

Improvement of the information services by using means of the IT infrastructure library

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In the present paper, the focus is on the process of determining effective key indicators in ITIL (Information Technology Infrastructure Library), and is provided an overview of the most popular key performance indicators. ITIL is a set of best practices that focus on the management of IT services and processes. The goal of ITIL is to improve the quality and efficiency of the use of information technology by aligning information services with business needs. During the process of ITIL implementation is improved the quality of these services and is reduced their cost in the long term. In the field of service management are formulated ten key business areas – for supply and for maintenance of services. These groups are described within ten practical areas in which the paper discusses the need for the use and definition of key indicators for unification of measurement services and businesses (organizations) and the process used to provide these measurements.

Изследване на методите за определяне на ключови показатели за библиотека от добри практики за ИТ (Марио Иванов). В тази статия се отделя основно внимание на процеса на определяне на ефективните ключови показатели в ITIL, както и се прави обзор на най-популярните ключови показатели за ефективност. ITIL представлява набор добри практики, фокусирани върху управлението на ИТ услуги и процеси. Целта на ITIL е да се повиши качеството и ефикасността на използването на информационни технологии чрез съгласуване на информационните услуги с нуждите на бизнеса. С въвеждането на ITIL се подобрява качеството на тези услуги и се намаляват разходите за тях в дългосрочен план. По отношение на областта за управление на услугите има формулирани десет основни сфери на дейност – за доставка и за поддръжка на услуги. Тези групи се описват в рамките на десетте практически области, за които в тази статия се обсъжда необходимостта от използването и дефинирането на ключови показатели, за уеднаквяване на измерванията за услугите и бизнеса (организациите), както и за процеса използван за предоставяне на тези измервания.

I. Introduction

Owning a high-performance IT system is sufficient criteria for determining the competitiveness of an organization. This includes the high quality IT services, minimal time for disability of IT infrastructure and processes connected with it.

The biggest part of the problems in the management of organization structures arises when there is a lack or the management is not on the necessary level for the IT services and processes. Some of the critical areas are the management of configuration and the levels of the offered services. The bad planning in the change of an element can lead to hardness in finding and persuading problems and stop of the work of a service or process. The missing of effective planning, monitoring of the processes can lead to problems with organizations infrastructure. This is very important where structures

are critical.

The missing of quality in working documentation and the automatically operation of the problems leads to decreasing in the quality of processes and the disability of fast restoring of their operation.

The idea which is presented in the paper is the compliance with the standard ITIL – library of the infrastructure in the area of IT and its usage in software application. The Principe on which is based the work of ITIL is the knowledge that organizations depends mostly on IT for reaching the corporative and business goals. This leads to big requirements for high quality of the IT services.

The process of resolving problems from the specialists require knowledge of different spheres, and expects implementation of software applications.

Founded in the end of the 80-s in 20th Century, the

infrastructure model for management is changed in “de facto” standard for management of IT services (IT service management- ITSM). In this point of view the ITIL is used as a part of ITSM. At the beginning it was a tool, used from the government of UK, but after that this frame model becomes very useful for different organizations in all sectors of the IT. This succeeded by taking the ITIL as a basic in companies which are using service management as their own policy. One of the main advantages of ITIL is the usage of common language. Beside the structure, ITIL defines the boundaries of the organization management of services. In this model are included the purposes, basic actions and the inputs and outputs parameters of different processes, which can be cooperated in one or several IT organizations. The ITIL model is focused on the best practice which can be used in different ways, depending on the concrete business needs.

According to this structure, which includes the so called best practices, ITIL can be used from companies with already existing methods and actions, connected with the management services. The implementation of ITIL does not mean the founding of absolutely new model of management and thinking. On a contrary, it defines a frame of existing methods and actions which are successfully structured. By highlighting the interconnections between the processes, is reduced or eliminated the lack of communication and cooperation between different IT functions.

ITIL is focused on the insurance of the high technology services with specific attention on relationship between the customers.

There are not many similar researches in the field of the KPIs definition and management.

II. Performance of key indicators in ITIL

The success in improvement of a process depends

on four major factors. The first one, there must be reason to start improving it. This usually takes the form of business practice, focused on the goal of reducing costs, improving supply and quality. The second one, the action plan on this issue needs to be well analyzed. It is necessary to emphasize on the limits, priorities, outcomes and risk assessment. Then we'll put the resources committed to the development of goals and objectives of the program. This choice is made by the high level management of the organization. And finally, we must have a clear set of measurements that can be used to monitor the performance and the progress of the goals and objectives of the program.

III. The role measurement in the improvement of a processes

As it was noted above, one of the main factors for successful improvement of a process is the ability to measure performance. The structure of ITIL is focused on providing of services that are supported by computer systems and requiring the maintenance of software and hardware, having minimal impact on the busines. This is a reason to establish a quantitative set of measurements that will determinate the behavior and achievements in the field of activity of ITIL, service management support.

Targeting IT organization to improve process management services using ITIL structures is an approach to improve the process itself. Since these processes are continuous, the key indicators are designed to monitor and direct the improvement of the various areas thereof. They are designed to identify where goals and objectives are met. However, they can also serve the activities associated with managing and directing the process, while practical areas be continuously improved.



Fig. 1. Service lifecycle according ITILv3 [1].

IV. The ITIL procedures measurement

The process of determining the appropriate measures providing the collection and analysis of data and effective use of outcomes for guidance and leadership of continual improvement is essential to create a successful process of measurement.

In the paper is presented an example for implementation of ITIL. The whole procedure is divided on four phases, and each one is consistent of some main activities. During the phases are also determined the necessary actions for creating, analyzing and reporting on KPI.

A. Phase "Initiation"

- Determination of the achieved level of ITIL - includes groups, functions and processes that are focused and involved.
- Relationship between ITIL objectives and those of business organization.
- Establishment of criteria for success in ITIL - "How will we know that we have achieved success?"
- The main activities performed to measure KPI
 - Prioritization
 - Determination of quality parameters
 - Creating value criteria
 - Business Case and return on investments for implementing ITIL

B. Phase "Evaluation"

- A document describing the current status of functions or processes which are included within the scope of ITIL.
- Determination of the desired future state, by comparison of the current state with the best procedures in ITIL.
- Taking into account the strengths and weaknesses that will need to be reviewed.
- Activities performed to measure the KPI

- Main activities
- Evaluation of the effectiveness
- Determination of supporting data
- Identification of gaps in the evidence base

C. Phase "Planning"

- Improvement of the disadvantages of phase "Evaluation" under existing schedule and resources of the organization.
- Activities performed to measure the KPI
 - Develop metrics
 - The definition of these metrics
 - Development of the process to provide measurements

D. Phase "Performance"

- Design, development and production of future decision.
- Establish whether the criteria for success are achieved.
- Activities performed to measure the KPI
 - Evaluation of the information.
 - Identification of improvements.

V. Create the main key indicators.

In order to provide meaningful measurements of KPIs, which are aligned to the objectives of the organization, it is important to answer on the following questions:

- What measurements need to be made for the purpose of business / organization?
- How they are represented in the measurements associated with IT services?
- How the process supports measurements in IT services?
- How will you collect and analyze measurements?

The table below includes KPI measurements and their corresponding definitions and purposes.

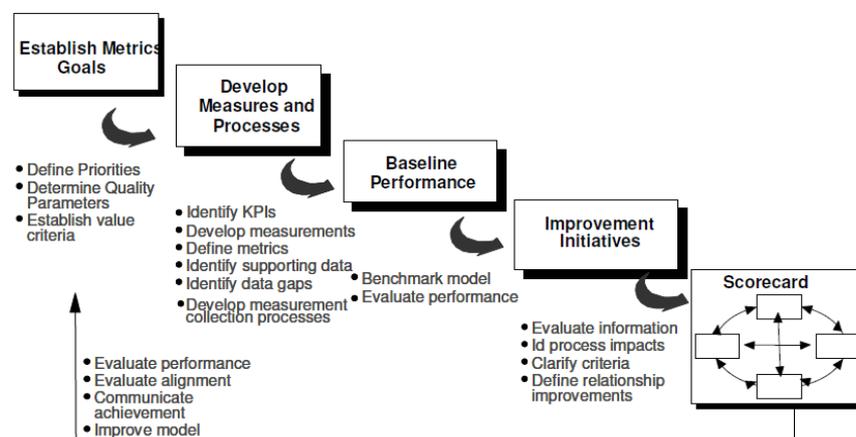


Fig. 2. The process of measurement.

Table I

Page layout description

Process	Objectives (Key Success Factors)	Measuring Dimension	Structure of Measurement
Service Level Management	Improving traceability and reach service level management	The percentage increase or decrease in the stage.	Tracking through monthly management and reporting of events.
Change Management	Reduce the incidence caused by excessive change	Percent reduction in cases arising from unauthorized changes.	Tracking through monthly reporting of the management events and changes.

VI. Effective Use of KPIs

Once the indicators are defined and associated with various business objectives, the focus of measurement is moved on the process of implementation. It is necessary to determine how the data will be collected, analyzed and reported. The measurement program will identify the sources of data and who prepared the relevant measurements. Common sense should be used in evaluation and improvement of processes.

KPIs should provide information on:

- Quality - How well does the process work? Whether we have improved the goals that were set for this process?
- Efficiency - Is there sufficient productivity of the process?
- Compliance - Is there adequate process monitoring?
- Value - We know what we are expected to do?

VII. Common KPIs for the most important ITIL processes.[2][3]

Those common indicators are presented on the following as a complete collection of KPIs for the most important ITIL processes.

The suggested ITIL Key Performance Indicators (KPIs) comply with the ITIL 2011 recommendations and were enhanced with elements from COBIT.

ITIL KPIs Service Strategy

- KPIs Service Portfolio Management and Strategy Management for IT Services
 - Number of Planned New Services
 - Number of Unplanned New Services
 - Number of Strategic Initiatives
 - Number of new Customers
 - Number of lost Customers

- KPIs Financial Management
 - Adherence to Budgeting Process
 - Cost-/ Benefit Estimation
 - Post Implementation Review
 - Adherence to Approved Budget
 - Adherence to Project Resources
 - Proposals for Cost Optimization
- KPIs Business Relationship Management
 - Number of Customer Complaints
 - Number of accepted Customer Complaints
 - Number of Customer Satisfaction Surveys
 - Percentage of returned Questionnaires
 - Customer Satisfaction per Service

ITIL KPIs Service Design

- KPIs Service Level Management
 - Services covered by SLAs
 - Services covered by OLAs/ UCs
 - Monitored SLAs
 - SLAs under Review
 - Fulfilment of Service Levels
 - Number of Service Issues
- KPIs Capacity Management
 - Incidents due to Capacity Shortages
 - Exactness of Capacity Forecast
 - Capacity Adjustments
 - Unplanned Capacity Adjustments
 - Resolution Time of Capacity Shortage
 - Capacity Reserves
 - Percentage of Capacity Monitoring
- KPIs Availability Management
 - Service Availability
 - Number of Service Interruptions
 - Duration of Service Interruptions
 - Availability Monitoring
 - Availability Measures
- KPIs IT Service Continuity Management
 - Business Processes with Continuity Agreements
 - Gaps in Disaster Preparation
 - Implementation Duration
 - Number of Disaster Practices
 - Number of identified Shortcomings during Disaster Practices
- KPIs Information Security Management
 - Number of implemented Preventive Measures
 - Implementation Duration
 - Number of major Security Incidents
 - Number of Security-related Service Downtimes
 - Number of Security Tests
 - Number of identified Shortcomings during Security Tests
- KPIs Supplier Management

- Number of agreed UCs
- Number of Contract Reviews
- Number of identified Contract Breaches

ITIL KPIs Service Transition

- KPIs Change Management
 - Number of Major Changes
 - Number of CAB Meetings
 - Time for Change Approval/ Rejection
 - Change Acceptance Rate
 - Number of Emergency Changes
 - KPIs Project Management (Transition Planning and Support)
- ITIL KPIs Project Management (Transition Planning and Support)
 - Number of Projects
 - Percentage of Projects with Project Charters
 - Number of Changes to Project Charter
 - Adherence to Project Budget
 - Project Delays
- KPIs Release and Deployment Management
 - Number of Releases
 - Duration of Major Deployments
 - Number of Release Backouts
 - Proportion of automatic Release Distribution
- KPIs Service Validation and Testing
 - Percentage of failed Release Component Acceptance Tests
 - Number of identified Errors
 - Time for Error Fixing
 - Incidents caused by New Releases
 - Percentage of failed Service Acceptance Tests
- KPIs Service Asset and Configuration Management
 - Verification Frequency
 - Number of Incidents owing to inaccurate CMS Information
 - Effort for CMS Verifications
 - CMS Coverage
 - Number of unauthorized Changes detected automatically
 - Number of CMS Errors

ITIL KPIs Service Operation

- KPIs Incident Management
 - Number of repeated Incidents
 - Incidents resolved Remotely
 - Number of Escalations
 - Number of Incidents
 - Average Initial Response Time
 - Incident Resolution Time
 - First Time Resolution Rate
 - Resolution within SLA
 - Incident Resolution Effort

- KPIs Problem Management
 - Number of Problems
 - Problem Resolution Time
 - Number of unresolved Problem
 - Number of Incidents per Known Problem
 - Time until Problem Identification
 - Problem Resolution Effort

ITIL KPIs Continual Service Improvement

- KPIs Service Review
 - Number of Service Reviews
 - Number of identified Weaknesses
- KPIs Process Evaluation
 - Number of Process Benchmarkings, Maturity Assessments, and Audits
 - Number of Process Evaluations
 - Number of identified Weaknesses
 - Number of CSI Initiatives
 - Number of completed CSI Initiatives
- KPIs Definition of Improvement Initiatives
 - Number of CSI Initiatives
 - Number of completed CSI Initiatives

VIII. Conclusion

The definition and implementation of effective key performance indicators using ITIL requires strict measurement process. The processes in ITIL structure of planning and implementation must be performed in parallel with definition of KPI. The indicators should support the business needs and to provide a variety of processes for improvement within ITIL. Along with ITIL structure must be established and specific activity measurements.

Unfortunately at the moment there is no one strict and well defined criteria for KPIs development. It depends in most of the cases on the specific of the organization. That is the reason for studying different approaches for development of KPIs. There is an own approach for this which is remaining to be done.

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