

# DOCUMENTS AND IT RESOURCES AS ESSENTIAL ELEMENT IN AWARENESS IT GOVERNANCE: AN ANALYSIS OF STUDY

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## ABSTRACT

This study aims to explore and provide recommendations on the priority scale of the elements in documents and IT resources related to the implementation of IT Governance. Excavation of this element is done through literature studies of articles related to IT Governance. In addition to exploring the elements contained in IT documents and resources, this research also looks for the most important sequence of elements, both on documents and on IT resources. Determination of priority scale is done through the survey by using pooling system which addressed to some respondents with criterion have credibility and quality that can be relied upon, so that answer given can be accounted its validity. The end result of this research is that it can give a real contribution especially in obtaining the important elements of IT documents and resources and give the order of priority scale as recommendation material to the stakeholders. IT documents and resources are crucial in the implementation of IT Governance, therefore it is necessary to raise a good awareness in the governance as well as strict supervision of all parties involved so that the implementation of IT Governance can achieve success according to organizational goals.

**Keywords:** *Documents, IT Resources, Elements, Awareness, IT Governance*

## 1. INTRODUCTION

Along with the development of information technology application of IT Governance has now become a basic requirement in an organization [1]. Change to this basic need is because it is considered to have an important role to uphold the survival of an organization [2], [3]. This survival implies that the organization is capable of developing or just the opposite. Implementation of good IT Governance can provide added value and benefits to the organization. Conversely, if the application is not done well, then the organization can experience a loss and even setbacks until it can ultimately experience a destruction [4], [5]. IT investment certainly requires a considerable amount of funds, it would be useless if it can not provide benefits and provide added value to the organization [6] - [9].

Most organizations want the implementation of IT Governance can deliver huge benefits and profits according to business objectives. But most of them can't yet understand deeply about IT Governance and the details [10]. This lack of understanding makes the activity becomes unfocused on the intended target and can't implement according to the prevailing standards, this is what often happens

in an organization. In addition to the lack of understanding, another thing that is not less important is the existence of a strong commitment, especially from top management to be consistent and fully support the implementation in IT Governance [11]. This strong consistency and full support have a huge influence, so it can provide the spirit and motivation for all parties involved. Therefore, a good understanding and strong commitment, these two things become the core and become a serious challenge for an organization in implementing IT Governance in order to achieve a success as what is expected.

With regard to the two challenges above, the main problem is understanding the meaning of IT Governance. What is meant by the meaning here is the definition, which of its translation contains the meaning of what is IT Governance. Some expert has given many definitions that actually have the same core meaning. The most popular definition of IT Governance has been conveyed by Weill and Rose, namely the determination of decision-making rights and the accountability framework to encourage desirable behavior in the use of IT [12]. Meanwhile, De Haes and Van Grambergen also provide a definition of IT Governance [13], ie

organizational capacity by boards, executive management, and IT management, to control the formulation and implementation of IT strategies, and ensure alignment between businesses. ISACA also defines IT Governance as a policy or procedural structure and set of processes aimed at ensuring conformity to IT implementation with support for achieving institutional goals, optimizing the benefits and opportunities offered by IT, controlling the use of IT resources and managing IT-related risk [10]. From the definitions conveyed by experts, contains the same keywords that are related to decision making and organizational goals to achieve alignment. Decision-making from management aims at controlling and determine the ultimate goal of implementing policies, plans and procedures and organizational structures designed to provide assurance at business objectives to be achieved and to prevent unwanted things from happening. Policies, plans and procedures are parts of documents that must be prepared and made in a structured and systematic way to be easily understood and can be used as directives or instructions to carry out an activity. With regard to organizational objectives for achieving alignment between IT and business can be successful, the organization must be able to identify resources to be used optimally. IT resources are very significant in the implementation of IT Governance. This significance has important and strategic, especially in its role to support a success. IT resources with good control and strict supervision will provide optimum benefits and results. Therefore, it requires an awareness of all parties involved, especially top management leaders to realize the importance of a document and IT resources, especially in the field of IT Governance [14], [15].

Several studies related to the success in implementing IT Governance have been conducted, among others; important factors influencing IT Governance awareness [4,7], structures, processes and mechanisms for achieving IT Governance success [9,11], critical success factors in implementing IT Governance [16,70], alignment between IT Objectives with Business and strategy [12, 13, 20]. This study differs from previous research, as it contributes to finding important elements as a support in the successful implementation of IT Governance relating to IT documents and resources, primarily starting from finding the types and kinds of documents and resources that need to be provided to serve as guidelines or direction in doing activities that have been neglected and never focused attention. Yet this is very important that can be used and applicable to

all parties, so that later in the implementation of IT Governance can run systematically, controlled and well documented so that it can run optimally so that organizational goals can be obtained in accordance with what is expected

From the above description, this research would like to dig deeper about documents and IT resources that need to be prepared related to IT Governance, so it has an important role to achieve success in its application. The excavation of these documents and IT resources will be done through the literature review of several articles related to IT Governance. In addition to exploring the elements contained in IT documents and resources, this research also wants to know the extent of the priority scale or the most important sequence of each element, both on documents and IT resources. To determine the priority scale, a survey conducted using a pooling system aimed at some respondents who have criteria with credibility and quality that can be accounted for the answer given. The results of this study can contribute significantly, especially in providing insight into the importance of IT documents and resources that contain important elements as well as recommending priority scale elements of IT documents and resources for to give input and consideration in control and supervision of the implementation of IT governance so that organizational goals can be achieved optimally.

Success in implementing IT Governance is highly coveted by all organizations because it has a significant impact on the survival of the organization especially in relation to obtaining added value and benefits gained. Success is certainly not obtained easily, many factors that can influence it. One such factor is the existence of guidelines for all parties involved without exception. This guide is very important especially to guide and direct in doing an activity. This guide is a document that has different types and functions depending on the needs and role. In addition to the document, there is another important thing that is the IT resources, where it also needs to get serious attention in the utilization and management. The two things mentioned above (documents and IT resources) are urgently needed, therefore it needs to be generated and enhanced the sense of awareness to all parties to really pay attention to it, so get serious attention in the management for success in the implementation of IT Governance can succeed successfully. Therefore, it is very interesting to discuss in relation to study the kind, the type and which are the priorities of the two elements. So that is this research question is how documents and

resources TI as a key element in governance awareness?

This research is very important because it can provide insight into the kinds of documents for the successful implementation of IT Governance that can be used as a guide for all parties involved, not only for top-level management but also for special operations personnel in the Information Technology. Each of these types of documents has roles and functions that are different from each other. The document is very helpful as a basis or reference for activities so as not to deviate from the goals of the organization so that later expected alignment between the objectives of IT and Business can be achieved well. In addition, IT resources also important to its existence, so it is necessary to be known and understood by all parties involved without exception. IT resources are the very significant element, therefore need to be utilized and managed optimally. There has been very little research on these two issues, namely with respect to IT documents and resources. Though these two things have a very big role in the successful implementation of IT Governance. Therefore, this research has a role that can be used to open the knowledge for science, especially in the field of IT Governance.

As discussed in the section above, this study differs from previous research, because it gives a real contribution that is discussing the important

elements of IT documents and resources for the successful implementation of IT Governance can be achieved in accordance with organizational goals. This element is used as a guide to performing activities to be directed, controlled and well documented. In addition, this research provides results and analysis of the priority sequence of each element that can be used as a reference in an organization that applies IT Governance in helping to take a policy concerning focus that is of concern.

## 2. STUDY OF LITERATURE

Today's IT governance is not a new thing anymore, because almost all organizations have known and even implemented it even though not all of the organizations in practice get satisfactory results. Successful achievement of optimal results in the practice of IT Governance is not necessarily easy to obtain, it is necessary a proper understanding of IT Governance, both defining and implementation. Many IT Governance experts define their own version which in principle is the same. A practical definition of IT Governance is a collection of policies, procedures, rules, and processes for alignment between IT and the business objectives of an organization can be achieved optimally through control and oversight mainly on IT resources and IT-related risks with involving all parties involved [14], [16] - [19]. IT Governance Activity is shown in Figure 1 below.

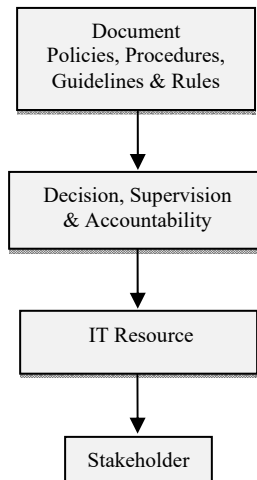


Figure 1. Activities in IT Governance.

From the definition of IT Governance above, there are some important points that must be considered include the policies, procedures, guidelines, and rules, where each has a different

understanding. The policy is a general plan that can be used as a handle in the implementation of an activity whereas the guidelines are instructions used to perform activities. To perform an activity order

and systematic then required a clear procedure. Guidelines that must be implemented and the nature of binding is usually called the rules.

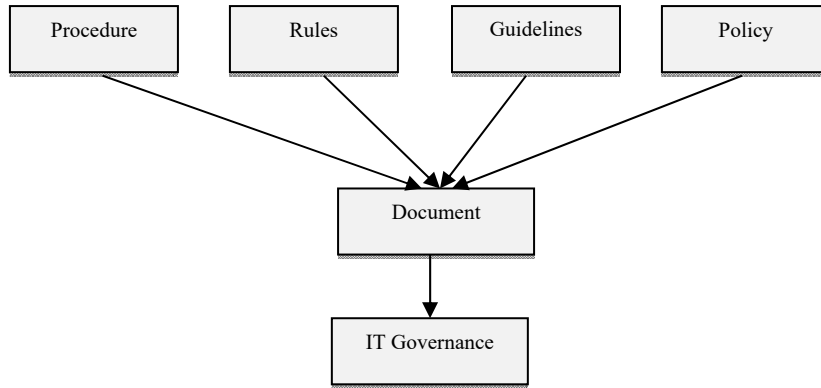


Figure 2. Supporting documents in IT Governance

Based on the previous description of the definition of good IT Governance, a collection of policies, procedures, rules and processes for alignment between IT and the business objectives of an organization can be achieved optimally. From this definition there are 4 important things related to documents that must exist as a reference for all

parties involved (stakeholders) in the control and supervision of the implementation of IT Governance, so that later can run optimally. The four important things related to the document are: policy, guidelines, rules and procedures. Figure 2 shows important supporting documents in IT Governance.

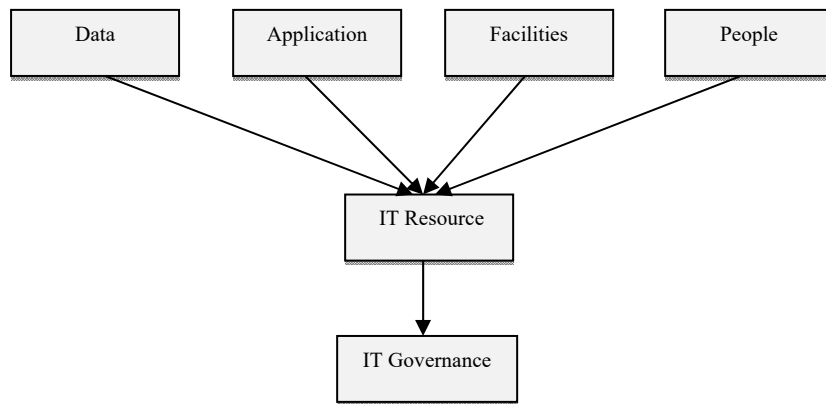


Figure 3. IT resources for IT Governance Awareness.

In addition to the documents as a support in the implementation of IT Governance, there is something that is not less important that is IT resources, which has a major impact on the survival of an organization. IT resources are an asset that must be managed and properly monitored and strictly enforced because otherwise, can bring a ruin to the organization. The IT resources include data, applications, technology, infrastructure, facilities and human resources (people), all of which must be given serious attention to be utilized

optimally so that the organization can gain added value and profit according to the organization's objectives. Therefore awareness to manage and closely monitor is crucial in IT Governance, so IT resources are an important element in IT Governance awareness. Figure 3 shows the essential elements of IT resources that need special attention, so that awareness is required in the manage and oversight of the implementation of IT Governance.

Implementation of IT Governance in order to succeed optimally and in accordance with what is expected by the organization, then it is necessary preparation first. This preparation is intended to prepare the essentials needed before the implementation of IT Governance practices in an organization that usually begins with a measurement early to determine the extent of the level of readiness in order to know the shortcomings and weaknesses. The shortcomings and weaknesses that have been obtained from the results of the measurement of the level of readiness earlier, can be used as input material to make corrections and improvements.

Organizations that have implemented IT Governance, need to measure the maturity level. Measurement of this level of maturity should be done periodically and continuously, in order to know the extent to which the implementation of IT Governance can run and well controlled. With the measurement of such a way, the survival of an organization can be maintained and maintained properly, because it can know the development at any time and can immediately take a decision if there is something that is not in accordance with what is expected, thus most likely the goal of the organization can be achieved optimally.

### 3. RESEARCH METHODOLOGY

The method of research in this article is shown in Figure 4, while the details of the stages are as follows:

#### 1. Study literature

This research begins with literature studies by looking for references related to IT Governance, especially about the core meaning of the IT Governance definition. References that have been found are then carefully understood and meticulous to be explored more deeply about the meaning contained either explicitly or implicitly, so that keywords are found from the meaning of IT

Governance. In addition to references relating to the definition of IT Governance, references relating to IT resources becoming an important element are also gaining special attention in this research. Readiness and maturity theory that can determine success in the application of IT Governance is also required to support and complement in this research.

#### 2. Survey

The next step in the methodology of this research is to search the data by conducting a survey through pooling by involving a number of respondents to fill out a simple questionnaire that has been prepared beforehand. The questionnaire that has been made is then given to the respondent, to be filled out of some questions relating to the elements contained in the document and the elements of IT resources that can support in the implementation of IT Governance. Respondents were drawn from a number of people representing their organizations, academic and corporate organizations, with criteria of having a credible, post-graduate education level, and a good understanding of IT Governance.

#### 3. Data analysis

After obtaining data from survey results that have been done, the data is then studied and processed. The questionnaire data of the respondents representing their organization is still raw and straightforward so that further processing is required. The final data processing result is the average of each important element, both document elements as well IT resources. To facilitate the reading of analytical funds, the final result of the data is then changed in the form of a graphics display. Important points obtained from the analysis then made conclusions.

#### 4. Conclusions.

This is the final stage that contains the important things that obtained from this research.

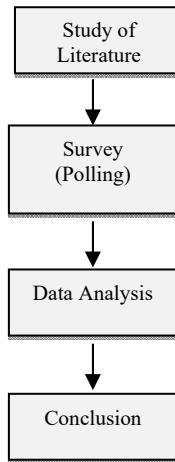


Figure 4. Research Methodology

4. RESULTS AND ANALYSIS

After studying the literature that begins by looking for relevant articles from several existing database such as: science direct, IEEE explorer, ACM library and Scopus. The process of searching articles by using keywords relating to IT

Governance. The search results will get a number of articles that match what is expected. Articles that have been obtained then collected and examined carefully for searches related to supporting documents in IT Governance, in this case, words like: policies, guidelines, rules, and procedures, so that ultimately obtained as shown in table 1.

Table 1 Result of literature study related to Document.

Documents	Reference
Policy	[1], [2], [8]–[10], [10], [11], [14], [16], [17], [17], [19]–[26], [26]–[33], [13], [34]–[60]
Guideline	[1], [2], [7]–[10], [10], [14]–[17], [17]–[21], [26], [26], [26], [28], [30], [31], [13], [34], [36]–[39], [41]–[43], [45], [46], [50], [55]–[62], [62]–[71]
Rule	[1], [2], [10], [14], [17], [17], [19], [20], [32], [13], [34], [38]–[41], [47], [59], [60], [64], [69], [70], [72]
Procedure	[2], [4], [9], [10], [15]–[17], [17], [19], [20], [26], [26], [26], [29], [13], [36], [38], [43]–[47], [50], [51], [55], [57], [59], [60], [64], [66], [69]–[71], [73]–[77]

The same has been done to get the literature related to the important elements contained in IT resources, the same way to get the literature on the document, which is preceded by searching relevant articles from some credible database such as Science Direct, IEEE Explorer, ACM Library and Scopus. The articles that have been acquired with the theme of IT Governance are then carefully collected and checked for words related to IT resources, ie words like data, human resources, applications, technology, facilities, and infrastructure, so at the end obtained as shown in table 2.

After doing the literature review, the next step is to make a questionnaire to be given to the respondent. Questions are made briefly and concisely, but do not reduce the quality of the goals to be achieved and facilitate the respondents in charging. As explained in the research methodology section, the criteria of the respondents have been determined both the quality and the quantity. The quality of respondents has been determined that the level of education equivalent to post-graduate and has experience working in the world of IT, so that academically and administratively reliable and no doubt the validity.

Table 2 The results of the iterative study of important elements in IT Resources

Documents	Reference
Data	[1], [2], [4], [5], [7], [8], [10], [10], [11], [11], [14]–[17], [19], [20], [20]–[23], [26], [26], [26]–[28], [28], [28], [29], [31], [33], [13], [35]–[41], [44], [45], [47], [50], [52], [53], [55], [58]–[60], [64], [66], [69], [69], [71], [74]–[82]
People	[1], [5], [5], [8], [10], [11], [11], [14], [16], [17], [17], [19], [20], [22], [25], [30], [33], [40], [41], [46], [48], [49], [49], [50], [52], [55], [57]–[59], [68], [71], [74], [76], [83]
Application	[2], [8]–[10], [14], [21], [26], [30], [38], [47], [50], [52], [53], [64], [66], [83], [84]
Technology	[4], [10], [19], [25], [36], [37], [46], [62], [68], [85], [85], [85]–[90]
Facilities	[37], [49], [57], [64], [68], [91]–[96]
Infrastructure	[10], [11], [16], [18], [26], [26], [27], [41], [44], [45], [51], [52], [55], [57], [64], [67], [68], [80], [82], [94]

Table 3. Survey results of respondents priority order Document in IT Governance activities.

Respondent	Guidelines	Rules	Policy	Procedure
Organization A	b	c	a	d
Organization B	b	c	a	d
Organization C	d	c	a	b
Organization D	d	b	a	c
Organization E	a	c	b	d
Organization F	c	b	a	d
Organization G	b	d	a	c
Organization H	c	b	a	d
Organization I	c	a	d	b
Organization J	d	a	c	b
Organization K	c	b	a	d
Organization L	b	d	a	c

The content of the questionnaire that has been given to the respondent about supporting documents in IT Governance activities such as guidelines, rules, policies, and procedures, to be asked to fill by sorting starting from the most

important part with the letter code. The results of questionnaires from respondents who represent from their organization or institution can be seen in table 3.

Table 4. Survey results of respondents priority order Documents that have been processed.

Respondent	Guidelines	Rules	Policy	Procedure
Organization A	3	2	4	1
Organization B	3	2	4	1
Organization C	1	2	4	3
Organization D	1	3	4	2
Organization E	4	2	3	1
Organization F	2	3	4	1
Organization G	3	1	4	2
Organization H	2	3	4	1
Organization I	2	4	1	3
Organization J	1	4	2	3
Organization K	2	3	4	1
Organization L	3	1	4	2
<b>Average</b>	<b>2.25</b>	<b>2.50</b>	<b>3.50</b>	<b>1.75</b>

Because the data obtained is still raw, can't know the results, it is necessary to be processed. Processing begins by interpreting letters into

numbers, eg a = 4, b = 3, c = 2 and d = 1. From the results of processing obtained results as shown in table 4.

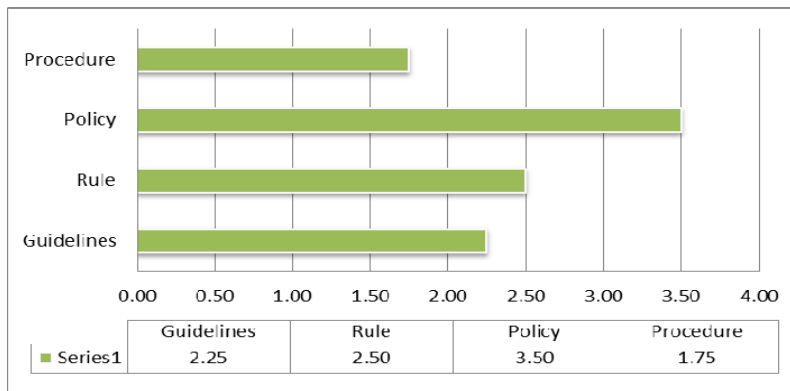


Figure 5. Graph of survey results of respondents priority order Documents in IT Governance activities

Figure 5 shows the results of data processing from table 4 shown in the form of a bar graph with the intention to be easy to understand. From the graph shown, it seems clear that supporting documents in carrying out IT Governance activities, most respondents prefer policy as the most important document. It is possible that respondents assume that the policy has a very strategic role that can determine a success. The policy is considered as a basic reference for determining the direction in doing all activities. After the policy, the next

highest point is the rule which is then followed by the guidelines and the last is the procedure.

It is interesting from the results of respondent data here is the rules and guidelines, where there is an exchange position. Ideally guidelines ahead of the rules. In accordance with the initial discussion of this paper, the guidelines are instructions for conducting an activity, whereas rules are guidelines that must be implemented and binding. So in the results of this study, respondents prioritize the rules first. Perhaps respondents assume that a good, rigorous and assertive rule will bring success.



Table 5. Survey results of respondents priority sequence of IT resources.

Respondent	People	Facilities	Data	Infrastructure	Application	Technology
Organization A	f	e	a	d	b	c
Organization B	d	c	e	f	a	b
Organization C	a	b	e	c	f	d
Organization D	a	f	e	b	d	c
Organization E	a	e	d	b	c	f
Organization F	b	d	a	c	f	e
Organization G	a	f	b	e	d	c
Organization H	a	d	c	b	f	e
Organization I	a	e	d	b	f	c
Organization J	e	f	c	a	b	d
Organization K	e	d	f	b	c	a
Organization L	a	d	b	c	e	f

Table 5 shows the data results of survey respondents on IT resources to be well managed and gained strict supervision from top management as well as from all stakeholders. Similar to surveys to search data on documents, respondents were asked to fill out and select a list of sequences of IT resource elements consisting of human resources, facilities, data, infrastructure, applications, and

technology. Respondents are asked to sort the elements that are considered more important. After obtaining the data, it is then processed by interpreting the values a = 6, b = 5, c = 4, d = 3, e = 2, d = 2, and f = 1. The final result of data processing is generated as shown in table 6 as follows.

Table 6. Survey results of IT resources from respondents who have been processed.

Respondent	People	Facilities	Data	Infrastructure	Application	Technology
Organization A	1	2	6	3	5	4
Organization B	3	4	2	1	6	5
Organization C	6	5	2	4	1	3
Organization D	6	1	2	5	3	4
Organization E	6	2	3	5	4	1
Organization F	5	3	6	4	1	2
Organization G	6	1	5	2	3	4
Organization H	6	3	4	5	1	2
Organization I	6	2	3	5	1	4
Organization J	2	1	4	6	5	3
Organization K	2	3	1	5	4	6
Organization L	6	3	5	4	2	1
<b>Average</b>	<b>4.58</b>	<b>2.50</b>	<b>3.58</b>	<b>4.08</b>	<b>3.00</b>	<b>3.25</b>

Figure 6 shows the results of data processing on IT resources. From these results, it can be seen that human resources (people) get a very high value when compared with IT resource the others. It is possible, the respondents assume that people have a

very important and very strategic role that can affect other IT resources. People are considered as an important subject that is dynamic and has a high creative power that can change a situation. This situation can be positive or vice versa depending on

the role of people himself. Therefore, it is advisable to provide and raise awareness to people so that other IT resources are not be noticed but can be used optimally in order to benefit the organization. The second position after the people is

infrastructure, followed by data, then technology and application. For Facilities, it turns out to be the last priority chosen by respondents, this may be considered something that is only as a complement or as a support only.

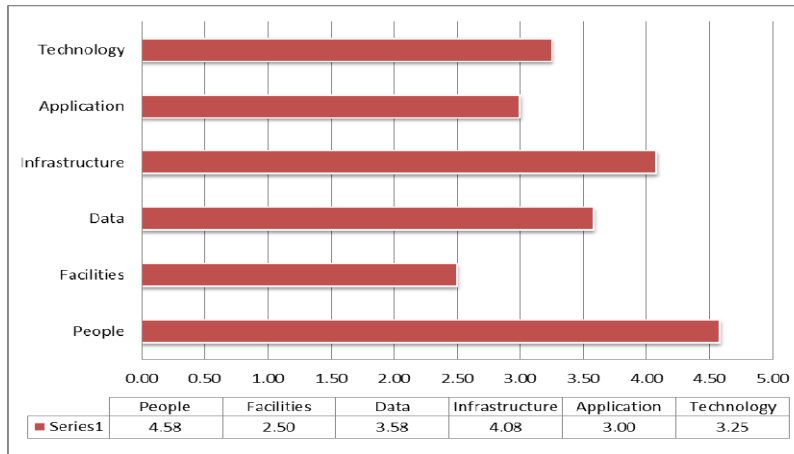


Figure 6. Graph of survey results of respondents priority sequence on IT resources.

The final result of data processing from respondents in determining the order or priority scale on IT resources is good enough and logical. People play a major role that can affect all. Therefore, there is a need for caution in treating people. In addition to people, actually there are other IT resources that are also not less important is the infrastructure, if the infrastructure is good then it can support all activities that exist within an organization. To build an infrastructure is not easy, because it takes a plan and concepts are mature and also require time and cost are not small. From this description, the role of good management and strict supervision is very important and should be done.

## 5. DISCUSSION AND CONCLUSIONS

From the results of this study, obtained two important elements to consider in the implementation of IT Governance in order to achieve success, namely documents and IT resources. Where from each of these have kinds and types. Documents consist of guidelines, rules, policies, and procedures. As for the resources consist of: people, facilities, data, infrastructure, application, and technology. After survey through pooling involving several organizations, each has a priority order. Policies are a sequence of the document the first elements in IT Governance, while people the first element in the IT resources.

By considering the two important elements above, it is expected that the implementation of IT Governance can achieve success in accordance with what is expected.

Implementation of IT Governance required the readiness and maturity, there is another important thing that is awareness. As discussed in the IT resources section, awareness has a very important role to play in the implementation of IT Governance, especially in relation to the management and supervision of IT resources by top management. With this awareness, IT resources that are high-value assets, can be secured and can provide added value and even can provide great benefits for an organization. For that, consciousness should not be underestimated even ignored.

The relationship between awareness with readiness and maturity is a relationship, where each has a mutual interrelationship. Readiness has an effect on maturity, meaning good preparedness will get good maturity and vice versa. Awareness affects maturity, meaning that high awareness will gain high maturity and vice versa. As for the relationship of readiness with the consciousness that is, readiness arises because of an awareness to start something new, without awareness perhaps the readiness to do something will never exist. Therefore awareness is used as a driver and also as a motivation for readiness for implementation of IT

Governance. The relationship between awareness, readiness, and maturity can be seen in figure 7.

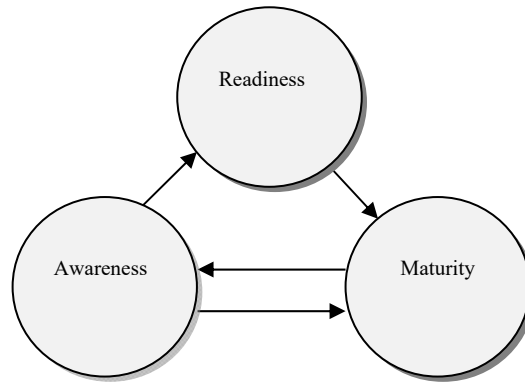


Figure 7. The relationship between Awareness, Readiness, and Maturity in IT Governance.

From the results of this study, got 2 important things to note in the implementation of IT Governance in order to achieve a success, namely documents and IT resources. Where from each of these according to the survey results of respondents have the order or priority scale. Policy becomes the top priority on existing documents in IT Governance, whereas people become first in the IT resources element. Perhaps, this sort order differs depending on the survey results of the respondents. But at least this research has given a clear picture of the priority scale or sequence of each IT documents and resources related to the implementation of IT Governance. With attention to 2 important things above, it is expected that the implementation of IT Governance can achieve a success in accordance with what is expected.

## 6. IMPLICATIONS

IT governance is now a primary need for the organization, therefore to benefit from its application requires good management and strict supervision. Good management will be able to run optimally if there are documents that can be used as technical guidance and instructions in implementation, and focus on the intended target or desired. This document has its derivatives, among others, policies, rules guidelines and procedures, which are all very important and highly recommended to be made in order to implement IT Governance to be directed according to the organizational outline. A good document will provide an easy understanding for all parties, so as to reduce misperceptions in implementing an activity. In addition, the document is a means of administration that can be used as a medium to

record the traces of all activities at any time if needed can be traced back, especially for monitoring the development of the organization in the implementation of IT Governance.

IT resources have some important elements that are mandatory to be managed and monitored strictly so that the organization does not experience any harm. It takes a lot of money in the effort to procure IT resources, therefore the top management leaders and all parties involved must be aware of this, for it requires a good management awareness and also required strict supervision for the investment that has been issued can provide optimal benefits. Some elements have important positions compared to other elements, but each organization can make the priority scale of elements that are considered more important in accordance with the situation and conditions and needs of each organization.

The results of this study are expected to provide new insights for top-level management and all parties involved to know the importance of a document and IT resources that become an important element in the implementation of IT Governance, so as to increase the sense of awareness to manage well and carry out strict supervision in the hope that the implementation of IT Governance can achieve a success in accordance with organizational goals.

## 7. FUTURE RESEARCH

This research may still have many shortcomings, both in extracting the found elements and the pooling method used to obtain the results.

In the future, it is recommended to not only use polling but can be developed again with other methods such as interpretive structural model (ISM), structural equation model (SEM) with involving many respondents and many organizations, so as to complement and strengthen these findings. In addition, it needs to be developed and deepened in more detail, in relation to the contents of each of the elements mentioned above.

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