits of information

technology investment to establish sustainable competitive advantages. Information technology cannot be seen only as a technical aspect. Information technology will never function effectively unless its utilization is aligned with the context of organizational needs [20], [21].

This research aims to assess information technology and business strategy maturity level in Bank X. Conceptual framework is developed based on the strategic alignment maturity model. Assessment of strategic alignment maturity level is conducted on dimension and attribute that contributes to strategic alignment maturity level. Assessment is conducted with the assumption that all attributes have equal contribution to strategic alignment maturity level. After the assessment is conducted, benchmarking is done by comparing Bank X's maturity level with the maturity level of a bank that has implemented digital transformation successfully. This benchmark will create a gap that will be analyzed with the support of company stakeholder interviews. Recommendations are developed for each dimension and attribute with the largest gap. The recommendations developed are expected to improve strategic alignment to support the success of the digital transformation process at Bank X.

## 2. Method

### 2.1. Strategic Alignment Model

According to Henderson and Venkatraman, strategic alignment is a strategic fit and functional integration between business strategy, information technology strategy, business infrastructure, and information technology infrastructure [22], [23]. While according to Luftman, strategic alignment is an alignment between business and information technology that is shown through correct and timely implementation of information technology, in harmony with business strategy, goals, and needs [24].

The strategic alignment model is a framework for business management and information technology to support the success of the implementation of business, information technology, and its supporting infrastructure components [25], [26]. The strategic alignment model includes 4 focus areas or quadrants that represent strategic choices which include: business strategy, information technology strategy, infrastructure and operational processes, infrastructure and information technology processes.

### 2.2. Strategic Alignment Maturity Model

Luftman developed a methodology to assess the strategic alignment of organizations, namely the strategic alignment maturity model [27]. This model was developed based on the Capability Maturity Model developed by Carnegie Mellon's Software Engineering Institute [28]–[30], but it was focused more on strategic business practices. The objective of this assessment is to improve alignment between IT and business.

This instrument has six IT-business alignment dimensions or maturity categories that are included in each assessment [27]:

- Communication Maturity
- Competence/Value Measurement Maturity
- Governance Maturity
- Partnership Maturity
- Scope and Architecture Maturity
- Skills Maturity

### 2.3. Research Stages

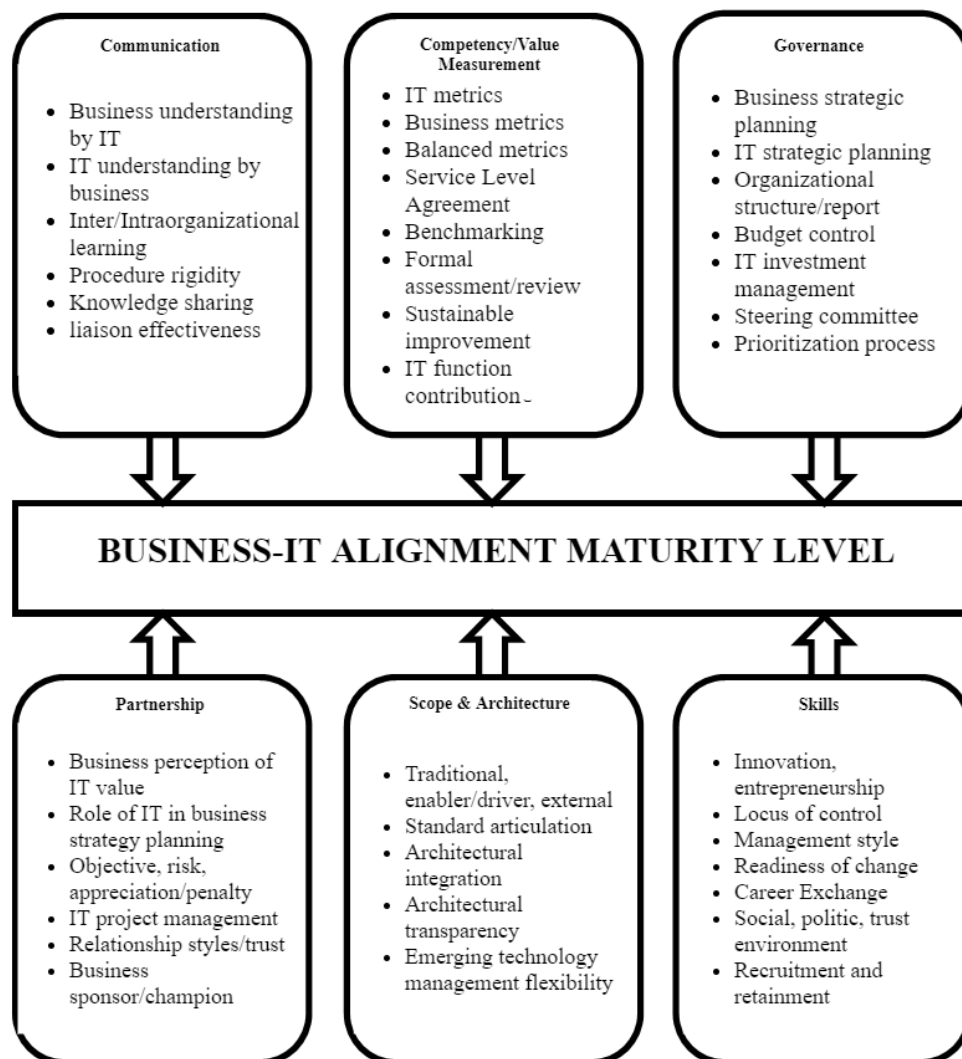
The development of a conceptual model is carried out to identify the attributes that are measured to obtain the level of maturity. Strategic Alignment Maturity Model can determine the maturity level of strategic alignment of information technology with organization strategy. The result of this stage is the overall strategic alignment maturity level and the strategic alignment maturity level for each dimension (as is condition).

The next stage is to benchmark to get the level of maturity that will be used as an objective (to be a condition). Benchmarking is done by comparing the current maturity level of Bank X with the maturity level of Banks that have successfully carried out digital transformation. Then a gap analysis is carried out, namely an analysis of the difference between the maturity level of the objective level and the current maturity level.

The development of recommendations begins with the process of prioritizing the attributes that have the largest gaps. Recommendations are made to improve the maturity level of strategic alignment of information technology with business strategy.

## 2.4. Conceptual Model Development

The development of the conceptual model aims to identify the variables involved in measuring strategic alignment maturity. The conceptual model is developed based on the Luftman framework called the Strategic Alignment Maturity Model (SAMM) [24], [31]. The SAMM framework consists of six dimensions which include (1) communications, (2) competency/value measurement, (3) governance, (4) partnership, (5) scope & architecture, (6) skills as shown in Fig. 1,



**Fig. 1.** Conceptual Model

The description of the dimensions in the SAMM framework is as follows [24], [32] :

- **Communication**  
Measuring the effectiveness of the exchange of ideas, knowledge, and information between IT and business organizations, enabling both to clearly understand strategies, plans, business, and IT environments, risks, and priorities, including to achieve them.
- **Competency/Value Measurement**  
Use of a balanced measurement to demonstrate the contribution of IT and IT organizations to the business in terms that are agreed and understood by the business and IT.
- **Governance**  
Defines those who have the authority to make IT decisions and what IT processes that used by business managers at strategic, tactical, and operational levels to define IT priorities and allocate IT resources.
- **Partnership**  
Measures the relationship between business organizations and IT, including the role of IT in defining business strategy, the degree of trust between the two organizations, and people's perceptions of each other's contributions.
- **Scope & Architecture**  
Measuring IT requirements for flexible infrastructure, evaluating IT and implementing emerging technologies, business process change drivers, and customized solutions to internal business units and customers or external partners.
- **Skills**

Measures human resource practices, such as recruitment, retention, training, performance feedback, promotion of innovation and career opportunities, and development of individual skills. This dimension also measures the organization's readiness for change, the ability to learn, and the ability to generate new ideas.

## 2.5. Data Collection

This study uses primary data. Therefore, the data collection methods used in this research are interviews and questionnaire submissions. The questionnaire used was developed based on the attributes of Luftman's Strategic Alignment Maturity Model (SAMM). The questionnaire was submitted to company stakeholders from departments/divisions representing business managers (HR Department, finance, etc.) and information technology managers (IT Department, digital banking, etc.) as respondents. Respondents were selected by purposive and snowball sampling. In the benchmarking step, a questionnaire was also given to stakeholders of bank companies that have successfully carried out the digital transformation process. Then interviews were conducted to develop recommendations as a follow-up to the results of the Strategic Alignment Maturity Model questionnaire.

## 2.6. Questionnaire Development

The questionnaire was developed based on the Strategic Alignment Maturity Model. Luftman has determined 6 components/dimensions in measuring the maturity of an organization's strategic alignment [24]. The six assessment dimensions are described in Table 1. To calculate the maturity value, each answer given in the SAMM questionnaire shows the maturity value of each attribute. Respondents were asked to choose the one option that most closely matched their opinion about the effectiveness of the company's management practices and strategic choices. The options that have been selected by respondents for each attribute are then converted into scores of 1 to 5.

Examples of SAMM questionnaire questions are as follows. Hint: respondents were asked to choose the one option that most closely matches their opinion about the effectiveness of the company's management practices and strategic choices.

**Table 1. Assessment Scale**

Score	Description
1	It does not fit into the organization, or the organization is very ineffective.
2	Low fit level for the organization.
3	The level of fit is moderate for the organization, or the organization is quite effective.
4	Fits most organizations.
5	Fit levels are high across the organization, or the organization is highly effective.

What is the trend of communication procedures/mechanisms that occur between business managers and IT managers in the company:

- 1) Our communication procedures are one-way from business to IT, formal and inflexible.
- 2) Our communication procedure is one way from business to IT, quite informal and quite flexible.
- 3) Our communication procedures are two-way, formal, and inflexible.
- 4) Our communication procedures are two-way, quite informal, and quite flexible.
- 5) Our communication procedures are two-way, informal, and flexible.

## 2.7. Data Processing

To calculate the maturity level, each answer given in the SAMM questionnaire indicates the maturity value of each attribute. Respondents' answers to each attribute are represented by a score of 1 to 5. The calculation of the maturity value is calculated using the average number of maturity values of the respondents' answers.

$$\text{Attribute Maturity Level} = \frac{\sum_0^n(R)}{n} \quad (1)$$

where n is number of respondents and R is respondent's answer value. Maturity values for each of the 6 dimensions were calculated using the average of the attribute maturity values.

$$\text{Dimension Maturity Level} = \frac{\sum_0^n(\text{Attribute Maturity Level})}{n} \quad (2)$$

where n is number of attributes for each dimension. Furthermore, the overall maturity value of the organization is obtained using the average of the maturity values of the dimensions.

$$\text{Overall Maturity Level} = \frac{\sum_0^n(\text{Dimension Maturity Level})}{n} \quad (3)$$

where n is number of dimensions (6 dimensions).

### 3. Results and Discussion

#### 3.1. Strategic Alignment Maturity Level Assessment

The overall maturity level of business and IT strategy alignment is at level 3. Table 2 shows the values and maturity levels for each of the six dimensions.

**Table 2.** Result of Strategic Alignment Maturity Level Assessment

No.	Dimension	Score	Level
1	Communication	3.143	3
2	Competence/Value Measurement	3.411	3
3	Governance	4.245	4
4	Partnership	4.405	4
5	Scope and Architecture	4	4
6	Skills	3.408	3
<b>Score/Maturity Level</b>		3.769	3

The maturity level of the communication dimension is at level 3, namely the focused development process. Maturity level 3 on the communication dimension shows that managers have a good understanding, besides that the effectiveness of communication is slowly starting to emerge. The maturity level of the competency/value measurement dimension is at level 3, which is a focused development process. Maturity level 3 on the dimension of competence/value measurement means that there is cost efficiency, and an assessment dashboard is starting to be developed. The maturity dimension of governance is at level 4, *i.e.*, the process has been improved/managed. Maturity level 4 on the governance dimension means that there is an improvement of governance throughout the organization.

The maturity level of the partnership dimension is at level 4, namely the process that has been improved/managed. Maturity level 4 on the partnership dimension shows that IT is a driver of business strategy. The maturity of the scope and architecture dimensions is at level 4, namely, the process has been improved/managed. Maturity level 4 on the scope and architecture dimensions indicates that the IT architecture is already integrated with the partners. The maturity of the skill dimension is at level 3, namely the process that has been improved/managed. Maturity level 3 on the skills dimension indicates that there is a valuable service provider and a balance of business and IT recruitment.

From Table 2, it can be seen that the dimension that gets the highest score is the Partnership Dimension. While the dimension that gets the lowest score is the Communication Dimension. Overall, the maturity level of strategic alignment of information technology with Bank X's business strategy is level 3. This indicates that the level of process compatibility is moderate, or the organization is quite effective. Thus, research objective 1 has been achieved.

#### 3.2. Strategic Alignment Maturity Level Benchmarking

The first step is to determine the level of maturity that will be used as the objective (to be a condition) of the next maturity level. Objective maturity level is the maturity level that must be achieved to obtain higher strategic alignment. Formulation of the maturity level of the objectives is carried out by interviewing stakeholders who are experienced in the conventional bank digital transformation process. The stakeholder determined in this process is a professional from Bank Z. Bank Z was chosen as a comparison because it had previously succeeded in establishing a digital bank. In addition, Bank Z's level of capital is also closest to Bank X when compared to other



banks that also form digital banks. Z also underwent a process of ownership transfer through a merger process. The interview process was conducted based on the strategic alignment maturity model questionnaire.

The results from interviews with stakeholder Z are used to determine the maturity level of strategic alignment of objectives for Bank X. Information on the value and maturity level of to be the condition is described in Table 3.

**Table 3.** To Be Condition Maturity Score and Level

Level	Score (p)
1	$1.00 \leq p < 2.00$
2	$2.00 \leq p < 3.00$
3	$3.00 \leq p < 4.00$
4	$4.00 \leq p < 5.00$
5	$p \geq 5.00$

The results of the maturity level assessment of this to-be condition would then be deducted by the current maturity level to obtain the gap. The maturity level of the overall alignment of business strategy and IT objectives is at level 4. Table 4 shows the values and maturity levels for each of the six dimensions.

**Table 4.** Overall Maturity Level Determination Result

No.	Dimension	To Be	As Is	Gap
1	Communication	4.167	3.143	1.024
2	Competence/Value Measurement	4	3.411	0.589
3	Governance	4.429	4.245	0.184
4	Partnership	4.667	4.405	0.262
5	Scope and Architecture	4.6	4	0.6
6	Skills	4	3.408	0.592
<b>Score/Maturity Level</b>		4.283	3.769	0.514

The overall alignment maturity level is at level 4. This indicates that the overall process fits into the organization. The maturity level of the communication dimension objective is at level 4, indicating that the process has been improved/managed. Maturity level 4 communication dimensions indicate that managers have and good cohesiveness. The maturity level of the competency/value measurement dimension is at level 4, namely the process that has been improved/managed. Maturity level 4 on the dimension of competence/value measurement means that costs are appropriate and there is the management of an assessment dashboard. The maturity dimension of governance is at level 4, i.e. the process has been improved/managed. Level 4 maturity on the governance dimension means that there is already improved governance across the organization.

The maturity level of the partnership dimension is at level 4, namely the process that has been improved/managed. Maturity level 4 on the partnership dimension shows that IT is the driver of business strategy. The maturity of the scope and architectural dimensions is at level 4, namely, the process has been improved/managed. Maturity level 4 on the scope and architecture dimensions indicates that the IT architecture is already integrated with the partners. The maturity of the skill dimension is at level 4, indicating that the process has been improved/managed. Maturity level 4 on the skills dimension indicates that there is a sharing of risk and reward.

Table 4 indicates the maturity value of being a condition of strategic alignment for each dimension. It can be seen that the dimension that gets the highest gap is the Communication Dimension. Meanwhile, the dimension that gets the lowest gap is the Governance Dimension.

### 3.3. Strategic Alignment Maturity Gap Prioritization

After assessing the current maturity level and determining the goal maturity level, the next thing to do is to prioritize gaps. Priority gaps are used to determine what actions should be taken to improve strategic alignment. Prioritization of gaps is done because the contribution of each attribute is assumed to be the same and each attribute is not more important than the others.

So, it is necessary to look at the most lagging attributes because these attributes will reduce the level of maturity of strategic alignment. Table 5 shows the order of the gaps in the maturity level of strategic alignment of information technology with business strategy from the largest to the smallest.

**Table 5.** Strategic Alignment Maturity Gap Priority

No.	Attribute	Code	To Be	As Is	Gap
1	Management Styles	S3	4	2.143	1.857
2	IT understanding by the business side	C2	4	2.286	1.714
3	Architectural Integration	A3	5	3.286	1.714
4	Knowledge sharing	C5	4	2.429	1.571
5	Inter/Intra-organizational Learning	C3	4	2.571	1.429
6	Business Metrics	M2	4	3	1
7	Formal Assessment/review	M6	4	3	1
8	Objective, risk, appreciation/penalty	P3	4	3	1
9	Locus of Leadership	S2	3	2	1
10	Sustainable improvement	M7	4	3.143	0.857

### 3.4. Gap Analysis

Assessment results of the overall alignment maturity level generate a value of 3.769 or level 3. The highest alignment value exists in the partnership relationship dimension with a maturity value of 4.405 or level 4. This indicates that IT has become an effective driver of business strategy. Three dimensions reach maturity level 4, namely governance, partnership, and scope & architecture. The communication dimension gets the lowest maturity value, which is 3.143 or level 3. This means that managers have a good understanding, besides that the effectiveness of communication is slowly starting to emerge. However, the effectiveness of some things still need to be improved, for example, the understanding of business managers on IT, the learning process, and the process of sharing knowledge. Three dimensions reach maturity level 2, namely communication, competence/value measurement, and skills.

The communication dimension has the highest gap, which is 1.024. This shows that the communication dimension is still left behind by 1 maturity level from the level determined to be the goal. Increasing the level of strategic alignment of this dimension needs to be a priority. The dimension with the lowest gap in governance, with a gap of 0.184. The governance dimension has reached the maturity level that is the goal. To plan for strategic alignment improvements, this attribute has a low priority. However, this attribute's alignment can be increased if there has been an increase in the level of strategic alignment maturity goals. The step that needs to be done after measuring the maturity level of strategic alignment is to analyse and prioritize gaps. Of the 39 attributes whose maturity level has been measured and the maturity level has been determined, several attributes have the largest gap. The attribute that has the biggest gap is management style (S3) with a gap of 1.857. Currently, Bank X applies an agreement-based management style. The maturity level of the goals set for the management style attribute is 4, meaning the application of the value-based management style.



#### 4. Conclusion

Based on the results of the assessment of the maturity level of strategic alignment of information technology and business strategy at Bank X, maturity level 3 has been achieved. This shows that the level of strategic alignment of information technology with business strategy at Bank X is quite aligned. The alignment process between information technology and business strategy has been built in a focused manner. Bank X already has the readiness to face change, one example is having a change management program and has formed a new business unit. On the other hand, there are still things that need to be improved to improve strategic alignment, one example is changing the consensus-based management style to a values-based management style.

Recommendations that can be given to Bank X based on the results of measuring the maturity level of information technology strategic alignment with business strategies include creating a work environment that is open to learning and developing processes by utilizing brainstorming sessions, coordinating the procurement of information technology infrastructure and the development of information technology programs, identifying architecture information technology needed for each functional and corporate unit, integrating architecture to support the effectiveness of achieving business strategic objectives, implementing a knowledge management system (KMS) for all functional and corporate units, fostering a culture of sharing and increasing awareness to create a store, and process knowledge. Design a balanced dashboard that is then used in evaluating business benefits and contributions, covering operations, finance, and human resources, as well as the impact on stakeholders. To improve the alignment of the attributes of management style, companies need to apply a value-based management style.

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