Management of IT Environment (9)
Riadenie IT prostredia

ITIL: Continual Service Improvement

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Outline

} CSI - Continual Service Improvement
  } Basic definition, purpose, goals, CSI model
} Principles for service improvement
  } 1. Organizational changes, ownership, definition of roles / tasks and responsibilities,
  } 2. External and internal drivers,
  } 3. Service Level Management ($SLM$),
  } 4. Deming cycle,
  } 5. Measurement service, 7-step improvement process,
  } 6. Knowledge management,
  } 7. Benchmarking,
  } 8. Governance,
  } 9. Tools, models, standards, quality systems.

} Process of improving services
  } 7-step process to improve services
  } Reporting
  } Measurement
  } Return on investment
  } Business questions
  } $SLM$ - system level management.
CSI - Continual Service Improvement (1)

Continual Service Improvement

Process Review & Maturity Reporting (Compliance)
ROI & Value Reviews & Business Alignment Planning

Service Design

Service Strategy

Service Operation
Service Transition

Customer Satisfaction Surveys
Service Reviews & Improvement Planning
Management Information Review & Trend Reporting
Service Reporting
Communications Strategy & Plan
Continual Service Improvement - CSI

Continual vs. Continuous ... i.e. more continuous ...

CSI = way of managing the stages in the life cycle of IT services.

Def: CSI is responsible for managing improvements in IT service management processes and IT services.

- The performance of the IT service provider is continuously measured and improvements are incorporated into processes in IT services and IT infrastructure to increase efficiency, effectiveness and cost optimization.

CSI includes processes:

- 7-step improvement process
- Reporting
- Measurement
- Return on investment
- Business questions
- SLM - system level management.
Goals of service improvements

Main purpose: continuously modify IT services, adapt them to the business requirements.
   Identify and implement improvements of IT services to meet the (changing) business processes.

Measurements vs. management:
   & Can not manage what you can not control,
   & Can not control what you can not measure,
   & can not measure what can not be defined,

Partial objectives:
   & Examination, analysis, and recommendations for making improvements in all phases of service life cycle: strategy, design, transition, deployment,
   & Monitoring and analysis of the results in service level (*Service Level Achievements*),
   & Identification and implementation of individual activities to improve the quality of IT,
   & Improving the cost effectiveness of IT service delivery (without compromising the customer),
   & The use of quality management methods to support CSI activities.
CSI model

- Vision
- Reference points
- Measurable objectives
- Processes and Services
  - Measurement and Metrics
Principles for service improvement

Goal: identify opportunities for improvement at all stages of the live cycle

Principles for service improvement:

1. Organizational changes, ownership, definition of roles / tasks and responsibilities,
2. External and internal drivers,
3. Service Level Management (SLM),
4. Deming cycle,
5. Measurement service, 7-step improvement process,
6. Knowledge management,
7. Benchmarking,
8. Governance,
9. Tools, models, standards, quality systems.
1. Organizational changes, roles and responsibilities (1)

Organizational changes:
- Inclusion of CSI in the overall process of change in organization.
  - for example: John P. Kottler: 8 steps to transform the organization.

Ownership:
- Someone must be responsible, i.e. CSI manager
- Assign tasks (monitoring, analyzing, trend evaluation, ...) to specific people / roles

Definition of roles and responsibilities (*production vs. project*):
- **CSI executive roles:** CSI manager, Service manager, Service owner, Process owner, Operations analyst, Measurement analyst, Reporting analyst, Quality assurance analyst
- **Project roles:** Executive sponsor, Process design / implementation / re-engineering team members, Process adviser, Project manager
### 1. Organizational changes, roles and responsibilities (2)

<table>
<thead>
<tr>
<th>Key activities</th>
<th>Key roles</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collect data and analyse trends compared to baselines, targets, SLAs and benchmarks. This would include output from services and service management processes.</td>
<td>CSI Manager, Service Manager, Service Owner, IT Process Owner</td>
</tr>
<tr>
<td>Set targets for improvement in efficiency and cost effectiveness throughout the entire service lifecycle</td>
<td>CSI Manager, Service Manager</td>
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<tr>
<td>Set targets for improvements in service quality and resource utilization</td>
<td>CSI Manager, Service Manager, Service Owner, Business Process Owner</td>
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<td>Consider new business and security requirements</td>
<td>CSI Manager, Service Manager, Business Process Owner</td>
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<tr>
<td>Consider new external drivers such as regulatory requirements</td>
<td>CSI Manager, Service Manager, Business Process Owner</td>
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<tr>
<td>Create a plan and implement improvements</td>
<td>CSI Manager, Service Manager, Service Owner, Process Owner</td>
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<td>Provide a means for staff members to recommend improvement opportunities</td>
<td>CSI Manager, Service Manager</td>
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<tr>
<td>Measure, report and communicate on service improvement initiatives</td>
<td>CSI Manager, Service Manager</td>
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<tr>
<td>Revise policies, processes, procedures and plans where necessary</td>
<td>CSI Manager, Service Manager</td>
</tr>
<tr>
<td>Ensure that all approved actions are completed and that they achieve the desired results.</td>
<td>CSI Manager, Service Manager, Business Manager, IT Process Owner, Business Process Owner</td>
</tr>
</tbody>
</table>
2. External and internal drivers

External effects:

- Law regulations / rules, competitors, requirements of external customers, pressure of market & global economy

Internal effects:

- Structure of the organization, organizational culture, the ability to accept change, the level of employees (existing, planned), trade unions, ...

SWOT analysis

- The method of review and analysis of internal strengths and weaknesses of the organization, as well as external opportunities and threats that organizations face.

- SWOT means:
  - Strengths, Weaknesses,
  - Opportunities, Threats,
3. Service Level Management (1)

Def.: Process, which are responsible for establishing service level agreements (SLA) and ensure their compliance.

- SLM ensures that the IT services management processes, service level agreements and support contracts are appropriate (relevant) within the agreed target level of services.

- SLM does the monitoring and reporting on service level and maintains the overall customer satisfaction.

- For IT services SLM is now mandatory.

- That is to say that application of IT in the organization must be designed and managed according to the service model
3. Service Level Management(2)

Steps in SLM:

- Fully accept that the IT organization must be a provider of business services,
- Include business in to the service level requirements (SLR),
- Define an internal portfolio of services (services planned / developed / deployed),
- Define service catalog focused on the customer,
- Identify internal relations in the IT department, the responsibility to communicate, codify them in operational level agreement (OLA),
- Identify external relations (contracts) with the traders to codify them in supporting contracts (UC, Underpinning Contract), to ensure compliance with the (revised) requirements of the business,
- Use the catalog of services as the baseline and create service level agreement with business,
- Create a service improvement plan (SIP) for continuous monitoring and improvement of service levels.
4. Deming cycle (1)

The cycle for quality improvement: Plan - Do - Check - Act
4. Deming cycle (2)

Plan - Do - Check - Act:

4-phase cycle for process management

Author: W. Edwards Deming

Plan: Proposal or revision of processes that support IT services.

DO: Implementation of the plan and process management.

Check: Measurement of processes and IT services, comparing with the objectives and creation of reports.

Act: Planning and implementation of changes to improve processes.
5. Measurement service - generally

**Baselines:**

- Determination of point from which the experiment will run.
- The reference points should be documented, down to all levels (*strategic, operational,...*).

**Reasons for measuring services:**

- To validate previous decisions,
- To direct future activities,
- To justify correctness of direction,
- To intervene, correction

**Question within the measurement service:**

- Why do we measure and monitor? When measuring stops? Does anyone use the data resulting from measurements?
- The question in each measurement and report creation: *Is this measurement still needed?*
5. Measurement service- 7-step process

1. Define what should be measured
2. Define what we can measure
3. Gathering of data
4. Processing of data
5. Analysis of data
6. The presentation and use of information
7. Implementation of corrective actions
6. Knowledge management

**KM: Learning from the past**
Assumption: archiving of data at each stage of IT service life cycle.

**Model DIKW:**
*Data, Information, Knowledge, Wisdom*

- Gathering of data,
- Processing of data into information,
- Synthesis of information into knowledge,
- Combination of knowledge into "the wisdom" (lessons).

"Wisdom" should lead to a better future decisions.
7. Benchmarking

Def.: **Benchmark** is recorded state (value) of something in certain time. Benchmark can be used in configuration, processes or in any other data. Is used for example:

- in CSI, to determine the current state of management improvement,
- in capacity management to document performance during normal operation.

Def.: **Benchmarking** is the comparison with a benchmark reference point (baseline), or best practice. Benchmarking is also that, when you record a sequence of benchmarks over time you can see overall progress and improvement.

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8. Governance

Def.: **Governance** is to ensure that policies and strategies are actually implemented and that the required processes are correctly followed.

**Governance includes:**
- defining roles and responsibilities,
- measurement and reporting,
- Solving of every identified problem.

**Types of governance:**
- Enterprise governance
- Corporate governance
- IT governance.
9. Tools, models and standards (1)

Frameworks, best practices:

- **ITIL** (Information Technology Infrastructure Library - ver. 2, ver.3)
- **COBIT** (Control OBjectives for Information and related Technology) provides guidance and Best Practice for managing IT processes. It publishes the IT Governance Institute. More information on [http://www.isaca.org](http://www.isaca.org)
- **PMBOK** (Project Management Body of Knowledge) - set of processes and knowledge (best practices) from project management
- **PRINCE2** (PRojects IN Controlled Environments, v2) - structured method of project management

Models:

- **CMMI** (Capability Maturity Model Integration) - created at Carnegie Mellon Univ., model to demonstrate the maturity of the software development process.
9. Tools, models and standards (2)

Standards:

- ISO/IEC 20000:2005 - based on ITIL ver.2, using an integrated process approach to effective delivery of managed services to the customer, due to business requirements.
- ISO/IEC 27001:2005 - implementation of information security in all types of organizations (Information Security Management System)
- ISO/IEC 17799:2005 - guidelines and general principles for implementing information security within the organization
- ISO/IEC 15504 (SPICE - Software Process Improvement and Capability Determination) - framework for determining capability services
- ISO/IEC 19770:2006 - management of IT resources at the level of corporate governance, standardization of processes for software asset management

Quality systems:

- Six Sigma, methodology for error measurement and quality improvement (for example [www.sixsigma.sk](http://www.sixsigma.sk))
Processes of service improvement

CSI includes processes:

- The process of improving services in 7 steps
- Reporting
- Measurement: availability, reliability, service performance
- Return on investment: Price for improving services, business analysis
- Business questions
- SLM – Service level management: input to CSI - defines what will be measured, monitoring requirements, business requirements for service change / new services. SLM supports 7 - step process to improve specific activities, inputs.
Process of improving services in 7 steps (1)

Measurement - key concept for CSI

1. Define what you should measure

2. Define what you can measure

3. Gather the data
   - Who? How? When? Integrity of data?

4. Process the data
   - Frequency? Format? System? Accuracy?

5. Analyse the data

6. Present and use the information, assessment summary, action plans, etc.

7. Implement corrective action

Identify
- Vision
- Strategy
- Tactical Goals
- Operational Goals
Process of improving services in 7 steps (2)

1. What should be measured?
   - Get information from the business, customers, IT management.
   - Use Catalogue of services as a starting point.
   - Define list of measured items (for example, using the business requirements).

2. What can we measure?
   - Create list of tools that are available (without having to change or adaptation).
     Determine what is which instrument able to measure.
   - Get information from processes, existing reports, databases, documents.
   - Compare the list of tools with a list of measured lines (step 1). Consult with business, customers and IT management. If necessary, add list of tools (configuration, customization, ...).
   - Note: If something can not be measured, it should not be included in the SLA.
3. Gathering data

- Assumption: monitoring, monitoring system.
- Goal – quality improvement. Monitoring focuses on efficiency, respectively to identify points at which it would be possible to achieve improvement.
- Think of measurement by-design service - the service requirements include the specification of monitoring data.
- **Define:**
  - Who will be responsible for monitoring and data collection,
  - How will be the data collected,
  - When and how often data will be collected,
  - Criteria for evaluating the integrity of data.
Process of improving services in 7 steps (4)

4. Data processing

Conversion of data to the desired format, traceability metrics from the KPI, CSF, or to the vision:

**KPI**: Key Performance Indicator

**CSF**: Critical Success Factor
Process of improving services in 7 steps (5)

4. Data processing

Inputs for data processing:

- Data collected during the monitoring
- Requirements for evaluation / reporting
- SLA / OLA
- Catalogue of services
- The list of metrics, KPI, CSF, defined objectives of data processing
- Frequency of assessment / reporting
- Message templates

Outputs:

- Plans of the availability and capacity
- Reports
- Logical groupings of data ready for analysis
5. Data analyzing = Transforming data to knowledge

} Analyze (determine) the data:

} Trends: positive / negative

} Have there been any requests for changes?

} "Are we going according to plan?"

} “Are we aiming to the goal?”

} Should there be action to create correction?

} Are there any structural problems?

} What is the price of a service outage?

} Outputs:

} Not only tracking (numerical) results / trends, but also answers the question: are these results good / bad / expected / in accordance to the objectives?

} Compliance with the plans, the rate of achieving the objectives defined in the SLA and service catalog, a qualitative assessment of trends and their causes, ...

Pr.: Decrease of frequencies of contacts in the Service Desk. It is because of reduction of errors or poor job performance of operators?
6. Presentation and use of information

- For whom the information is / what interests them:
  - **Business** / if IT gave promised service (to the extent required), and if not, what measures have been taken to improve the situation
  - **Senior (IT) management** / results of CSF and KPI, i.e. customer satisfaction, vs. reality. schedule, cost and return (to plan)
  - **Internal IT** / KPI a metrics activities that will help them plan

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**Pr.:** Monitoring of SLA – time development (by month)

<table>
<thead>
<tr>
<th>Period</th>
<th>Target</th>
<th>January</th>
<th>February</th>
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</table>
Process of improving services in 7 steps (8)

7. Implementation of corrective actions

Using the knowledge gained to improve the existing situation:

- Many opportunities for improvement identified in the analysis
- Selecting only those improvements which are in line with business objectives
- Accepted improvements - initiate a life-cycle services: a new strategy, design, migration, deployment for improved service.

Levels of communication for future improvements:
Reporting focused on business:

- Proposal of format and report content, according to what and in what form the business expects: processes, trends, relationships between data, ...
- Defining framework / template for reports
- Defining the rules, policies
- Simplicity of resulting reports
- All information relevant
- Automated transmission of measured / analyzed historic data into the reports
### Business questions in terms of CSI

#### Where do we stand?
- Where do we want to get?
- What do we need?

#### What are we afraid of?
- What do we get?
- What did we get?

<table>
<thead>
<tr>
<th>Department</th>
<th>We want ...</th>
<th>To support our goal or objective of ...</th>
<th>The reason is to address ...</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sales</td>
<td>Improved availability for web services</td>
<td>Improve web service availability by 25%</td>
<td>Lost sales opportunities</td>
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<td></td>
<td></td>
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<td>Increased competition</td>
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<td>Cost of working incidents and problems</td>
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<tr>
<td>Marketing</td>
<td>Improved availability for web services</td>
<td>Improve use of web for marketing initiatives by 40%</td>
<td>Reach a larger potential customer base</td>
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<td>Gain knowledge of customer perception of our business</td>
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<td>Current web marketing surveys are always breaking down</td>
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</tbody>
</table>
Questions?