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# MEASUREMENT OF CAPABILITY LEVEL AT PT. SENTRAL ELECTRIC USING COBIT 5 FRAMEWORK

Michael Widjaja[a], Johan Setiawan[b]

[a, b] Department of Information System, Multimedia Nusantara University, Tangerang, Indonesia

Michael9@student.umn.ac.id, johan@umn.ac.id

**ABSTRACT**

**Objective** – To determine the company's capabilities based on COBIT 5 framework and provide the recommendation that can be used to improve the company's capabilities on COBIT 5 Standard.

**Methodology** – The research uses a qualitative method by conducting interviews and observation on the company's daily operation of the related department at PT Sentral Electric.

**Findings** – The research found that the capabilities of PT Sentral Electric in some domains, APO07, BAI09, EDM 01, MEA01, and DSS03, can only reach level 1. The study also found that the company had several shortcomings that caused some related activities to need improvement.

**Novelty** – The researcher takes some references from the previous audit in several companies and uses them as the basis of this study to analyze the relationship between current and past studies focusing on human resource management. This study uses gap analysis to find deficiencies and gaps between ideal and current conditions. Thus the company can make improvements by implementing the recommendations given with COBIT 5 framework.

**Keywords – assessment, COBIT 5, Framework, PT Sentral Elektrik**

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## I. INTRODUCTION

Information systems are becoming more critical in helping to help companies in the global economy. Companies are trying to be more competitive and efficient in turning themselves into digital companies that use digital technology in core business processes, customer relations, suppliers, and employees (Cobit bagi perusahaan, n.d.). Every company has implemented information technology in running its business, with minimal IT and significant investments (Wella, 2016). The COBIT 5 framework can help organizations of all sizes with benefits such as improving and maintaining high-quality information to support business decisions, using IT effectively to achieve business goals, and

ensuring IT is managed effectively (What is COBIT® 5? Definition & explanation, n.d.). One aspect that COBIT 5 pays attention to in IT governance is managing compliance, which is very important for companies to ensure they follow applicable regulations to avoid sanctions (Horvath, 2020).

Information technology is changing how companies manage their business processes, communicate with potential customers, and deliver services. The critical success factor for a successful company is an effective and efficient alignment in supporting information technology business strategies and processes (Nurdien & Hapzi, 2019). Therefore, to facilitate the integration or alignment of information technology with business, a framework is needed that can assist the alignment. In using the framework, the framework used is the control objective for information and related technology, which will be abbreviated as COBIT. COBIT is a collection of best practices documentation for IT Governance that can help auditors, users (users), and management bridge the gap between business risks, control requirements, and IT technical issues. COBIT is helpful for auditors because it is a technique that can assist in identifying IT control issues (Artikel Managing Control Object For IT (COBIT) Sebagai Framework IT Governance, 2012).

The COBIT 5 framework can help organizations of all sizes with benefits such as improving and maintaining high-quality information to support business decisions, using IT effectively to achieve business goals, and ensuring IT risks are managed effectively (What is COBIT® 5? Definition & explanation, n.d.). One aspect that COBIT 5 pays attention to in IT governance is managing compliance; it is crucial to ensure the company follows the applicable regulations to avoid sanctions (Horvath, 2020).

The object of the assessment is PT Sentral Elektrik, a company based in North Jakarta a distribution of electronic goods since 1998. PT Sentral Elektrik is quite advanced or modern due to the use of enterprise resource planning (ERP) in its daily business processes. The system includes employee attendance and business implementation, such as making sales orders, purchase orders, inventory, and customer relationships. PT Sentral Elektrik has shortcomings in asset processing, supervision/monitoring, and human resource management; therefore, an audit is needed to find deficiencies and solutions. To measure the level of information technology governance capability of PT Sentral Elektrik, an evaluation was carried out using the COBIT framework, especially in Sub-Domains APO 07, BAI 09, EDM 01, MEA 01, and DSS03. The use of COBIT 5 as an assessment guideline is because COBIT is a collection of best practices so that it can solve problems and deficiencies within the company.

## II. LITERATURE REVIEW

### COBIT (Control Objectives for Information & Related Technology)

COBIT is a collection of documentation and guides that lead to IT governance that can help auditors, management, and users to bridge the gap between business risks, control requirements, and technical issues. COBIT was developed by the IT Governance Institute, part of the Information Systems Audit and Control Association known as ISACA (IT governance Indonesia, n.d.).

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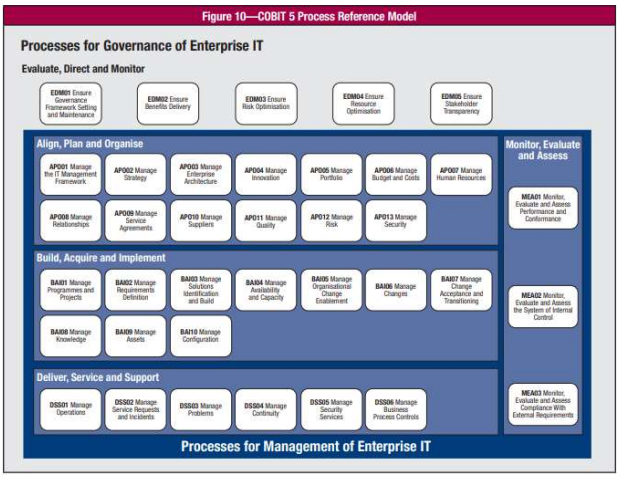


Figure 1 COBIT 5 Process Reference Model

COBIT 5 enabler shown in figure 1 is divided into two main activities governance and management

1. Governance: this domain include five governance process; in each process, EDM practice is defined.
2. Management: these four domains align with the PBRM (plan build run monitor) area of responsibility and IT scope.

**Capability Level**

According to COBIT 5: A Business Framework for the governance and management of enterprise IT COBIT 5 process capability approach can be concluded in Figure 2 (ISACA, A Business Framework for the Governance and Management of Enterprise IT, 2012)

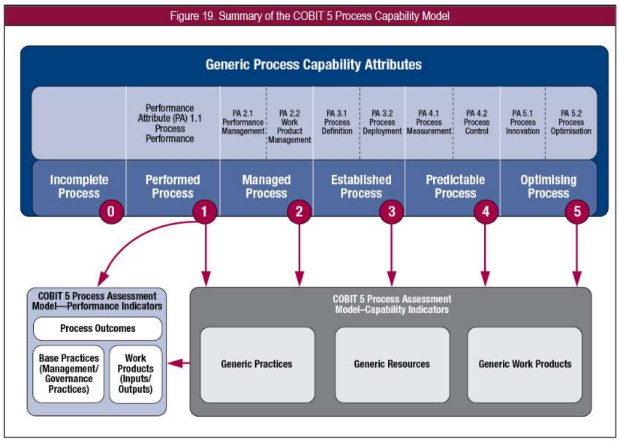


Figure 2 Summary of the COBIT 5 Process Capability Model

Six levels of capability can be achieved, including the process is incomplete if the practices in it do not achieve the goals of the process (ISACA, A Business Framework for the Governance and Management of Enterprise IT, 2012):

- Level 0 Incomplete Process - The process is not implemented or fails to achieve its process objectives. At this level, there is little or no evidence of systematic achievement of the process objectives.
- Level 1 Performed Process - The implemented process achieves its process objectives.
- Level 2 Managed Process - The processes previously described are now implemented in a managed mode (planned, monitored, and adjusted), and their work products are defined, controlled, and maintained.
- Level 3 Established Process - The processes previously described are now implemented using a defined process capable of achieving the process outcome.
- Level 4 Predictable Process - The previously described process now operates within the defined limits to achieve its process output.
- Level 5 Optimizing Process - The previously described processes are continuously improved to meet the current relevant and projected business objectives.

To assess whether the process of achieving its goal of achieving capability level 1 can be done by (ISACA, A Business Framework for the Governance and Management of Enterprise IT, 2012):

1. **N** Not Achieved
2. 0-15 Percent achieved.
3. P Partially Achieved
4. 15-50 Percent achieved.
5. L Largely Achieved
6. 50-85 Percent achieved.
7. F Fully Achieved
8. 85-100 Percent achieved.

**Audit Implementation Procedure**

Audit Implementation according to Information System Auditing: Tools and Techniques, the audit process is divided into three as shown in Figure 3 (ISACA, Information Systems Auditing: Tools and Techniques—Creating Audit Programs, 2016)

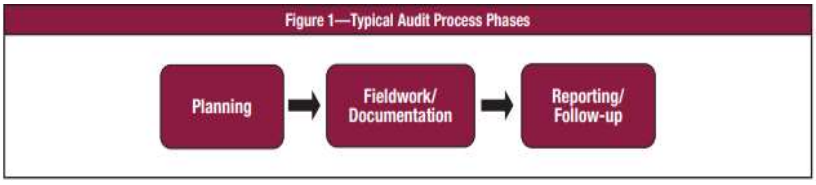


Figure 3 Typical Audit Process Phases

Figure 3 divides the process into three phases: planning, documentation, and follow-up. Based on the procedure shown in Figure 3, the first step of this research is to make a plan to conduct a literature study. The plan aims to find information that can be used as a basis and reference. The literature study then seeks more detailed information about fieldwork or company documentation by direct follow-up or by various studies. After all the necessary data and information have been collected, further research can enter the reporting or follow-up stage, namely providing reports based on the collected documentation and information and then providing follow-up to the company by monitoring the recommendations issued.

**RACI Table**

The RACI chart visualizes the functional roles played by each person on the project team (Montgomery & Kumar, 2020).

- Responsible: Who is responsible for the actual work for the project assignment?
- Accountable: Who is responsible for the success of the task and the decision maker?
- Consulted: Who needs to be consulted for additional details and info on requirements?
- Informed: Who needs to be informed about updates or updates?

## III. METHODOLOGY

The method used to measure the level of capability is to use COBIT 5, which is a collection of best practices and frameworks that can be used to assess corporate governance. The following are some of the methods used to measure the capability level.

1. Observations

   Observations were made at PT Sentral Elektrik. Observations are made by looking at the company's daily business processes, the existing systems in the company, and how the company's systems affect the company's performance. The objective of the observations is to provide additional information to influence the auditor's assessment of the audit activity.
2. Interviews

   Interviews were conducted at PT Sentral Elektrik. Interviews were conducted by asking questions to parties from PT Sentral Elektrik concerned with the activity to be asked. The party concerned is determined based on the RACI table to be adjusted. The purpose of the interview is to provide the primary information and data needed to assess the business processes and their effectiveness in the company.

A. Research Variable

The measurement of the level of capability has several variables that will be investigated when measuring the level of capability. The following variables will be studied:

1. RACI chart.
2. RACI will be created based on the selected sub-processes APO07, BAI09, EDM01, MEA01, and DSS03. RACI was used to determine the target of data collection.
3. Sub-process and activities.
4. This study uses five enabler goals in the EDM, APO, BAI, DSS, and MEA domains: APO 07, BAI 09, EDM 01, MEA 01, and DSS 03. Of these five goals, several sub-processes contain activities to determine the company's capabilities.

This study uses five enabler goals in the EDM, APO, BAI, DSS, and MEA domains: APO 07, BAI 09, EDM 01, MEA 01, and DSS 03. Of these five goals, several sub-processes contain activities to determine the company's capabilities.

B. Data Gathering Methods

The data collection method utilized transcripts of interviews conducted with sources from the company. The selection of resource persons based on the RACI table from COBIT 5 in each process was then measured.

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C. Framework

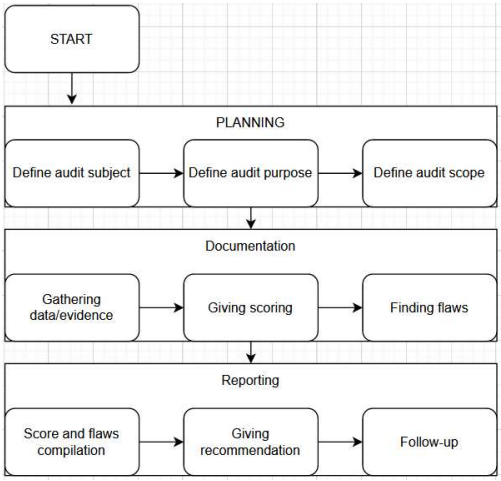


Figure 4 Audit Framework

Figure 4 is an image of the framework used to research measuring the capability level of PT Sentral Elektrik. The framework follows the reference stage of the audit process in Figure 3.

1. Planning

   The first is to carry out the planning or planning stage, which aims to create an audit design consisting of 3 parts, namely determining the audit subject, the audit objective, and the audit scope.

   1. Determine the subject of the audit

      Determine the object of measurement, namely PT Sentral Elektronik, and determine the domain and sources of the audit process.

   2. Define audit objectives

      Determine the audit's objectives by determining the capability level's target and the number of domains and processes to be audited.

   3. Determine audit scope

      Determine the scope of the audit by determining who will be questioned based on the RACI and limiting the process according to the objectives.

2. Documentation

   The second is to carry out the documentation stage, which is the core of measuring capability because the result of the documentation is the scoring itself. The documentation section consists of 3 parts: collecting data, scoring, and determining findings.

   1. Collecting data

      They are collecting data used as the basis for scoring in the form of field observations by way of auditors asking how the business processes are going and by interviewing resource persons based on RACI.

   2. Scoring

      It is scored based on data collected based on each process. Scoring is used as the basis for determining the level of company capability. Scoring is based on the auditor's decision to give value to these activities.

3. Finding findings/discoveries

   From the scoring results, an analysis is carried out to find problem findings / low scores marked as activities that need / can be improved.

3. Reporting Phase

The last is the reporting phase, which summarizes the scoring results and the problems found later, giving recommendations for improvement and follow-up. This process consists of 3 parts: compiling findings, providing recommendations, and conducting follow-ups.

1. Compilation of scores and findings

   The compilation of scores and findings is to combine them in a simple table so that they are easy to understand and determine the company's capability level results.

2. Provide Recommendations

   Providing recommendations is counseling/ advice on problem findings to improve these findings. Recommendations are given to scores below average in the audited process.

3. Follow-up

   Follow-up is tracking or monitoring the recommendations to see if the recommendations are accepted and implemented by the company or if the company objected to making improvements.

## IV. RESULTS AND DISCUSSION

### Data Source

The stage of collecting data is the stage of collecting the data needed for scoring. The collection is done in 2 ways, namely observation, and interviews. The observation is done by paying attention to the company's business processes and the applicable company regulations related to the audit subject. The interview stage is conducted by conducting questions and answers with the resource persons based on the RACI chart; the selected sources based on the activities are shown in the table below.

*Table 1 Interview and Questionnaire source*

| Activities | Respondent |
|---|---|
| APO07.01 | Director, HRD |
| APO07.02 | Director, HRD |
| APO07.03 | Director, HRD, General manager |
| APO07.04 | Director, HRD |
| APO07.05 | Director, HRD |
| APO07.06 | Director, HRD |
| BAI09.01 | Director |
| BAI09.02 | Director |
| BAI09.03 | Director |
| BAI09.04 | Director |
| BAI09.05 | Director |
| EDM01.01 | Director, Admin |
| EDM01.02 | Director, Admin |
| EDM01.03 | Director |
| MEA01.01 | Director |
| MEA01.02 | Director, Admin |
| MEA01.03 | Director |
| MEA01.04 | Director |
| MEA01.05 | Director |
| DSS03.01 | Director |

| Activities | Respondent |
|---|---|
| DSS03.02 | Director |
| DSS03.03 | Director |
| DSS03.04 | Director |
| DSS03.05 | Director |

**Data Collected**

The results of the scoring and audit processes are in the form of a score recapitulation.

*Table 2 Capability Level Score*

| Sub *Domain* | Process | Respondent average | Average score |
|---|---|---|---|
| APO07 | APO07.01 | 70 | 72.5 |
| | APO07.02 | 80 | |
| | APO07.03 | 78 | |
| | APO07.04 | 82.5 | |
| | APO07.05 | 72.5 | |
| | APO07.06 | 52 | |
| BAI09 | BAI09.01 | 80 | 80.56 |
| | BAI09.02 | 88.9 | |
| | BAI09.03 | 75.6 | |
| | BAI09.04 | 83.3 | |
| | BAI09.05 | 75 | |
| EDM01 | EDM01.01 | 86 | 84.6 |
| | EDM01.02 | 88 | |
| | EDM01.03 | 80 | |
| MEA01 | MEA01.01 | 84.2 | 84.9 |
| | MEA01.02 | 87.5 | |
| | MEA01.03 | 82 | |

| Sub *Domain* | Process | Respondent average | Average score |
|---|---|---|---|
| | MEA01.04 | 83.3 | |
| | MEA01.05 | 87.5 | |
| DSS03 | DSS03.01 | 75 | 80.9 |
| | DSS03.02 | 76.6 | |
| | DSS03.03 | 85 | |
| | DSS03.04 | 81.6 | |
| | DSS03.05 | 86.6 | |

From the results of the recapitulation in table 2, it can be concluded that the level of capability at level 1 in APO07 is worth 71, BAI09 is worth 80.56, EDM01 is worth 86.3, MEA01 is worth 84.9, and DSS03 is worth 80.9.

**Analysis and Discussion**

In measuring the level of the company's information security capability, data was collected through questionnaires and interviews. Four respondents were involved in filling out the questionnaire, consisting of The Director, HRD, General Manager, and Admin. This interview aims to collect data and documentation relevant to related activities and serve as a basis for calculating the ability level. Interviews were then continued by distributing questionnaires to 4 representatives from the company consisting of the Director, HRD, General Manager, and admin. The questionnaire has been compiled based on the domains APO07, BAI09, EDM01, MEA01, and DSS03 of the COBIT 5 framework. The questionnaire was answered with a percentage scale of 0% – 100%, which is divided into four categories, Not Achieved (0% – 15%), Partially Achieved (15% – 50%), Mostly Achieved (50% – 85%), and Fully Achieved (85% – 100%).

From the recapitulation results, the final value is taken to assess the level of capability in table 2 and the ratings achieved in table 3.

Table 3 Capability Level Ratings

| Process | Process Capability level | | | | | Target level |
|---|---|---|---|---|---|---|
| | 1 | 2 | 3 | 4 | 5 | |
| APO07 | 71 (L) | - | - | - | - | 2 |
| BAI09 | 80.56 (L) | - | - | - | - | 2 |
| EDM01 | 84.6 (L) | - | - | - | - | 2 |
| MEA01 | 84.9 (L) | - | - | - | - | 2 |
| DSS03 | 80.9 (L) | - | - | - | - | 2 |

| Ratings: |
|---|
| N: Not achieved (0-15) |
| P: Partially achieved (15-50) |
| L: Largely achieved (50-85) |
| F: Fully achieved (85-100) |

From the table above, it can be concluded that the level of capability of APO07 was achieved, BAI09 was Largely achieved, EDM01 largely achieved, MEA01 Largely achieved, and DSS03 Largely achieved. The audit results also found deficiencies in related activities; the following is a compilation table of findings.

Table 4 Discovery Table

| Domain | Process | Discovery |
|---|---|---|
| APO07 | APO07.01 | 2 |
| | APO07.02 | 1 |
| | APO07.03 | 1 |
| | APO07.04 | 2 |
| | APO07.05 | 2 |
| | APO07.06 | 2 |
| BAI09 | BAI09.01 | 2 |
| | BAI09.02 | 1 |
| | BAI09.03 | 2 |
| | BAI09.04 | 1 |
| | BAI09.05 | 1 |
| EDM01 | EDM01.01 | 2 |
| | EDM01.02 | 1 |
| | EDM01.03 | 1 |
| MEA01 | MEA01.01 | 1 |
| | MEA01.02 | 1 |
| | MEA01.03 | 2 |
| | MEA01.04 | 2 |
| | MEA01.05 | 1 |

| Domain | Process | Discovery |
|---|---|---|
| DSS03 | DSS03.01 | 2 |
| | DSS03.02 | 1 |
| | DSS03.03 | 1 |
| | DSS03.04 | 2 |
| | DSS03.05 | 1 |
| | Total | 36 |

From the findings, it was concluded that there were 36 findings on activities that were below the average.

**Recommendation**

| Proses | Recommendation |
|---|---|
| APO07.01 | Documents regarding recruitment by HRD follow existing standards |
| APO07.01 | There should be a background check like a CV |
| APO07.02 | Adding a protocol or procedure when there are job transfers and terminations and notification from HRD to those involved |
| APO07.03 | Looking for a mentor who understands the subject well or can regularly attend seminars or external training |
| APO07.04 | Adding small and large notices to be coordinated, and there are briefings every time there is a new goal so that employee movements are more coordinated. |
| APO07.04 | Conduct better briefing and training |
| APO07.05 | Applying data analysts to related data either by outsourcing or adding IT employees |
| APO07.05 | Add notes from managers as a form of supervision and report them to regular company meetings. |
| APO07.06 | Require a formal agreement |
| APO07.06 | Require clear user requirements |
| BAI09.01 | Adding the recording of the company's asset list that can be done by the manager or head of the warehouse to facilitate asset recording |
| BAI09.01 | Add accounting for company assets, either outsource or add accounting employees. |
| BAI09.02 | Register for Insurance |
| BAI09.03 | Added a division that records in full |

| Proses | Recommendation |
|---|---|
| BAI09.03 | Added recording and implementation of pension-related activities to meet business and legal needs |
| BAI09.04 | Adding statistics digitally, either alone or combined with those working on data analysts or recording assets |
| BAI09.05 | Add license list |
| EDM01.01 | Added environmental factor analysis based on appropriate data |
| EDM01.01 | Added IT controls |
| EDM01.02 | Added procedures to ensure professionalism |
| EDM01.03 | Conduct periodic checks to meet standards |
| MEA01.01 | Perform periodic validation |
| MEA01.02 | Conduct regular evaluations of objectives and metrics |
| MEA01.03 | An automatic collection is integrated with the company's ERP system to facilitate data analysis. |
| MEA01.03 | Added automatic efficiency assessment integrated into the system for easy data retrieval |
| MEA01.04 | There is a third party for comparison |
| MEA01.04 | Trying to solve the problem, and if it cannot be solved, try outsourcing |
| MEA01.05 | Added daily monitoring and compilation of reports |
| DSS03.01 | Adding a support desk division or giving the admin service desk tasks that have been divided if a problem occurs |
| DSS03.01 | Adding a service desk or in the admin section of the service desk task that has been divided up |
| DSS03.02 | Adding a report regarding the problem or at least there is a notice regarding the development of the problem. |
| DSS03.03 | There is an automatic recording of problems that can be inputted by those experiencing problems to make it easier to register and list. |
| DSS03.04 | Added reporting of conclusions from problems to make it easier to review at meetings |
| DSS03.04 | Adding a service desk or giving the admin a service desk task that has been divided if a problem occurs |
| DSS03.05 | Keeping records of changes that have been made |

After the recommendation is given, the next step is to review the recommendation, whether the recommendation is carried out or not. The following is a follow-up action which is the activities to ensure continued recommendation implementation.

## V. CONCLUSION

The results of the evaluation of activity assessment at PT Sentral Elektrik using the COBIT 5 framework can be concluded.

1. In the APO07 domain, manage human resources, BAI09 manages assets, EDM01 ensures governance Framework Setting and Maintenance, MEA01 Monitor, Evaluates and Assess Performance and Conformance, DSS03 Manage Solutions Identification and Builds from the results of the activity assessment, it can be seen that most of the companies are pretty good at level 1, but there are some things called findings that are considered less than ideal with the percentage details as follows.
   - APO07 with a percentage of 72.5% and stopped at level 1
   - BAI09 with a percentage of 80.56% and stopped at level 1
   - EDM01 with a percentage of 84.66% and stopped at level 1
   - MEA01 with a percentage of 84.9% and stopped at level 1
   - DSS03 with a percentage of 80.96% and stopped at level 1

2. From the activity assessment results on less than ideal points, activities inevitably lack attention to organized reporting and lack organized accounting and inventory management. Recommendations are given based on post-gap analysis to help the company achieve more ideal conditions and follow-up steps to see whether the recommendations get approval.

3. With the results of measuring the level of capability in the scope of HRD, Assets, and Supervision, it is recommended for the next researcher or company to conduct an audit of corporate governance and performance either with the COBIT 5 framework or other frameworks. With the results of measuring capability levels on APO07, BAI09, EDM01, MEA01, and DSS03, which stop at level 1, it is hoped that the subsequent research can reach a higher level in related processes or by using the newer COBIT 2019 framework.

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