PERANAN AUDIT PADA PERBAIKAN SISTEM INFORMASI

Riyanarto Sarno
STRATEGI SUKSES BISNIS
PENGENAN TEKNOLOGI INFORMASI

BEBASIS Balanced Scorecard & COBIT
ALIGNMENT
BUSINESS & IT
→ VALUE CREATION
What do we want to achieve with IT?

- Aligned
- Better
- Controlled
- Secure
- Cheaper
- Faster

Stakeholder Value
IT Alignment: Who Is in Charge?
Optimising Value Creation From IT Investments
• Computer Science Corp.:  
  “while IT has become an increasingly critical component of business success, information system executives must ensure that their plan in sync with the strategies directing the overall enterprise”  

(Aligning Technology and Corporate Goals is Top IS issue)
Measuring your strategy: “It’s simple but not easy”

STRATEGI BISNIS
Measuring Business Performance

- Optimizing the management of business processes
- Enhancing Business Goals
- Acknowledging IT contribution to Business Strategy
- Acknowledging degree of **alignment** between Business & IT goals
Balanced Scorecard
(Performance Measurement Framework)
Four Balanced Scorecard Perspectives
Balanced Scorecard Perspectives

- **Finance**: Strategic themes = Financial strategies (growth, sustain, harvest) vs Financial themes (Revenue growth and mix, Cost reduction/ productivity improvement, Asset utilization/ investment strategy)
- **Customer**: market share, customer acquisition, customer retention, customer satisfaction dan customer profitability
- **Internal/Business Process**: innovation process, operations process and postsale service process
- **Learning & growth**: continuous improvement to products and services
<table>
<thead>
<tr>
<th>Business Unit Strategy</th>
<th>Strategic Themes</th>
<th>Financial Themes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Growth</td>
<td>- Share of targeted customers and accounts - Cross-selling - Percentage revenues from new applications - Customer and product line profitability</td>
<td>- Sales growth rate by segment - Percentage revenue from new product, services and customer</td>
</tr>
<tr>
<td>Sustain</td>
<td>- Customer and product line profitability - Percentage unprofitable customers</td>
<td>- Cost versus competitors’ - Cost reduction rates - Indirect expenses (percentage of sales)</td>
</tr>
<tr>
<td>Harvest</td>
<td>- Customer and product line profitability</td>
<td>- Unit costs (per unit of output, per transaction)</td>
</tr>
</tbody>
</table>
Measuring Customer Perspective
Internal/ Business Proses  
Value Chain Model

Customer Need Identified

Innovation Process
Identify the Market  
Create the Product/Service Offering

Operations Process
Build the Product/Services  
Deliver the Product/Service

Postsale Service Process
Service the Customer

Customer Need Satisfied
Aligning IT with business means bridging the gap between what technology promises and what it actually delivers.
# Business Goals

The top 10 most important Business Goals based on ITGI’s research findings

<table>
<thead>
<tr>
<th>Balanced Scorecard - Four Perspectives</th>
<th>No.</th>
<th>Business Goals</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Financial Perspective</strong></td>
<td>1. √</td>
<td>Provide a good return on investment of IT-enabled business investments</td>
</tr>
<tr>
<td></td>
<td>3.</td>
<td>Improve corporate governance and transparency</td>
</tr>
<tr>
<td><strong>Customer Perspective</strong></td>
<td>4. √</td>
<td>Improve customer orientation and service</td>
</tr>
<tr>
<td></td>
<td>9.</td>
<td>Obtain reliable and useful information for strategic decision making</td>
</tr>
<tr>
<td><strong>Internal-Business-Process Perspective</strong></td>
<td>10. √</td>
<td>Improve and maintain business process functionality</td>
</tr>
<tr>
<td></td>
<td>15.</td>
<td>Improve and maintain operational and staff productivity</td>
</tr>
<tr>
<td><strong>Learning and Growth Perspective</strong></td>
<td>16. √</td>
<td>Manage product and business innovation</td>
</tr>
<tr>
<td></td>
<td>17.</td>
<td>Acquire and maintain skilled and motivated people</td>
</tr>
</tbody>
</table>
# IT Goals

The top 10 most important IT Goals based on ITGI’s research findings

<table>
<thead>
<tr>
<th>No.</th>
<th>IT Goals</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.√</td>
<td>Respond to business requirements in alignment with the business strategy</td>
</tr>
<tr>
<td>2.√</td>
<td>Respond to governance requirements in line with board direction</td>
</tr>
<tr>
<td>3.√</td>
<td>Ensure satisfaction of end users with service offerings and service levels</td>
</tr>
<tr>
<td>4.</td>
<td>Optimise the use of information</td>
</tr>
<tr>
<td>5.</td>
<td>Create IT agility</td>
</tr>
<tr>
<td>28.</td>
<td>Ensure that IT demonstrates cost-efficient service quality, continuous improvement and readiness for future</td>
</tr>
</tbody>
</table>
### Balanced Scorecard - Four Perspectives

<table>
<thead>
<tr>
<th>No</th>
<th>Business Goals</th>
<th>IT Goals</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>24√</td>
</tr>
<tr>
<td></td>
<td><strong>1.</strong> Provide a good return on investment of IT-enabled business investments</td>
<td></td>
</tr>
<tr>
<td>√</td>
<td></td>
<td>2√</td>
</tr>
<tr>
<td></td>
<td><strong>2.</strong> Manage IT-related business risk</td>
<td>14√</td>
</tr>
<tr>
<td>√</td>
<td></td>
<td>17</td>
</tr>
<tr>
<td></td>
<td><strong>3.</strong> Improve corporate governance and transparency</td>
<td>18</td>
</tr>
</tbody>
</table>

- The statement and its relevance number of Business Goals in COBIT
- The relevance number of IT Goals in COBIT
### Balanced Scorecard - Four Perspectives

<table>
<thead>
<tr>
<th>Customer Perspective</th>
<th>No</th>
<th>Business Goals</th>
<th>IT Goals</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td><strong>Improve customer orientation and service</strong></td>
<td></td>
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<tr>
<td></td>
<td>4.√</td>
<td></td>
<td>3 ✓</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Offer competitive products and services</strong></td>
<td>23 ✓</td>
</tr>
<tr>
<td></td>
<td>5.√</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td><strong>Establish service continuity and availability</strong></td>
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<td></td>
<td>6.√</td>
<td></td>
<td>16</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>Create agility in responding to changing business requirements</strong></td>
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<td></td>
<td>7.√</td>
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<td>5</td>
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<td></td>
<td></td>
<td><strong>Achieve cost optimisation of service delivery</strong></td>
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<td>10</td>
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<td><strong>Obtain reliable and useful information for strategic decision making</strong></td>
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<td>9.√</td>
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<td>12</td>
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</tbody>
</table>
## Linking Business Goals to IT Goals

### Balanced Scorecard - Four Perspectives

<table>
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<td><strong>Internal-Business-Process Perspective</strong></td>
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<td>11.</td>
<td></td>
<td>Lower process costs</td>
<td>7</td>
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<td>24</td>
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<tr>
<td>12.√</td>
<td></td>
<td>Provide compliance with external laws, regulations and contracts</td>
<td>2</td>
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<td>√</td>
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<tr>
<td>13.</td>
<td></td>
<td>Provide compliance with internal policies</td>
<td>2</td>
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<tr>
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<td>13</td>
</tr>
<tr>
<td>14.</td>
<td></td>
<td>Manage business change</td>
<td>1</td>
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<td>5</td>
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<tr>
<td></td>
<td></td>
<td></td>
<td>25</td>
</tr>
<tr>
<td></td>
<td></td>
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<td>28</td>
</tr>
<tr>
<td>Acquisition and Growth Perspective</td>
<td>17.√</td>
<td>Acquire and maintain skilled and motivated people</td>
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</tr>
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</tbody>
</table>
IT Governance Frameworks

- Information Technology Infrastructure Library (ITIL)
- ISO 17799 (27002)
- Control Objectives for Information and related Technology (COBIT)
IT Governance Frameworks

- Governing: Strategic, Control
- Managing: Tactical, Execute

Frameworks:
- COBIT
- ISO
- NIST
- CMMI
- ITIL
- PMI
- Vendor-Specific Guidance
Aligning COBIT® 4.1,
ITIL® V3 and
ISO/IEC 27002
for Business Benefit
ISO 17799 Modules

Organisational Risks

Security Policy

Security Organisation

Asset Classification and Control

Personnel Security

Physical and Environmental Security

Comm / Ops Management

Access Control

System Development and Maintenance

Business Continuity Planning

Compliance
CobiT Principles

**Planning & Organisation**

**Acquisition & Implementation**

**Delivery & Support**

**Monitoring**

**IT Resources**
- Data
- Applications
- Technology
- Facilities
- People

**Process Domains**
- Effectiveness
- Efficiency
- Confidentiality
- Integrity
- Availability
- Compliance
- Reliability

**What you need**

**What you get**
ITIL Framework
COBIT Domains

*IT processes are usually divided into the responsibility domains of plan, build, run and monitor*

Each Domain has processes
# Processes of PO Domain

<table>
<thead>
<tr>
<th>PO</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PO1</td>
<td>Define a Strategic IT Plan</td>
</tr>
<tr>
<td>PO2</td>
<td>Define the Information Architecture</td>
</tr>
<tr>
<td>PO3</td>
<td>Determine Technological Direction</td>
</tr>
<tr>
<td>PO4</td>
<td>Define the IT Processes, Organisation and Relationships</td>
</tr>
<tr>
<td>PO5</td>
<td>Manage the IT Investment</td>
</tr>
<tr>
<td>PO6</td>
<td>Communicate Management Aims and Direction</td>
</tr>
<tr>
<td>PO7</td>
<td>Manage IT Human Resources</td>
</tr>
<tr>
<td>PO8</td>
<td>Manage Quality</td>
</tr>
<tr>
<td>PO9</td>
<td>Assess and Manage IT Risks</td>
</tr>
<tr>
<td>PO10</td>
<td>Manage Projects</td>
</tr>
</tbody>
</table>
Pola Pikir

The control of IT Processes which satisfy Business Requirements is enabled by Control Statements considering Control Practices.
Control over the IT process of defining a strategic IT plan that satisfies the business requirement to strike an optimum balance of information technology opportunities and IT business requirements as well as ensuring its further accomplishment is enabled by a strategic planning process undertaken at regular intervals giving rise to long-term plans; the long-term plans should periodically be translated into operational plans setting clear and concrete short-term goals and takes into consideration:

- enterprise business strategy
- definition of how IT supports the business objectives
- inventory of technological solutions and current infrastructure
- monitoring the technology markets
- timely feasibility studies and reality checks
- existing systems assessments
- enterprise position on risk, time-to-market, quality
- need for senior management buy-in, support and critical review
COBIT: An IT Control Framework

• **COBIT’s Vision**
  - Sebagai model untuk penguasaan IT

• **COBIT’s Mission**
  - Melakukan penelitian, pengembangan, publikasi dan promosi terhadap control objective dari teknologi informasi yang secara umum diterima di lingkungan internasional untuk pemakaian sehari-hari oleh manager dan auditor
• COBIT Framework

• IT Processes
- Plan and Organise (Perencanaan & Org.)
- Acquire and Implement (Pengadaan & Implementasi)
- Deliver and Support (Pengantaran & dukungan)
- Monitor and Evaluate (Pengawasan & Evaluasi)

• IT Resources
- Data
- Information Systems
- Technology
- Facilities
- Human Resources

• Business Requirements
- Effectiveness (efektifitas)
- Efficiency (Efisiensi)
- Confidentiality (Rahasia)
- Integrity (Integritas)
- Availability (Ketersediaan)
- Compliance (Pemenuhan)
- Information Reliability (Kehandalan Informasi)

• How do they relate?
**COBIT Framework**

**Plan and Organise**

**Topics**
- Strategi dan taktik
- Merencanakan Visi
- Organisasi and infrastruktur

**Questions**
- Apakah IT dan strategi bisnis sudah ditetapkan?
- Apakah perusahaan sudah menggunakan secara maksimum sumber dayanya?
- Apakah semua orang di dlm org. sudah memahami sasaran IT?
- Apakah resiko IT sudah dipahami & diatur?
- Apakah mutu sistem IT sudah sesuai dgn kebutuhan bisnis?

**Acquire and Implement**

**Topics**
- IT solutions
- Perubahan dan Pemeliharaan

**Questions**
- Apakah proyek baru dapat memberikan solusi terhadap kebutuhan bisnis?
- Apakah proyek baru dapat selesai tepat waktu dan sesuai anggaran?
- Apakah sistem kerja yg baru bisa diterapkan dgn baik?
- Apakah perubahan yg dibuat tdk merepotkan kegiatan bisnis yg berjalan?
• COBIT Domains

Deliver and Support

Topics
- Layanan pengantaran & dukungan
- Dukungan proses penyusunan
- Pengolahan sistem aplikasi

Questions
- Apakah layanan IT yg diberikan sesuai dgn prioritas bisnis?
- Apakah biaya IT dapat dioptimalkan?
- Apakah pekerja mampu menggunakan sistem IT lebih produktif dan aman?
- Apakah keamanan, integritas dan ketersediaan sudah pada tempatnya?

Monitor and Evaluate

Topics
- Penilaian over time, jaminan pengiriman
- Sistem pengendalian manajemen kesalahan
- Pengukuran pekerjaan

Questions
- Dapatkan IT mendeteksi suatu permasalahan sebelum semuanya terlambat?
- Apakah jaminan kemandirian yg diperlukan dpt memastikan bidang2 kritis bisa beroperasi sesuai dgn yg diharapkan?
• COBIT Framework

• The control of
  • (kendali)

  • IT Processes

• which satisfy
  • (yang mencakupi)

  • Business
  • Requirements

• is enabled by
  • (dimungkinkan)

  • Control
  • Statements

• Considering
  • (mempertimbangkan)

  • Control
  • Practices
**COBIT**

**Framework**

- **Business Objectives**
  - Criteria
  - Effectiveness
  - Efficiency
  - Confidentiality
  - Integrity
  - Availability
  - Compliance
  - Reliability

- **IT Resources**
  - Data
  - Application systems
  - Technology
  - Facilities
  - People

- **Plan and Organise**
  - PO1 Define a strategic IT plan (menggambarkan)
  - PO2 Define the information architecture
  - PO3 Determine the technological direction (menentukan)
  - PO4 Define the IT organisation and relationships
  - PO5 Manage the IT investment
  - PO6 Communicate management aims and direction
  - PO7 Manage human resources
  - PO8 Ensure compliance with external requirements
  - PO9 Assess risks (menilai)
  - PO10 Manage projects
  - PO11 Manage quality

- **Acquire and Implement**
  - AI1 Identify automated solutions
  - AI2 Acquire and maintain application software
  - AI3 Acquire and maintain technology infrastructure
  - AI4 Develop and maintain IT procedures
  - AI5 Install and accredit systems
  - AI6 Manage changes

- **Deliver and Support**
  - DS1 Define service levels
  - DS2 Manage third-party services
  - DS3 Manage performance and capacity
  - DS4 Ensure continuous service
  - DS5 Ensure systems security
  - DS6 Identify and attribute costs
  - DS7 Educate and train users
  - DS8 Assist and advise IT customers
  - DS9 Manage the configuration
  - DS10 Manage problems and incidents
  - DS11 Manage data
  - DS12 Manage facilities
  - DS13 Manage operations

- **Monitor and Evaluate**
  - M1 Monitor the process
  - M2 Assess internal control adequacy
  - M3 Obtain independent assurance
  - M4 Provide for independent audit
Maturity of IT Processes
Summing It All Up
Business Goals Drive IT Goals
PO Answers:

- Are IT and the business strategy aligned?
- Is the enterprise achieving optimum use of its resources?
- Does everyone in the organisation understand the IT objectives?
- Are IT risks understood and being managed?
- Is the quality of IT systems appropriate for business needs?
# Processes of AI Domain

<table>
<thead>
<tr>
<th>AI</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>AI1</td>
<td>Identify Automated Solutions</td>
</tr>
<tr>
<td>AI2</td>
<td>Acquire and Maintain Application Software</td>
</tr>
<tr>
<td>AI3</td>
<td>Acquire and Maintain Technology Infrastructure</td>
</tr>
<tr>
<td>AI4</td>
<td>Enable Operation and Use</td>
</tr>
<tr>
<td>AI5</td>
<td>Procure IT Resources</td>
</tr>
<tr>
<td>AI6</td>
<td>Manage Changes</td>
</tr>
<tr>
<td>AI7</td>
<td>Install and Accredit Solutions and Changes</td>
</tr>
</tbody>
</table>
Are new projects likely to deliver solutions that meet business needs?

Are new projects likely to be delivered on time and within budget?

Will the new systems work properly when implemented?

Will changes be made without upsetting current business operations?
## Processes of DS Domain

<table>
<thead>
<tr>
<th>DS1</th>
<th>Define and Manage Service Levels</th>
</tr>
</thead>
<tbody>
<tr>
<td>DS2</td>
<td>Manage Third-party Services</td>
</tr>
<tr>
<td>DS3</td>
<td>Manage Performance and Capacity</td>
</tr>
<tr>
<td>DS4</td>
<td>Ensure Continuous Service</td>
</tr>
<tr>
<td>DS5</td>
<td>Ensure Systems Security</td>
</tr>
<tr>
<td>DS6</td>
<td>Identify and Allocate Costs</td>
</tr>
<tr>
<td>DS7</td>
<td>Educate and Train Users</td>
</tr>
<tr>
<td>DS8</td>
<td>Manage Service Desk and Incidents</td>
</tr>
<tr>
<td>DS9</td>
<td>Manage the Configuration</td>
</tr>
<tr>
<td>DS10</td>
<td>Manage Problems</td>
</tr>
<tr>
<td>DS11</td>
<td>Manage Data</td>
</tr>
<tr>
<td>DS12</td>
<td>Manage the Physical Environment</td>
</tr>
<tr>
<td>DS13</td>
<td>Manage Operations</td>
</tr>
</tbody>
</table>
DS Answers:

- Are IT services being delivered in line with business priorities?
- Are IT costs optimised?
- Is the workforce able to use the IT systems productively and safely?
- Are adequate confidentiality, integrity and availability in place for information security?
## Processes of ME Domain

<table>
<thead>
<tr>
<th>ME1</th>
<th>Monitor and Evaluate IT Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>ME2</td>
<td>Monitor and Evaluate Internal Control</td>
</tr>
<tr>
<td>ME3</td>
<td>Ensure Compliance With External Requirements</td>
</tr>
<tr>
<td>ME4</td>
<td>Provide IT Governance</td>
</tr>
</tbody>
</table>
ME Answers:

- Is IT’s performance measured to detect problems before it is too late?
- Does management ensure that internal controls are effective and efficient?
- Can IT performance be linked back to business goals?
- Are adequate confidentiality, integrity and availability controls in place for information security?
## Linking IT Goals to IT Processes

<table>
<thead>
<tr>
<th>IT Goals</th>
<th>IT Processes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Respond to business requirements in alignment with the business strategy</td>
<td>PO1 PO2 PO4 PO10 AI1 AI6 AI7 DS1 DS3 ME1</td>
</tr>
<tr>
<td>2. Respond to governance requirements in line with board direction</td>
<td>PO1 PO4 PO10 ME1 ME3</td>
</tr>
<tr>
<td>3. Ensure satisfaction of end users with service offerings and service levels</td>
<td>PO8 AI4 DS1 DS2 DS7 DS8 DS10 DS13</td>
</tr>
<tr>
<td>4. Optimise the use of information</td>
<td>PO2 DS11</td>
</tr>
<tr>
<td>5. Create IT agility</td>
<td>PO2 PO4 PO7 AI3</td>
</tr>
<tr>
<td>28. Ensure that IT demonstrates cost-efficient service quality, continuous improvement and readiness for future</td>
<td>PO5 DS6 ME1 ME3</td>
</tr>
</tbody>
</table>
Measuring IT performance: one way to overcome “IT investment paradox”
PO1 Goals and Metrics

**IT Goals**
- Respond to business requirements in alignment with the business strategy

**Process Goals**
- Define the strategy to deliver service offerings

**Activities Goals**
- Translating IT strategic planning into tactical plans

**Set**

**measure**

**outcome**
- Degree of compliance with business and governance requirements

**measure**

**performance indicator**
- Percent of IT objectives in the IT strategic plan that support the strategic business plan

**measure**

**performance indicator**
- Percent of strategic/tactical IT plans meetings where business representatives have actively participated
Define how business functional and control requirements are translated into effective and efficient automated solutions.

Identify solutions that are technically feasible and cost effective.

Undertaking feasibility studies as defined in the development standard.

Number of projects where stated benefits were not achieved due to incorrect feasibility assumptions.

Percent of the application portfolio not consistent with architecture.

Percent of projects in the annual IT plan subject to the feasibility study.
DS1 Goals and Metrics

**IT Goals**
- Ensure satisfaction of end users with service offerings and service levels

**Process Goals**
- Formalise and monitor SLAs and performance criteria

**Activities Goals**
- Reporting on service level achievements (reports and meetings)

**Outcome**
- Percent of users satisfied that service delivery meets agreed-upon levels

**Performance Indicator**
- Percent of services meeting service levels

**Performance Indicator**
- Percent of service levels reported
ME1 Goals and Metrics

**IT Goals**

Ensure that IT demonstrates cost-efficient service quality, continuous improvement and readiness for future change

**Outcome**

Amount of reduction in the number of outstanding process deficiencies

**Process Goals**

Measure, monitor and report process metrics

**Performance Indicator**

Percent of critical processes monitored

**Activities Goals**

Reviewing performance against agreed-upon targets and initiating necessary remedial action

**Performance Indicator**

Number of metrics (per process)
Agar perbaikan yang kontinu terhadap Proses TI dapat dilakukan, maka harus dievaluasi kondisi eksistingnya.

COBIT menyediakan kerangka identifikasi sejauh mana perusahaan telah memenuhi standar pengelolaan Proses TI yang baik → level kedewasaan.
**CobIT® Maturity Model**

*Maturity Model: Method of scoring the maturity of IT processes...*

<table>
<thead>
<tr>
<th>Level</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>Non-existent</td>
</tr>
<tr>
<td>1</td>
<td>Initial</td>
</tr>
<tr>
<td>2</td>
<td>Repeatable</td>
</tr>
<tr>
<td>3</td>
<td>Defined</td>
</tr>
<tr>
<td>4</td>
<td>Managed</td>
</tr>
<tr>
<td>5</td>
<td>Optimised</td>
</tr>
</tbody>
</table>

**Legend for symbols used**
- Enterprise current status
- Industry average
- Enterprise target

**Legend for rankings used**
- 0: Management processes are not applied at all.
- 1: Processes are *ad hoc* and disorganised.
- 2: Processes follow a regular pattern.
- 3: Processes are documented and communicated.
- 4: Processes are monitored and measured.
- 5: Good practices are followed and automated.

GAP Analysis (Current Vs. Goal)

Management’s Target Goal
# Maturity Attribute Table

<table>
<thead>
<tr>
<th>Awareness and Communication</th>
<th>Policies, Plans and Procedures</th>
<th>Tools and Automation</th>
<th>Skills and Expertise</th>
<th>Responsibility and Accountability</th>
<th>Goal Setting and Measurement</th>
</tr>
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<tbody>
<tr>
<td><strong>1</strong> Recognition of the need for the process is emerging.</td>
<td>There are <em>ad hoc</em> approaches to processes and practices.</td>
<td>Some tools may exist; usage is based on standard desktop tools.</td>
<td>Skills required for the process are not identified.</td>
<td>There is no definition of accountability and responsibility. People take ownership of issues based on their own initiative on a reactive basis.</td>
<td>Goals are not clear and no measurement takes place.</td>
</tr>
<tr>
<td>Management communicates the overall issues.</td>
<td>The process and policies are undefined.</td>
<td>There is no planned approach to the tool usage.</td>
<td>A training plan does not exist and no formal training occurs.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>2</strong> There is awareness of the need to act.</td>
<td>Similar and common processes emerge, but are largely intuitive because of individual expertise.</td>
<td>Common approaches to use of tools exist but are based on solutions developed by key individuals.</td>
<td>Minimum skill requirements are identified for critical areas.</td>
<td>An individual assumes his/her responsibility and is usually held accountable, even if this is not formally agreed. There is confusion about responsibility when problems occur, and a culture of blame tends to exist.</td>
<td>Some goal setting occurs; some financial measures are established but are known only by senior management. There is inconsistent monitoring in isolated areas.</td>
</tr>
<tr>
<td>Management communicates the overall issues.</td>
<td>Some aspects of the process are repeatable because of individual expertise, and some documentation and informal understanding of policy and procedures may exist.</td>
<td>Vendor tools may have been acquired, but are probably not applied correctly, and may even be shellware.</td>
<td>Training is provided in response to needs, rather than on the basis of an agreed plan, and informal training on the job occurs.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>3</strong> There is understanding of the need to act.</td>
<td>Usage of good practices emerges.</td>
<td>A plan has been defined for use and standardisation of tools to automate the process.</td>
<td>Skill requirements are defined and documented for all areas.</td>
<td>Process responsibility and accountability are defined and process owners have been identified. The process owner is unlikely to have the full authority to exercise the responsibilities.</td>
<td>Some effectiveness goals and measures are set, but are not communicated, and there is a clear link to business goals. Measurement processes emerge, but are not consistently applied. IT balanced scorecard ideas are being adopted, as is occasional intuitive application of root cause analysis.</td>
</tr>
<tr>
<td>Management is more formal and structured in its communication.</td>
<td>The process, policies and procedures are defined and documented for all key activities.</td>
<td>Tools are being used for their basic purposes, but may not all be in accordance with the agreed plan, and may not be integrated with one another.</td>
<td>A formal training plan has been developed, but formal training is still based on individual initiatives.</td>
<td></td>
<td></td>
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<tr>
<td>4 There is understanding of the full requirements. Mature communication techniques are applied and standard communication tools are in use.</td>
<td>The process is sound and complete; internal best practices are applied. All aspects of the process are documented and repeatable. Policies have been approved and signed off on by management. Standards for developing and maintaining the processes and procedures are adopted and followed.</td>
<td>Tools are implemented according to a standardised plan, and some have been integrated with other related tools. Tools are being used in main areas to automate management of the process and monitor critical activities and controls.</td>
<td>Skill requirements are routinely updated for all areas, proficiency is ensured for all critical areas, and certification is encouraged. Mature training techniques are applied according to the training plan, and knowledge sharing is encouraged. All internal domain experts are involved, and the effectiveness of the training plan is assessed.</td>
<td>Process responsibility and accountability are accepted and working in a way that enables a process owner to fully discharge his/her responsibilities. A reward culture is in place that motivates positive action.</td>
<td>Efficiency and effectiveness are measured and communicated and linked to business goals and the IT strategic plan. The IT balanced scorecard is implemented in some areas with exceptions noted by management and root cause analysis is being standardised. Continuous improvement is emerging.</td>
</tr>
<tr>
<td>5 There is advanced, forward-looking understanding of requirements. Proactive communication of issues based on trends exists, mature communication techniques are applied, and integrated communication tools are in use.</td>
<td>External best practices and standards are applied. Process documentation is evolved to automated workflows. Processes, policies and procedures are standardised and integrated to enable end-to-end management and improvement.</td>
<td>Standardised tool sets are used across the enterprise. Tools are fully integrated with other related tools to enable end-to-end support of the processes. Tools are being used to support improvement of the process and automatically detect control exceptions.</td>
<td>The organisation formally encourages continuous improvement of skills, based on clearly defined personal and organisational goals. Training and education support external best practices and use of leading-edge concepts and techniques. Knowledge sharing is an enterprise culture, and knowledge-based systems are being deployed. External experts and industry leaders are used for guidance.</td>
<td>Process owners are empowered to make decisions and take action. The acceptance of responsibility has been cascaded down throughout the organisation in a consistent fashion.</td>
<td>There is an integrated performance measurement system linking IT performance to business goals by global application of the IT balanced scorecard. Exceptions are globally and consistently noted by management and root cause analysis is applied. Continuous improvement is a way of life.</td>
</tr>
</tbody>
</table>
Continuous Improvement

Define Goals

Business Goals → IT Goals → Process Goals → Activity Goals

Business Outcome → IT Outcome → Performance indicators of IT Process → Performance indicators of IT Activities

Outcome measured with Business Metrics

Set Goals

Drive

Measure Achievement

Outcome measured with Business Metrics

Measure

Indicate Performance

Outcome measured with Performance indicator

Outcome measured with IT Metrics

Outcome measured with Process Metrics

Outcome measured with Performance indicator
Continuous Improvement (Traditional Audit Approach)

Audit rotation schedule based on annual risk assessment function
Continuous Improvement
(Ongoing Measurement of Risk Indicators)
Thank you

http://blog.its.ac.id/riyanarto
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