

Process Capability Model Based on COBIT 5 Assessments (Case Study)

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Abstrak

Perusahaan XYZ adalah penyedia solusi teknologi informasi dan komunikasi di Jakarta. Berdiri sejak tahun 2003 sebagai reseller produk IT dan pengembangan perangkat lunak customized, jaringan dan Outsourcing project lainnya. Perusahaan menyadari untuk memperkuat proses tata kelola IT dan audit, untuk memastikan integritas sistem informasi. COBIT membantu bisnis dan IT dari perusahaan mencapai hal tersebut, dan membangun, kerangka kerja yang terintegrasi kuat untuk IT governance, kontrol dan audit yang proses. COBIT 5 tidak hanya melakukan pendekatan hemat biaya, tetapi juga kerangka konseptual yang mudah bagi auditor untuk memahami dan berkomunikasi dengan manajemen. COBIT 5 berevolusi dari "maturity models" di COBIT 4.1, menuju Proses Capability model, COBIT secara terus-menerus melakukan improvement yang berkelanjutan mulai dari proses bisnis. Memberikan penilaian informasi dan mengidentifikasi aset yang mendukung proses bisnis. Penilaian difokuskan untuk domain Build Acquire dan Implement (BAI). Dari perspektif kegiatan penilaian, kontrol klasifikasi oleh tindakan adalah konseptualisasi yang paling berguna dan dalam konteks: pencegahan, detektif, dan pengawasan korektif yang paling berguna untuk dianalisis. Pengukuran Process Capability Model berdasarkan COBIT 5 pada domain BAI rata-rata pada 2.4 (managed) hingga 3.0 (established).

Kata kunci— Process Capability Model, COBIT 5, BAI.

Abstract

XYZ Company is Information and Communication Technology solutions provider in Jakarta. Started in 2003 as reseller product IT and development software customized, networking and other outsourcing project base. It has become imperative to strengthen IT governance and audit processes, to ensure the integrity of information systems. COBIT helps business and their IT achieves these, and builds a powerful, integrated framework for IT governance, control and audit processes. COBIT 5 is not only a cost-efficient approach, but also a conceptually easy framework for auditors to understand and communicate to the management. COBIT 5 moves away from the "maturity models" in COBIT 4.1, to Process Capability Model, they seek continuous improvement of business process. Assessing the value of the information and identifying the assets which support the business process. Assessment focused to domain Build Acquire and Implement (BAI). From the perspective of assessment activity, control classification by action is the most usefull conceptualization and within that context: preventive, detective, and corrective controls the most useful for analysis. Assessments of Process Capability Model based on COBIT 5 in domain BAI, average was at 2.4 (managed) until 3.0 (established).

Keywords— Process Capability Model, COBIT 5, BAI.

1. INTRODUCTION

The increased complexity of IT management and the growing strategic role of IT in business have bring IT governance into an essential part of the corporate governance mechanism. Effective IT governance helps ensure that IT supports business goals, optimizes business investment in IT, and appropriately manages IT-related risks and opportunities [1] [2]. Information technology (IT) has become widely integrated into most organizations. Therefore, implementing effective information technology governance (ITG) has become a necessity as many organizations have developed critical dependencies on IT for their successes [3], [4]. Effective ITG helps ensure that IT supports business goals, optimizes business investment in IT, and appropriately manages IT-related risks and opportunities [5]. IT Governance focuses specifically on information technology systems, their performance and risk management. The primary goals of IT Governance are to assure that the investments in IT generate business value, and to mitigate the risks that are associated with IT. This can be done by implementing an organizational structure with well-defined roles for the responsibility of information, business processes, applications and infrastructure [6]. In this paper the method to be used is COBIT 5, focused on the domain of Build Acquire and Implement (BAI). XYZ Company is Information and Communication Technology solutions provider in Jakarta. Started in 2003 as reseller product IT and development software customized, networking and other outsourcing project base. Urgency of XYZ Company need for assessment is to identify the strengths, weaknesses and risk of selected processes with respect to a particular specified requirement through the processes used and their alignment with the business need. The purpose of process improvement is to continually improve the enterprise's effectiveness and efficiency.

2. THEORY BACKGROUND

Previous research by Imam Al Kautsar [7], concluded are the researcher found that maturity level from the assessment of information systems in Hotel Santika Bangka is on average level of maturity 2.664. From Ivana Dvorski Lacković [8], concluded it is expected that by assessing IT governance by this model and prioritizing key areas for action banks can achieve sustainable long term growth and profit and minimization of risks which means that bank is behaving both financially and socially responsible towards its clients, employees and stakeholders. And from Minwer M. Wraikat [9], concluded are firms should take into considerations the importance of IT governance and its pillars accountability, transparency, participation and predictability in enhancing their performance.

The definitions of IT governance are broad and ambiguous which in turn implicate difficult and inaccurate assessments. Most authors agree on IT governance as a top management concern of controlling IT's strategic impact, and the value delivered to the business c.f [10], [11], [12], [13], [14]. COBIT is a framework based on best practice, focusing on the processes of the IT organization and how their performance can be assessed and monitored. The domain denotes what the decisions should consider. It comprises four dimensional units: Goals, processes, people and technology. Goals include strategy-related decisions, development and refinement of IT policies and guidelines, and control objectives used for performance assessments [14]. In theory, an enterprise can organize its processes as it sees fit, as long as the basic governance and management objectives are covered. Smaller enterprises may have fewer processes; larger and more complex enterprises may have many processes, all to cover the same objectives. The COBIT 5 process reference model is the successor of the COBIT 4.1 process model, with the Risk IT and Val IT process models integrated as well. Figure 1. COBIT 5 Process Reference Model shows the complete set of 37 governance and management processes within COBIT 5 [15] [21].

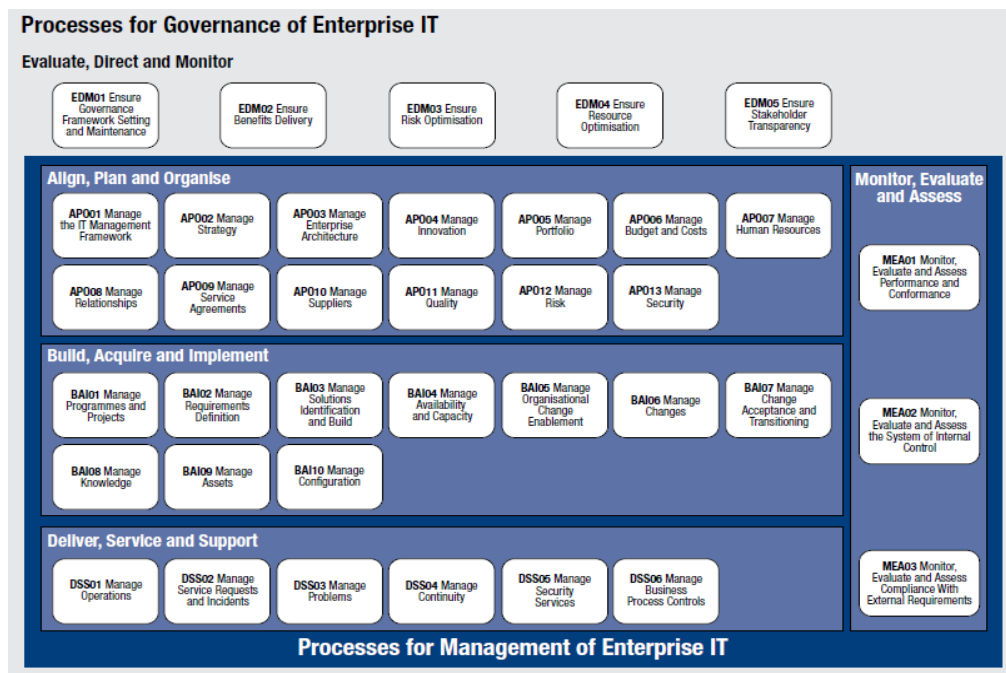


Figure 1. COBIT 5 Process Reference Model
(Source: COBIT 5 Enabling Processes an ISACA Framework, 2012)

The capability of each assessed process is expressed as a capability level from 0 to 5, as shown in Table 1. Process Capability Model. Each process capability level is aligned with a process situation [22], [23].

Table 1. Process Capability Model
(Source: COBIT 5: A Business Framework for the Governance and Management of Enterprise IT, 2012.)

Process Level	Capability
0 (Incomplete)	The process is not implemented or fails to achieve its process purpose. At this level, there is little or no evidence of any systematic achievement of the process purpose.
1 (Performed)	The implemented process achieves its process purpose.
2 (Managed)	The performed process is now implemented in a managed fashion (planned, monitored and adjusted) and its work products are appropriately established, controlled and maintained.
3 (Established)	The managed process is now implemented using a defined process that is capable of achieving its process outcomes.
4 (Predictable)	The established process now operates within defined limits to achieve its process outcomes.
5 (Optimizing)	The predictable process is continuously improved to meet relevant current and projected business goals.

Process capability level 0 does not have an attribute. Level 0 reflects a non-implemented process or a process that fails to at least partially achieve its outcomes. This paper proposes a qualitative approach for assessing information, it utilizes concepts defined in COBIT 5. [16]. The focus is on the measurement and management of IT performance to ensure that the risks and costs associated with IT are appropriately controlled [17].

3. RESEARCH METHOD

Planning to study literature related to the XYZ Company with the vision and mission, goals and objectives as well as the company's strategic plan to analyze the vision, mission and objectives of the training center as well as the strategies, policies related to the management of IT investments. Field observations, this research are a survey approach. The analytical tool used in this study is the standard procedure COBIT issued by ISACA (Information systems Audit and Control Association), the data can be obtained by various methods, namely: The questionnaire, which is by distributing questionnaires to every part belonging to management, the number of scattered management is 5. In addition, a questionnaire distributed to the user a number of 35 respondents, so the overall total respondents obtained is 40.

Reporting, after questionnaires were distributed, it will get the data to be processed to be calculated based on the maturity level calculation. For further made several steps in reporting that the results of the audit contains the findings of the present (current level) and hope in the future (expected level), performed gap analysis to analyze the interpretation of the current level and expected and recommendation lists corrective actions to overcome gap undertaken to achieve the improvements made to the institution. Figure 2 to show Step by Step Index Level Proses Capability Model [18].

Process capability model of IT governance based on COBIT 5 is a scoring method, from 0 to 5 as in Figure 2, which allows organizations to provide assessment for them- selves by explaining to the manager or head about the IT process, by showing the weakness of the existing management and setting the appropriate targets. This measurement tool offers the easiness to understand how to determine the current position (as-is) and the position of the future (to-be) and allow the organization to make comparisons to itself based on the best practices and standard guidelines [6], [19].

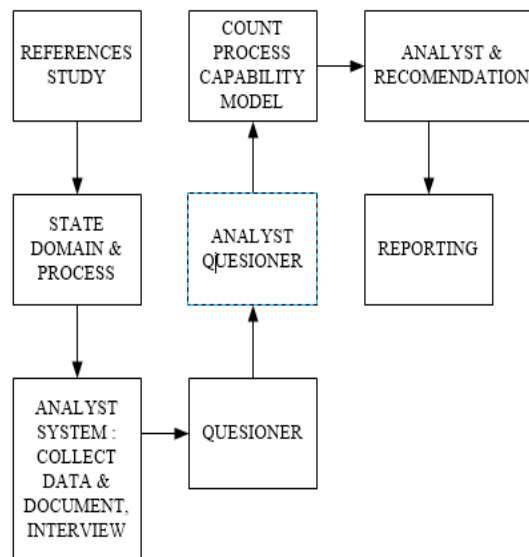


Figure 2. Step by Step Index Level Proses Capability Model

3. RESULT AND ANALYSIS

This chapter according to [15], [20], the author will analyze general control with the COBIT 5 framework approach. Authors will analyze more to the environment that occur within the IT department XYZ Cargo, from employees, equipment, physical security, regulations, etc, focused to domain Build, Acquire and Implement (BAI), included are:

- a) BAI01 Manage programmes and projects.
- b) BAI02 Manage requirements definition.
- c) BAI03 Manage solutions identification and build.
- d) BAI04 Manage availability and capacity.
- e) BAI05 Manage organisational change enablement.
- f) BAI06 Manage changes.
- g) BAI07 Manage change acceptance and transitioning.
- h) BAI08 Manage knowledge.
- i) BAI09 Manage assets.
- j) BAI10 Manage configuration.

a) BAI01 Manage Programmes and Projects

In this stage the author will analyze Realise business benefits and reduce the risk of unexpected delays, costs and value erosion by improving communications to and involvement of business and end users, ensuring the value and quality of project deliverables and maximising their contribution to the investment and services portfolio, with process description is Manage all programmes and projects from the investment portfolio in alignment with enterprise strategy and in a co-ordinated way. Initiate, plan, control, and execute programmes and projects, and close with a post-implementation review. Expected process capability level of Domain BAI01 Manage Programmes and Projects is level 4, predictable process. In more detail are sub domains, see Table 2. Process Capability Domain BAI01 Manage Programmes and Projects. Concluded the average BAI01 being at the level 2.8, Managed Process.

Table 2. Process Capability Domain BAI01 Manage Programmes and Projects

No.	Sub Domain	As-is	To-be
BAI01.01	Maintain a standard approach for programme and project management.	3	4
BAI01.02	Initiate a programme.	2	4
BAI01.03	Manage stakeholder engagement.	2	4
BAI01.04	Develop and maintain the programme plan.	3	4
BAI01.05	Launch and execute the programme.	3	4
BAI01.06	Monitor, control and report on the programme outcomes.	2	4
BAI01.07	Start up and initiate projects within a programme.	2	4
BAI01.08	Plan projects	4	4
BAI01.09	Manage programme and project quality.	3	4
BAI01.10	Manage programme and project risk.	3	4
BAI01.11	Monitor and control projects.	4	4
BAI01.12	Manage project resources and work packages.	2	4
BAI01.13	Close a project or iteration.	3	4
BAI01.14	Close a programme.	3	4

b) BAI02 Manage Requirements Definition

In this stage the author will analyze Create feasible optimal solutions that meet enterprise needs while minimising risk, with process description is identify solutions and analyse requirements before acquisition or creation to ensure that they are in line with enterprise strategic requirements covering business processes, applications, information/data, infrastructure and services. Co-ordinate with affected stakeholders the review of feasible options including relative costs and benefits, risk analysis, and approval of requirements and proposed

solutions. Expected process capability level of Domain BAI02 Manage Requirements Definition is level 4, predictable process. In more detail are sub domains, see Table 3. Process Capability Domain BAI02 Manage Requirements Definition.

Concluded the average BAI02 being at the level 2.5, Managed Process.

Table 3. Process Capability Domain BAI02 Manage Requirements Definition and Domain BAI03 Manage Solutions Identification and Build

No.	Sub Domain	As-is	To-be
BAI02.01	Define and maintain business functional and technical requirements.	3	4
BAI02.02	Perform a feasibility study and formulate alternative solutions.	2	4
BAI02.03	Manage requirements risk.	2	4
BAI02.04	Obtain approval of requirements and solutions.	3	4
BAI03.01	Design high-level solutions	3	4
BAI03.02	Design detailed solution components	2	4
BAI03.03	Develop solution components.	2	4
BAI03.04	Procure solution components.	3	4
BAI03.05	Build solutions.	3	4
BAI03.06	Perform quality assurance.	4	4
BAI03.07	Prepare for solution testing.	4	4
BAI03.08	Execute solution testing.	4	4
BAI03.09	Manage changes to requirements	3	4
BAI03.10	Maintain solutions.	4	4
BAI03.11	Define IT services and maintain the service portfolio.	3	4

c) BAI03 Manage Solutions Identification and Build

In this stage the author will analyze Establish timely and cost-effective solutions capable of supporting enterprise strategic and operational objectives, with process description is establish and maintain identified solutions in line with enterprise requirements covering design, development, procurement/sourcing and partnering with suppliers/vendors. Manage configuration, test preparation, testing, requirements management and maintenance of business processes, applications, information/data, infrastructure and services. Expected process capability level of Domain BAI03 Manage Solutions Identification and Build is level 4, predictable process. In more detail are sub domains, see Table 3. Process Capability Domain BAI03 Manage Solutions Identification and Build. Concluded the average BAI03 being at the level 3.2, Established Process.

d) BAI04 Manage Availability and Capacity

In this stage the author will analyze Maintain service availability, efficient management of resources, and optimisation of system performance through prediction of future performance and capacity requirements, with process description is balance current and future needs for availability, performance and capacity with cost-effective service provision. Include assessment of current capabilities, forecasting of future needs based on business requirements, analysis of business impacts, and assessment of risk to plan and implement actions to meet the identified requirements. Expected process capability level of Domain BAI04 Manage Availability and Capacity is level 4, predictable process. In more detail are sub domains, see Table 4. Process Capability Domain BAI04 Manage Availability and Capacity. Concluded the average BAI04 being at the level 2.6, Managed Process.

Table 4. Process Capability Domain BAI04 Manage Availability and Capacity, Domain BAI05 Manage Organisational Change Enablement and Domain BAI06 Manage Changes

No.	Sub Domain	As-is	To-be
BAI04.01	Assess current availability, performance and capacity and create a baseline.	3	4
BAI04.02	Assess business impact.	2	4
BAI04.03	Plan for new or changed service requirements.	2	4
BAI04.04	Monitor and review availability and capacity	3	4
BAI04.05	Investigate and address availability, performance and capacity issues.	3	4
BAI05.01	Establish the desire to change.	3	4
BAI05.02	Form an effective implementation team.	2	4
BAI05.03	Communicate desired vision.	2	4
BAI05.04	Empower role players and identify short-term wins.	3	4
BAI05.05	Enable operation and use.	3	4
BAI05.06	Embed new approaches.	4	5
BAI05.07	Sustain changes.	4	5
BAI06.01	Evaluate, prioritise and authorize change requests.	3	4
BAI06.02	Manage emergency changes.	2	4
BAI06.03	Track and report change status.	2	4
BAI06.04	Close and document the changes.	3	4

e) BAI05 Manage Organisational Change Enablement

In this stage the author will analyze Prepare and commit stakeholders for business change and reduce the risk of failure, with process description is maximise the likelihood of successfully implementing sustainable enterprise wide organisational change quickly and with reduced risk, covering the complete life cycle of the change and all affected stakeholders in the business and IT. Expected process capability level of Domain BAI05 Manage Organisational Change Enablement is level 4, predictable process. In more detail are sub domains, see Table 4. Process Capability Domain BAI05 Manage Organisational Change Enablement. Concluded the average BAI05 being at the level 3.0, Established Process.

f) BAI06 Manage Changes

In this stage the author will analyze Enable fast and reliable delivery of change to the business and mitigation of the risk of negatively impacting the stability or integrity of the changed environment, with process description is manage all changes in a controlled manner, including standard changes and emergency maintenance relating to business processes, applications and infrastructure. This includes change standards and procedures, impact assessment, prioritisation and authorisation, emergency changes, tracking, reporting, closure and documentation. Expected process capability level of Domain BAI06 Manage Changes is level 4, predictable process. In more detail are sub domains, see Table 4. Process Capability Domain BAI06 Manage Changes. Concluded the average BAI06 being at the level 2.5, Managed Process.

g) BAI07 Manage Change Acceptance and Transitioning

In this stage the author will analyze Implement solutions safely and in line with the agreed-on expectations and outcomes, with process description is formally accept and make

operational new solutions, including implementation planning, system and data conversion, acceptance testing, communication, release preparation, promotion to production of new or changed business processes and IT services, early production support, and a post-implementation review. Expected process capability level of Domain BAI07 Manage Change Acceptance and Transitioning is level 4, predictable process. In more detail are sub domains, see Table 5. Process Capability Domain BAI07 Manage Change Acceptance and Transitioning. Concluded the average BAI07 being at the level 2.9, Managed Process.

h) BAI08 Manage Knowledge

In this stage the author will analyze Provide the knowledge required to support all staff in their work activities and for informed decision making and enhanced productivity, with process description is maintain the availability of relevant, current, validated and reliable knowledge to support all process activities and to facilitate decision making. Plan for the identification, gathering, organising, maintaining, use and retirement of knowledge. Expected process capability level of Domain BAI08 Manage Knowledge is level 4, predictable process. In more detail are sub domains, see Table 5. Process Capability Domain BAI08 Manage Knowledge. Concluded the average BAI08 being at the level 2.6, Managed Process.

i) BAI09 Manage Assets

In this stage the author will analyze Account for all IT assets and optimise the value provided by these assets, with process description is manage IT assets through their life cycle to make sure that their use delivers value at optimal cost, they remain operational (fit for purpose), they are accounted for and physically protected, and those assets that are critical to support service capability are reliable and available. Manage software licences to ensure that the optimal number are acquired, retained and deployed in relation to required business usage, and the software installed is in compliance with licence agreements. Expected process capability level of Domain BAI09 Manage Assets is level 4, predictable process. In more detail are sub domains, see Table 6. Process Capability Domain BAI09 Manage Assets. Concluded the average BAI09 being at the level 2.8, Managed Process.

Table 5. Process Capability Domain BAI07 Manage Change Acceptance and Transitioning, and Domain BAI08 Manage Knowledge

No.	Sub Domain	As-is	To-be
BAI07.01	Establish an implementation plan.	3	4
BAI07.02	Plan business process, system and data conversion.	2	4
BAI07.03	Plan acceptance tests.	2	4
BAI07.04	Establish a test environment.	3	4
BAI07.05.	Perform acceptance tests	3	4
BAI07.06	Promote to production and manage releases.	3	4
BAI07.07	Provide early production support.	3	4
BAI07.08	Perform a post-implementation review.	4	5
BAI08.01	Nurture and facilitate a knowledge-sharing culture.	3	4
BAI08.02	Identify and classify sources of information.	2	4
BAI08.03	Organise and contextualize information into knowledge.	2	4
BAI08.04	Use and share knowledge.	3	4
BAI08.05	Evaluate and retire information.	3	4

j) BAI10 Manage Configuration

In this stage the author will analyze Provide sufficient information about service assets to enable the service to be effectively managed, assess the impact of changes and deal with service incidents, with process description is define and maintain descriptions and relationships between key resources and capabilities required to deliver IT-enabled services, including collecting configuration information, establishing baselines, verifying and auditing configuration information, and updating the configuration repository. Expected process capability level of Domain BAI10 Manage Configuration is level 4, predictable process. In more detail are sub domains, see Table 6. Process Capability Domain BAI10 Manage Configuration. Concluded the average BAI10 being at the level 2.4, Managed Process.

Table 6. Process Capability Domain BAI09 Manage Assets and Domain BAI10 Manage Configuration

No.	Sub Domain	As-is	To-be
BAI09.01	Identify and record current assets.	3	4
BAI09.02	Manage critical assets	2	4
BAI09.03	Manage the asset life cycle.	2	4
BAI09.04	Optimise asset costs	3	4
BAI09.05	Manage licences.	4	5
BAI10.01	Establish and maintain a configuration model.	3	4
BAI10.02	Establish and maintain a configuration repository and baseline.	2	4
BAI10.03	Maintain and control configuration items.	2	4
BAI10.04	Produce status and configuration reports.	3	4
BAI10.05	Verify and review integrity of the configuration repository.	2	4

Figure 3 and Table 7 to show Process Capability Model Domain Build , Acquire and Implement (BAI) in average.

Table 7. Process Capability Model Domain Build, Acquire and Implement (BAI) in average

No.	As-is	To-be	Optimize	No.	As-is	To-be	Optimize
BAI01	2.8	4	5	BAI06	2.5	4	5
BAI02	2.5	4	5	BAI07	2.9	4	5
BAI03	3.2	4	5	BAI08	2.6	4	5
BAI04	2.6	4	5	BAI09	2.8	4	5
BAI05	3.0	4	5	BAI10	2.4	4	5

From Table 7, we create picture from Microsoft Excel 2010, insert other charts, then radar (see figure 3).

When we see Table 7. Process Capability Model Domain Build, Acquire and Implement (BAI) in average shows: lowest sub domain in BAI10 Manage Configuration on average was at 2.4 because XYZ Company is unstructured approaches are used to define requirements and identify technology solutions, highest sub domain in BAI05 Manage Organisational Change Enablement on average was at 3.0 because XYZ Company is a formal methodology relating to installation, migration, conversion and acceptance is in place.

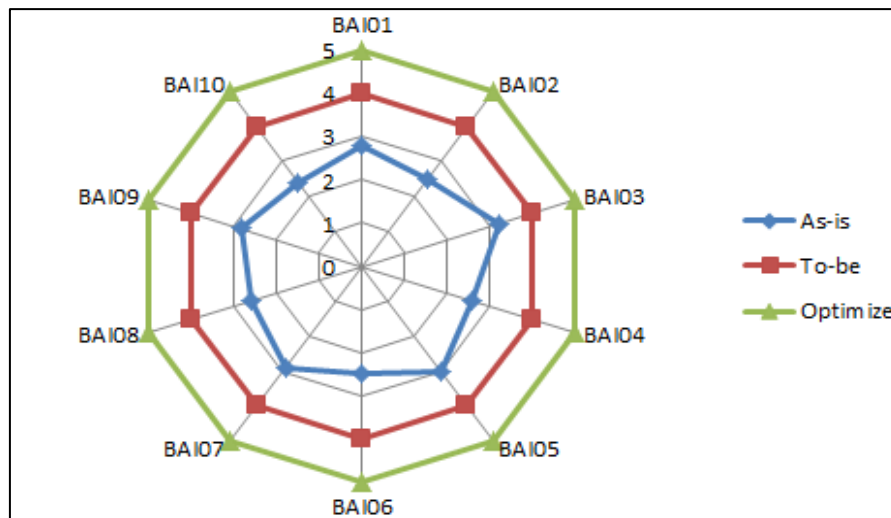


Figure 3. Process Capability Model Domain Build, Acquire and Implement (BAI) in average

4. CONCLUSION

The conclusion that can be drawn from the research that has been done is IT governance at the XYZ Company has been done, although still not run optimally because they have not reached that is expected later process capability within each IT process contained in the domain BAI10 being at average the level 2.4, this is weakness company, to improved sub domain BAI10.02 establish and maintain a configuration repository and baseline and BAI10.03 maintain and control configuration items, process capability at level Managed Process. BAI05 being at average the level 3.0, this is strength company, to improved sub domain BAI05.02 form an effective implementation team and BAI05.03 communicate desired vision because at level 2 and to maintain BAI05.06 embed new approaches and BAI05.07 sustain changes because at level 4, overall at level Established Process. IT governance processes in XYZ Company has a pattern that repeatedly do. In conducting activities related to the management of information technology governance, but its existence has not been well defined and formal so it is still happening inconsistency.

The biggest challenges faced in implement and audit or assessment XYZ Company is turnover human resource, high employee turnover hurts a company's bottom line, solution for that problem is hiring the right people from the start (fresh graduate), most experts agree, is the single best way to reduce employee turnover.

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