

Florian Matthes, Ivan Monahov,
Alexander Schneider, Christopher Schulz

EAM KPI Catalog

v 1.0



Acknowledgments

First and foremost we express our gratitude to the Ernst-Denert-Stiftung which made this research possible.

Since the majority of these KPIs originate from practice, we thank our industry partners which shared their knowledge and provided useful insights.

Last but not least, we want to thank Michael Schätzlein for his support in documenting and compiling the catalog's content.

Garching b. München, December 2011

Prof. Dr. Florian Matthes
Ivan Monahov
Alexander Schneider
Christopher Schulz

Abstract

As a management discipline EA management aims to align business and IT, foster communication, and support the continues transformation of the organization. Thereby, EA management initiatives are driven by respective EA management goals originating from both – the business and IT strategy. However, the degree of achievement of these goals must be measurable. Therefore, corresponding key performance indicators (KPI)s have to be defined. These indicators enable enterprise architects to plan, forecast, benchmark, and assess the EA management goal fulfillment. Furthermore, they provide a quantifiable rationale for adopting and comprehensive means for controlling. As literature and our practitioners confirm, there are only a few KPIs dedicated to the management of enterprise architectures. Moreover, existing indicators are differently structured, selective regarding the specific EA management goals, too general and vague with regards to the required data, and do not provide any adoption techniques for the enterprise context.

First, this catalog provides a list of common EA management goals as identified by means of a structured literature review. To measure the goals' fulfillment, the document offers 52 KPIs we discovered and applied in industry projects or detected during our literature study. Thereby, each KPI is described by a structured template we evaluated during interviews with 9 industry experts. Not only this common template ensures consistency among the documented KPIs, it further provides guidance during their introduction and organization-specific adaptation. This catalog targets at practitioners and academic audience since it contains practice proven KPIs and points towards future research topics coping with the measurement of EA management goals. As this document represents work in progress, readers are invited to share their opinion and contribute to the enhancement by adding further KPIs.

Contents

1	Motivation	1
1.1	Introduction	1
1.2	Contribution	3
1.3	Target group	4
2	User's Guide	5
2.1	KPI identification based on EA management goals	5
2.2	KPI identification based on architectural layers	7
2.3	Select appropriate KPIs	8
2.4	Configure selected KPIs	10
3	Navigational aids	12
3.1	Goal-KPI-Matrix	12
3.2	Architecture-KPI-Categories	14
3.3	Integrated information model	17
4	EAM KPI Catalog	18
	Application continuity plan availability	19
	Backup key roles	20
	Service portfolio methodology analysis	21
	Costs of inadequate change specifications	22
	Business case quality	23
	Project's employee and contractor mix	24
	SLAs met	25
	Forecast quality	26
	Project performance index	27
	PM guideline adherence	28
	SLA diffusion	29
	Application criticality ratings available	30
	Incident duration	31

Customer satisfaction index	32
IT process standard adherence (application)	33
Project compliance to target architecture	34
Previously identified risks occurred	35
Not previously identified risks occurred	36
Workplace inspection	37
IT processes measured by KPIs	38
Project's quality plan availability	39
Projects with quality manager ≠ project manager	40
Audit findings	41
Employees in strategic focus areas	42
Skill profile description availability	43
Employee qualification	44
Employee satisfaction index	46
IT staff training	47
Employees in innovative projects	48
Business domain coverage of target architecture	49
Application portfolio methodology analysis	50
IT process standard adherence (service)	51
Business application technology standards compliance	52
Feasibility study performance index	53
IT responsiveness satisfaction index	54
IT investment delivering predefined benefits	55
IT roles staffed	56
Background checks	57
Defects uncovered prior to production	58
Action plans for critical IT risks	59
Feasibility study satisfaction index	60
Maintenance projects effort	61
Business applications compliant with IT architecture and technology standards	62
Procurement policies compliance	63
Service desk calls caused by inadequate training	64
IT continuity plans for business applications supporting critical processes	66
Unexpected service interruption duration	67
Password standard compliance	68
Reopened incidents	69
Critical IT processes monitoring	70
KPI targets met	71
IT component category standardization	72
5 Roadmap	73
Bibliography	75

1.1 Introduction

Today's globalized and highly competitive business environments are characterized by an increasing frequency of changes. These changes combined with new laws and regulations give rise to a growing internal complexity of the socio-technical system of the enterprises. Originating from the field of information systems architecture [SZ92], enterprise architecture (EA) management represents an accepted instrument to cope with this complexity. According to the ISO Standard 42010, an EA is understood as the "fundamental organization of a system [enterprise] embodied in its components, their relationships to each other, and to the environment, and the principles guiding its design and evolution" [In07]. Given this definition, EA management takes a holistic perspective covering all areas of an enterprise from business and organizational via application and information to infrastructure and data aspects. Figure 1.1 depicts relevant elements of an EA including the cross-cutting functions.

The business & organizational layer reflects entities linked to the business itself, e.g., the processes, products, and organizational units. The processes in combination with the people and resources provide the so-called business capabilities. The application & information layer is concerned with business applications, their interdependencies, and related elements. The business services provided by the applications to the business are of concern in the business service layer, which may include the respective service level agreements (SLAs). Furthermore, the infrastructure & data layer is about entities relevant in providing the technical infrastructure and data in the form of infrastructure services, on which the business applications rely on. Again, these services may be attached to different SLAs. The cross functions refer to entities from all layers. Vision & goals derived from them report the needs for action on the respective layers, hence generate strategies & projects. Principles & standards are guidelines and rules which have to be followed when analyzing, describing, and adapting the respective EA elements. The questions & key performance indicators (KPI)s

1. Motivation

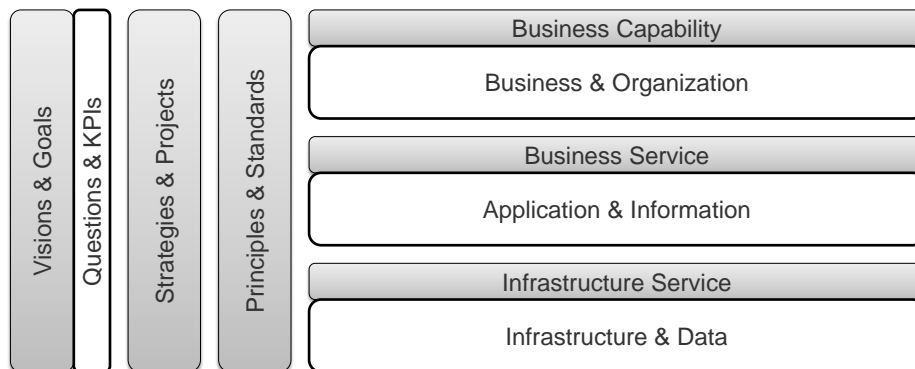


Figure 1.1: Layers and cross functions of an enterprise architecture (based on [Wi07])

are supposed to aid planning and controlling the different layers, since management is only possible based on an underlying measurement.

As part of the term EA management, the word management generally refers to “the process of assembling and using resources - human, financial, material, and information - in a goal directed manner to accomplish tasks in an organization.” [BP00]. Concerned with the present and the expected and desired future [Dr06], management functions are usually described as follows (cf. [BP00]):

- **Planning** is defined as making decisions about the actions to be carried out in the future, based on expectations of future states. Plans are thus made for the staff. The extent of the staff, the granularity of the plans, and the time frame covered by the plans varies with the kind of planning, ranging from strategic planning to operative planning.
- **Leading** is concerned with influencing, motivating, and thus enabling others towards achieving specific goals.
- **Organizing** involves adequate combination and utilization of resources. This ranges from the high-level organizational structure to specific teams. This function is meant to “bring order out of chaos”.
- **Controlling**, better called monitoring and evaluating, is about governing the work of the employees under the responsibility of a manager. Different approaches to monitoring and evaluating exist, which include setting standards in advance, monitoring ongoing performance, and evaluating completed work.

According to Tom DeMarco, controlling is not possible without measuring [De82]. Consequently, the controlling function of EA management can be performed only if applying dedicated metrics and key performance indicators (KPI)s. Despite the fact, that well-known industry approaches like ITIL [Of00] and CobiT [IT09] provide an abundance of indicators, a general problem persists: proposed KPIs either

- focus on a subset of EA management goals,
- are too generic,
- are documented and structured differently,

- do not detail on the required data,
- and/or cannot be adapted to the specific enterprise context.

The lack of practice-proven and meaningful metrics is confirmed by literature [KAV05] additionally stating that it is hard to provide justification for EA management efforts to managers and to develop meaningful value propositions [LKL10]. To summarize: without KPIs, any goal achievement cannot be validated.

1.2 Contribution

Based on a profound literature study as well as three industry projects applying dedicated EA metrics, this catalog provides a set of goal-driven EA management KPIs. In detail, the core contributions of the document are as follows:

1. First, a set of **ten distinct EA management goals**. On the one hand, these goals are based on current EA management literature (cf. [Bu10]), on the other hand on concrete objectives we challenged during our projects with industrial partners. Goals provide both, guidance as well as a rationale for EA management endeavors. In order to track them, KPIs are used. Their linkage to specific goals is also given in this document. It is justified by available literature as well as the industry projects we as the TUM research chair sebis participated in.
2. Second, a **collection of 52 KPIs** measuring the EA management goals. These indicators originate from different sources: sebis, industry partners, and literature. While sebis KPIs are instances we actually **applied** during research cooperations with industry partners, industry partner KPIs are indicators we **observed** at our industry partners. Lastly **literature** KPIs are instances **proposed** by literature. Regardless the source, each single KPI is depicted by means of dedicated profile being subdivided into a descriptive and prescriptive section. While former contains general characteristics of the indicator independent from the organization, latter serves as a template easing the configuration of the KPI to enterprise-specific needs. In this vein, KPIs can be used out-of-the-box while leaving room for organization-specific adaptations. Called template, a KPIs structure originate from literature [Ku10] as well as the feedback of ten industry partners to whom we presented a preliminary version of the catalog during a 60min meeting. The usage of a template brings along several advantages: improve a KPI's completeness, comparability and findability in addition to enhance quality and foster communication among the multidisciplinary stakeholders.
3. Third, for each KPI an **information model** depicting the data which is required to setup and employ the indicators. A KPI implementation has to rely on predefined data structures in order to enable its computation and ensure consistency. We use UML class diagrams to visualize EA elements and their required attributes, inter-element relationships, and cardinalities. By matching data model and available data, practitioners are able to assess a KPI's applicability within their organization. Having the required data at hand also facilitates the corresponding data collection process.

1.3 Target group

The intended readers of this catalog is twofold: Firstly, practitioners embarking on an EA management endeavor may use this document as a guide providing concrete metrics and calculation instructions. This in turn enables them to quantify and measure their EA management goal achievement. Among others, we consider enterprise architects, IT managers, and business domain experts as a relevant target group. Secondly, academics striving for a comprehensive overview on the topic should have a closer look on this document as it includes an extensive up-to-date overview on current KPIs in the realm of EA management. In identifying blind spots, the document finally derives questions for future research projects addressing researchers from the domain of business informatics, software engineering, and business mathematics.

There are at least two different usage scenarios for this catalog: browsing and searching. While browsing does not need further assistance, we present two different strategies to search for KPI candidates: goal based and architectural layer based. No matter what strategy you chose, the following assessment and configuration of identified KPIs will help you to define organization-specific KPI instantiations. The sequence of activities to perform is visualized in Figure 2.1.

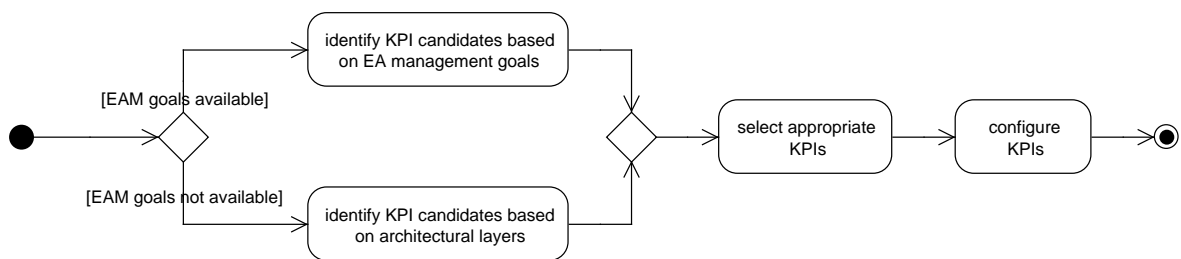


Figure 2.1: Sequence of activities

2.1 KPI identification based on EA management goals

KPIs are used to measure progress towards specific EA management goals. Therefore, these goals are the intended starting point for the KPI selection process. With such goals in place, appropriate KPIs can be selected by using the provided linkage between EAM KPIs and EA management goals. Therefore, the following four steps lead you from general EA management goals through to organization-specific KPI configurations.

2.1.1 Define your goals

The EAM KPI Catalog provides ten EA management goals which can be measured with KPIs. As shown in Figure 2.2, each KPI highlights its related goals. To use this linkage for selecting appropriate KPIs, you need to map your organization specific EA management goals onto provided goals first. Goals for EA management are still subject to ongoing research, so not all possible goals might be found in this list.

Example: Assuming a company wants to implement KPIs for their EA management goals *raise reliability* and *reduce software failures*, both can be mapped on the EA management goal 5: *increase disaster tolerance*. Because increase disaster tolerance is highlighted in Figure 2.2, the respective KPI would be a good candidate for implementation.

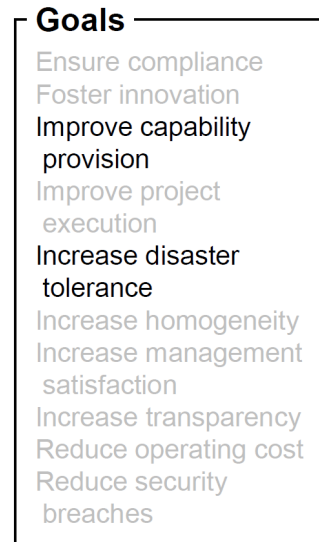


Figure 2.2: Goal link section

2.1.2 Find potential KPIs

After mapping your goals, use the Goal-KPI-Matrix depicted in Section 3.1 to preselect appropriate KPIs. Thereby, consider all KPIs marked as relevant (by ✓) according to your selected goals.

Example: Table 2.1 shows a small part of the Goal-KPI-Matrix. Starting from goal 5: *increase disaster tolerance*, it is easy to identify qualified KPIs by searching checkmarks in the respective column. As result, *EAM-KPI-0001* and *EAM-KPI-0002* become candidates for implementation and subject to further assessment.

	Ensure compliance	Foster innovation	Improve capability provision	Improve project execution	Increase disaster tolerance	Increase homogeneity	Increase management satisfaction	Increase transparency	Reduce operating cost	Reduce security breaches
EAM-KPI-0001 (p.19)			✓		✓					
EAM-KPI-0002 (p.20)				✓	✓					
EAM-KPI-0003 (p.21)	✓							✓		

Table 2.1: Part of the Goal-KPI-Matrix

2.2 KPI identification based on architectural layers

The selection of appropriate KPIs can also be done based on a generic model of the enterprise architecture, in the event the EA management goals are not established explicitly. Each KPI part of the EAM KPI Catalog is assigned to the architectural layers or cross-cutting aspects it requires data from and thereby enables layer-based navigation. This strategy is also supports use cases in which an incremental KPI selection process based on the required data is favored by the provision of a navigation framework.

2.2.1 Define your preferred layers

If you want to select KPIs according to the architectural layer they are concerned with, you first need to map your architectural layers to the layers presented in Figure 2.3. For a detailed description of depicted layers refer to Section 1.1. This step is necessary, since different EA management frameworks and approaches consider different architectural layers. After the layer's mapping, the preferred layers can be determined.

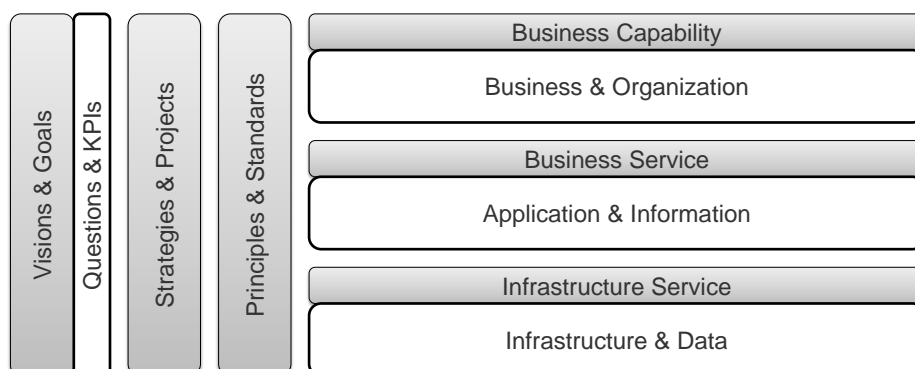


Figure 2.3: Layers and cross functions of an enterprise architecture (based on [Wi07])

Example: If your company uses TOGAF to define its EA management endeavor, TOGAF's three architectures need to be mapped on our three layer model. In this case, the mapping is straightforward: the *business architecture* needs to be mapped to the *organization & processes* layer and the *information systems architecture* needs to be mapped to the *application & information* layer. The *technology architecture* can be mapped to the *infrastructure & data* layer.

2.2.2 Find appropriate KPIs

You can determine appropriate KPIs based on the assignment of KPIs to related architectural layers and cross-cutting aspects. For each KPI this assignment is visualized similar to Figure 2.4. The parts of the enterprise architecture concerned by the respective KPI are highlighted by a grey background. If you are looking for KPIs related to a specific layer, you can also use the Architecture-KPI-Categories provided in Section 3.2. In addition, you can also use the integrated information model provided in Section 3.3 to get an overview about the relationships between information demands and architectural layers.

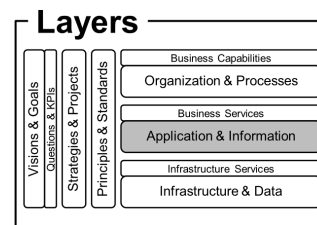


Figure 2.4: Affected layers section

Example: If, for example, the *application & information* layer has been selected during the previous step, several KPIs become potentially relevant. One of the potentially relevant KPIs is *EAM-KPI-0001: Application continuity plan availability*. As shown in Figure 2.4, it is only concerned with the desired layer and therefore does not require an integration of adjacent layers.

2.3 Select appropriate KPIs

After preselecting potential KPIs, assess these KPIs according to their relevance and applicability. The uniform KPI description template supports this assessment process with the provision of different information categories: **description**, **calculation description**, **sources** and **information model**.

To determine the relevance of a preselected KPI, the **description** provides a short summary of the measurement. A first relevance assumption can be made by considering processes or artifacts mentioned in the description.

<p>Description</p> <p>A measure of how completely IT continuity plans for business critical applications have been drawn & tested up for the IT's application portfolio.</p>

Figure 2.5: Description section

Example: Figure 2.5 shows the description of *EAM-KPI-0001: Application continuity plan availability*. Beside the expressive title, this description tells the reader that this KPI is relevant if IT continuity plans should be available for all critical business applications and that testing is also part of this metric.

Another way to determine the relevance of a preselected KPI is the **calculation** description. It provides a detailed specification of the calculation rule and thereby shows, for example, if the KPI calculates an absolute or an average value.

Example: Figure 2.6 shows the calculation rule of *EAM-KPI-0001: Application continuity plan availability*. This KPI calculates the ratio of available and tested continuity plans for critical business applications. Based on this description a first assumption about the computational complexity and the required data can be made.

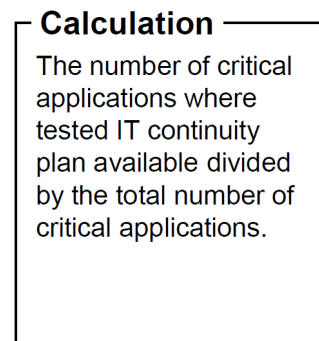


Figure 2.6: Calculation section

In addition, you can use the **sources** section to determine the applicability of a given KPI. Within this section the literature sources the KPI originates from are listed. If one of the mentioned approaches, frameworks or de facto standards is already established in your company, the respective KPI might be relevant and easily applicable.

Example: *EAM-KPI-0001: Application continuity plan availability* stems from the IT-Governance framework *CobiT*. CobiT is a universal and internationally accepted framework and therefore this KPI might be relevant for your company.

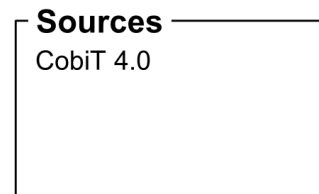


Figure 2.7: Sources section

In order to further assess the applicability of a preselected KPI in detail use the **information model**. As shown in Figure 2.8, it illustrates in detail the data required to compute the respective metric. Thereby, it describes entities on which a KPI's calculation is based on as well as their minimal properties relevant for the specific KPI. Additional attributes, e.g. unique identifiers, are not shown to keep models simple. Information models support the assessment process by facilitating the identification of available, obtainable and not obtainable data.



Figure 2.8: Information model section

Example: The information model of *EAM-KPI-0001* tells you, that for the computation of this KPI data about business applications as well as IT continuity plans is required. In addition, it demands the information about each business application's criticality and each continuity plan's testing status. Of course, each IT continuity plan needs to be assigned to the business application it covers.

2.4 Configure selected KPIs

As result of step 3 a list of implementable KPIs is available. Although all KPIs within this catalog can be used out of the box, you can configure them according to your specific organizational context. A KPI's configuration can be performed within two sections: **mapping** and **properties**. Thereby, fields to be configured during this step are highlighted by light-grey background color.

First, perform a mapping of entity names and their attributes within the **mapping** section located beneath the information model. If entities described by the information model are named differently within a company, such mapping can prevent misconceptions. Furthermore, define a contact person and specify the data sources (business applications) providing the required information for each entity, attribute and association. The identification of relevant data sources enables you to estimate the effort for collecting the required data, because an integration of different sources would mostly cause more effort.

Name in model	Mapped name	Contacts	Data sources
Business application			
isCritical			
IT continuity plan			
isTested			
supported by			

Figure 2.9: Mapping section

Example: Figure 2.9 shows the mapping table for *EAM-KPI-0001*. If the term *IT system* is used for applications within a company this term can be mapped to the entity *business application* by entering this term in the the first configurable cell. In this example, the *IT operations* division is in charge for all applications, so it is specified as the contact for *business application*. The system providing basic information about *business applications* is for example the *CMDB* which can be specified in the last column.

The second activity to configure a KPI is to define each KPI's **properties**. These properties define for example the frequency of measurement and the target value. To support you while defining properties each KPI within this catalog provides applied and observed best practice values. The following properties can be configured:

Measurement frequency: The interval between two measurement points.

Interpretation:	Description of how the calculated number can be interpreted, e.g. which range is acceptable and when intervention is necessary.
KPI consumer:	The person who is interested in the value of the KPI.
KPI owner:	The person who is responsible for the value of the KPI.
Target value:	The KPI value to be achieved.
Planned value(s):	The KPI values to be achieved while targeting the target value.
Tolerance value(s):	The allowed deviations from planned and target values.
Escalation rule:	The rule specifying the way of escalation if uncontrollable influences render the target value achievement impossible.

KPI property	Property value	Best-practice
Measurement frequency		Quarterly
Interpretation		Good if >80% Normal 60%-80% Problematic if <60%
KPI consumer		
KPI owner		
Target value		80% in 2014
Planned value(s)		70% in 2012 75% in 2013
Tolerance value(s)		
Escalation rule		

Figure 2.10: Property section

Example: If there is for example a biannual release cycle for business applications an exemplary configuration of *EAM-KPI-0001* can be as follows:

Measurement frequency: Bi-annual

Interpretation: Good if > 90% | normal if > 70% and < 90% | problematic if < 70%

KPI consumer: Mr. Smith, Head of IT department

KPI owner: Mr. Clark, Head of IT operations

Target value: 90%

Planned value(s): 80% next year

Tolerance value(s): ± 5%

Escalation rule: If the information about business application criticality is not provided by the enterprise architecture division, escalation to Mr. Smith is allowed.

CHAPTER 3

Navigational aids

We provide three means to support the navigation through the EAM KPI Catalog which also facilitate the process of selecting appropriate KPIs. The means are: the **Goal-KPI-Matrix** summarizing the linkage of KPIs to their related EA management goals, the **Architecture-KPI-Categories** summarizing KPIs for each layer of an enterprise architecture as well as its cross-cutting aspects and the **Integrated Information Model** visualizing the data required by KPIs.

3.1 Goal-KPI-Matrix

The Goal-KPI-Matrix has one row for each KPI of the EAM KPI Catalog and one column for each EA management goal. A checkmark at the intersection of a KPI-row and a goal-column indicate the relevance of the respective KPI for the measurement of the respective goal.

	Ensure compliance	Foster innovation	Improve capability provision	Improve project execution	Increase disaster tolerance	Increase homogeneity	Increase management satisfaction	Increase transparency	Reduce operating cost	Reduce security breaches
EAM-KPI-0001 (p.19)			✓		✓					
EAM-KPI-0002 (p.20)				✓	✓					
EAM-KPI-0003 (p.21)	✓							✓		
EAM-KPI-0004 (p.22)				✓			✓	✓		
EAM-KPI-0005 (p.23)				✓				✓	✓	

3. Navigational aids

	Ensure compliance	Foster innovation	Improve capability provision	Improve project execution	Increase disaster tolerance	Increase homogeneity	Increase management satisfaction	Increase transparency	Reduce operating cost	Reduce security breaches
EAM-KPI-0006 (p.24)	✓		✓	✓			✓			
EAM-KPI-0007 (p.25)			✓				✓	✓	✓	
EAM-KPI-0008 (p.26)							✓	✓		
EAM-KPI-0009 (p.27)				✓			✓	✓		
EAM-KPI-0010 (p.28)	✓						✓	✓		
EAM-KPI-0011 (p.29)			✓				✓	✓		
EAM-KPI-0012 (p.30)	✓				✓			✓		
EAM-KPI-0013 (p.31)							✓	✓	✓	
EAM-KPI-0014 (p.32)							✓			
EAM-KPI-0015 (p.33)	✓					✓		✓		
EAM-KPI-0016 (p.34)	✓						✓	✓		
EAM-KPI-0017 (p.35)	✓			✓			✓	✓		✓
EAM-KPI-0018 (p.36)	✓			✓			✓	✓		✓
EAM-KPI-0019 (p.37)	✓									✓
EAM-KPI-0020 (p.38)							✓	✓		
EAM-KPI-0021 (p.39)				✓				✓		✓
EAM-KPI-0022 (p.40)	✓			✓						✓
EAM-KPI-0023 (p.41)	✓							✓		
EAM-KPI-0024 (p.42)		✓	✓							
EAM-KPI-0025 (p.43)		✓	✓							
EAM-KPI-0026 (p.44)		✓	✓							
EAM-KPI-0027 (p.46)			✓				✓			
EAM-KPI-0028 (p.47)		✓	✓							
EAM-KPI-0029 (p.48)		✓	✓							
EAM-KPI-0030 (p.49)			✓							
EAM-KPI-0031 (p.50)	✓							✓		
EAM-KPI-0032 (p.51)	✓					✓		✓		
EAM-KPI-0033 (p.52)	✓					✓			✓	✓
EAM-KPI-0034 (p.53)			✓				✓	✓		
EAM-KPI-0035 (p.54)							✓			
EAM-KPI-0036 (p.55)			✓	✓			✓			
EAM-KPI-0037 (p.56)		✓	✓	✓						
EAM-KPI-0038 (p.57)	✓									✓
EAM-KPI-0039 (p.58)			✓	✓				✓	✓	
EAM-KPI-0040 (p.59)	✓				✓		✓	✓		
EAM-KPI-0041 (p.60)							✓			
EAM-KPI-0042 (p.61)		✓						✓		
EAM-KPI-0043 (p.62)	✓						✓	✓		

3. Navigational aids

	Ensure compliance	Foster innovation	Improve capability provision	Improve project execution	Increase disaster tolerance	Increase homogeneity	Increase management satisfaction	Increase transparency	Reduce operating cost	Reduce security breaches
EAM-KPI-0044 (p.63)	✓							✓	✓	
EAM-KPI-0045 (p.64)			✓						✓	
EAM-KPI-0046 (p.66)					✓			✓		
EAM-KPI-0047 (p.67)			✓				✓	✓		
EAM-KPI-0048 (p.68)	✓									✓
EAM-KPI-0049 (p.69)			✓					✓	✓	
EAM-KPI-0050 (p.70)					✓					
EAM-KPI-0051 (p.71)							✓	✓		
EAM-KPI-0052 (p.72)						✓				

3.2 Architecture-KPI-Categories

The following sections list KPIs according to the architectural layers and cross-cutting aspects they are concerned with. Additionally, the section business-IT alignment has been added listing all KPIs concerned with the relation between business and IT entities. Because a KPI can be assigned to more than one architectural layer, multiple inclusion in the various sections is possible.

Questions & KPIs

- EAM-KPI-0020: IT-processes measured by KPIs (p.38)
- EAM-KPI-0051: KPI targets met (p.71)

Strategies & Projects

- EAM-KPI-0004: Costs of inadequate change specifications (p.22)
- EAM-KPI-0006: Project's employee and contractor mix (p.24)
- EAM-KPI-0009: Project performance index (p.27)
- EAM-KPI-0010: PM guideline adherence (p.28)
- EAM-KPI-0016: Project compliance to target architecture (p.34)
- EAM-KPI-0017: Previously identified risks occurred (p.35)
- EAM-KPI-0018: Not previously identified risks occurred (p.36)
- EAM-KPI-0021: Project's quality plan availability (p.39)
- EAM-KPI-0022: Projects with quality manager \neq project manager (p.40)

- EAM-KPI-0029: Employees in innovative projects (p.48)
- EAM-KPI-0034: Feasibility study performance index (p.53)
- EAM-KPI-0036: IT investment delivering predefined benefits (p.55)
- EAM-KPI-0040: Action plans for critical IT risks (p.59)
- EAM-KPI-0042: Maintenance projects effort(p.61)

Principles & Standards

- EAM-KPI-0006: Project's employee and contractor mix (p.24)
- EAM-KPI-0010: PM guideline adherence (p.28)
- EAM-KPI-0019: Workplace inspection (p.37)
- EAM-KPI-0023: Audit findings (p.41)
- EAM-KPI-0033: Business application technology standards compliance (p.52)
- EAM-KPI-0043: Business applications compliant with IT architecture and technology standards (p.62)

Business capabilities

- EAM-KPI-0030: Business domain coverage of target architecture (p.49)

Organization & Processes

- EAM-KPI-0002: Backup key roles (p.20)
- EAM-KPI-0005: Business case quality (p.23)
- EAM-KPI-0006: Project's employee and contractor mix (p.24)
- EAM-KPI-0008: Forecast quality (p.26)
- EAM-KPI-0024: Employees in strategic focus areas (p.42)
- EAM-KPI-0025: Skill profile description availability (p.43)
- EAM-KPI-0026: Employee qualification (p.44)
- EAM-KPI-0027: Employee satisfaction index (p.46)
- EAM-KPI-0028: IT staff training (p.47)
- EAM-KPI-0029: Employees in innovative projects (p.48)
- EAM-KPI-0035: IT responsiveness satisfaction index (p.54)
- EAM-KPI-0037: IT roles staffed(p.56)
- EAM-KPI-0038: Background checks(p.57)
- EAM-KPI-0041: Feasibility study satisfaction index (p.60)
- EAM-KPI-0042: Maintenance project effort (p.61)
- EAM-KPI-0044: Procurement policies compliance (p.63)

3. Navigational aids

- EAM-KPI-0045: Service desk calls caused by inadequate training (p.64)
- EAM-KPI-0048: Password standard compliance (p.68)
- EAM-KPI-0050: Critical IT process monitoring (p.70)

Business-IT alignment

- EAM-KPI-0015: IT process standard adherence (application) (p.33)
- EAM-KPI-0032: IT process standard adherence (service) (p.51)
- EAM-KPI-0046: IT continuity plans for business applications supporting critical processes (p.66)

Application & Information

- EAM-KPI-0001: Application continuity plan availability (p.19)
- EAM-KPI-0004: Costs of inadequate change specifications (p.22)
- EAM-KPI-0012: Application criticality ratings (p.30)
- EAM-KPI-0031: Application portfolio methodology analysis (p.50)
- EAM-KPI-0033: Business application technology standards compliance (p.52)
- EAM-KPI-0039: Defects uncovered prior to production (p.58)
- EAM-KPI-0043: Business applications compliant with IT architecture and technology standards (p.62)
- EAM-KPI-0045: Service desk calls caused by inadequate training (p.64)
- EAM-KPI-0046: IT continuity plans for business applications supporting critical processes (p.66)
- EAM-KPI-0049: Reopened incidents (p.69)

Infrastructure services

- EAM-KPI-0003: Service portfolio methodology analysis (p.21)
- EAM-KPI-0007: SLAs met (p.25)
- EAM-KPI-0011: SLA diffusion (p.29)
- EAM-KPI-0032: IT process standard adherence (service) (p.51)
- EAM-KPI-0047: Unexpected service interruption duration (p.67)

Infrastructure & Data

- EAM-KPI-0007: SLAs met (p.25)
- EAM-KPI-0011: SLA diffusion (p.29)
- EAM-KPI-0047: Unexpected service interruption duration (p.67)
- EAM-KPI-0052: IT component category standardization (p.72)

3.3 Integrated information model

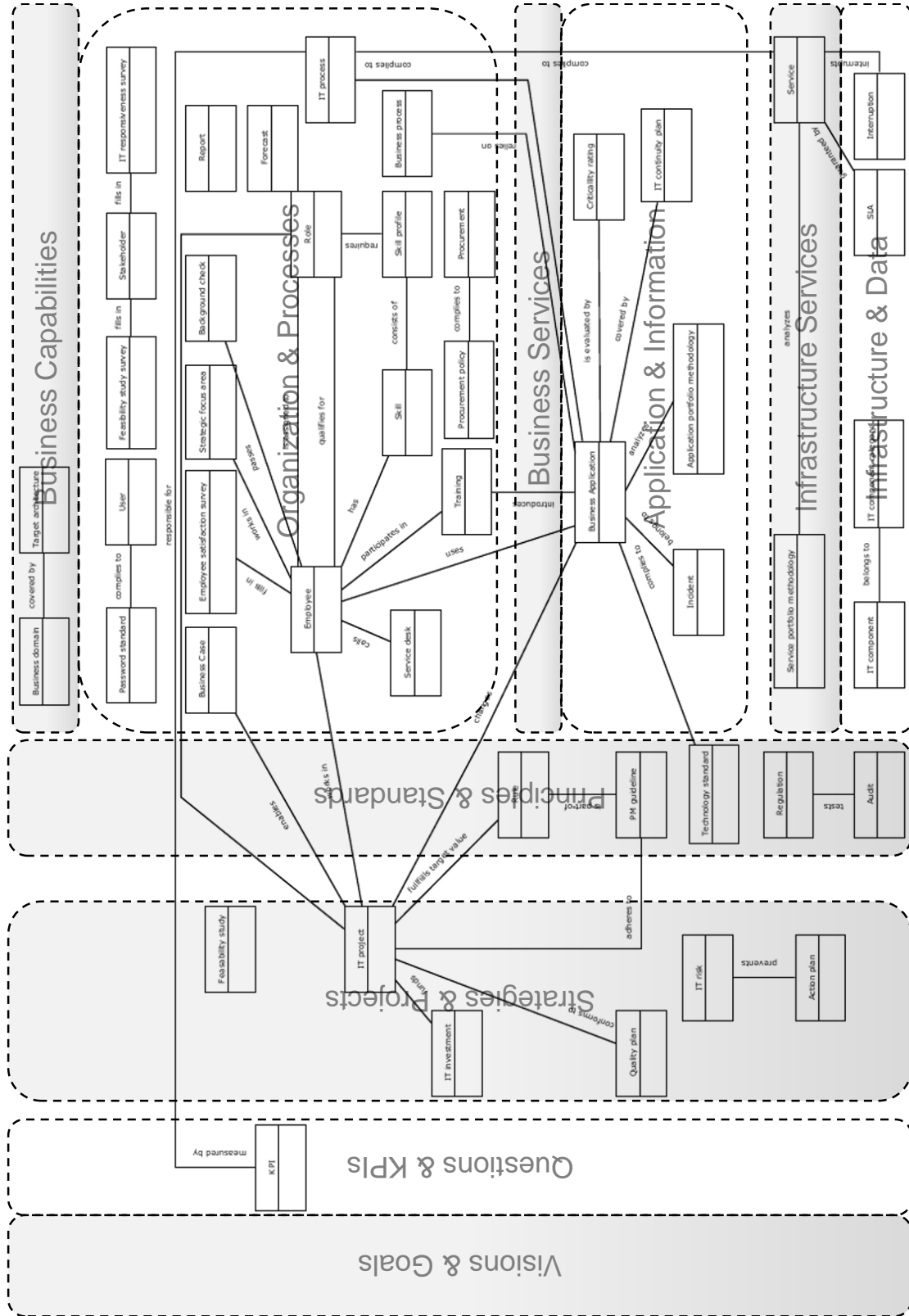


Figure 3.1: Integrated information model with architectural layers

CHAPTER 4

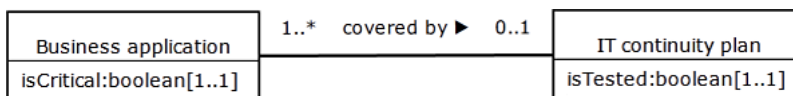
EAM KPI Catalog

Application continuity plan availability

Description

A measure of how completely IT continuity plans for business critical applications have been drawn & tested up for the IT's application portfolio.

Information model



Goals

- Ensure compliance
- Foster innovation
- Improve capability provision
- Improve project execution
- Increase disaster tolerance
- Increase homogeneity
- Increase management satisfaction
- Increase transparency
- Reduce operating cost
- Reduce security breaches

Organization-specific instantiation

Mapping:

Name in model	Mapped name	Contacts	Data sources
Business application			
isCritical			
IT continuity plan			
isTested			
supported by			

Properties:

KPI property	Property value	Best-practice
Measurement frequency		Quarterly
Interpretation		Good if >80% Normal 60%-80% Problematic if <60%
KPI consumer		
KPI owner		
Target value		80%
Planned value(s)		70% 75%
Tolerance value(s)		
Escalation rule		

Calculation

The number of critical applications where tested IT continuity plan available divided by the total number of critical applications.

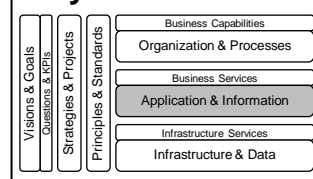
Code

EAM-KPI-0001

Sources

CobiT 4.0

Layers

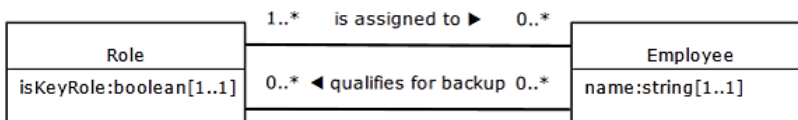


Backup key roles

Description

A measure of how completely qualified personnel has been built up.

Information model



Goals

- Ensure compliance
- Foster innovation
- Improve capability provision
- Improve project execution
- Increase disaster tolerance
- Increase homogeneity
- Increase management satisfaction
- Increase transparency
- Reduce operating cost
- Reduce security breaches

Organization-specific instantiation

Mapping:

Name in model	Mapped name	Contacts	Data sources
Role			
isKeyRole			
is assigned to			
Employee			
name			
qualifies for backup			

Properties:

KPI property	Property value	Best-practice
Measurement frequency		Quarterly
Interpretation		
KPI consumer		
KPI owner		
Target value		
Planned value(s)		
Tolerance value(s)		
Escalation rule		

Calculation

Number of key roles with qualified backup personnel divided by the total number of key roles.

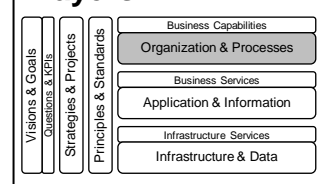
Code

EAM-KPI-0002

Sources

CobiT 4.0

Layers

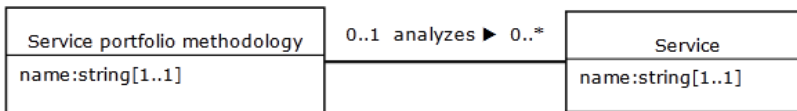


Service portfolio methodology analysis

Description

This measure indicates the extent to which IT services are analyzed according to a given service portfolio methodology.

Information model



Goals

- Ensure compliance
- Foster innovation
- Improve capability provision
- Improve project execution
- Increase disaster tolerance
- Increase homogeneity
- Increase management satisfaction
- Increase transparency
- Reduce operating cost
- Reduce security breaches

Organization-specific instantiation

Mapping:

Name in model	Mapped name	Contacts	Data sources
Service portfolio methodology			
name			
analyzes			
isTested			
Service			
name			

Properties:

KPI property	Property value	Observed values
Measurement frequency		Quarterly
Interpretation		
KPI consumer		
KPI owner		
Target value		
Planned value(s)		
Tolerance value(s)		
Escalation rule		

Calculation

Number of services analyzed by service portfolio methodology divided by the total number of services.

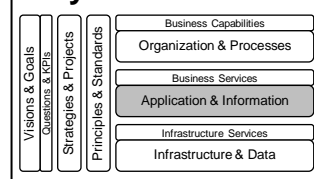
Code

EAM-KPI-0003

Sources

CobiT 4.0

Layers

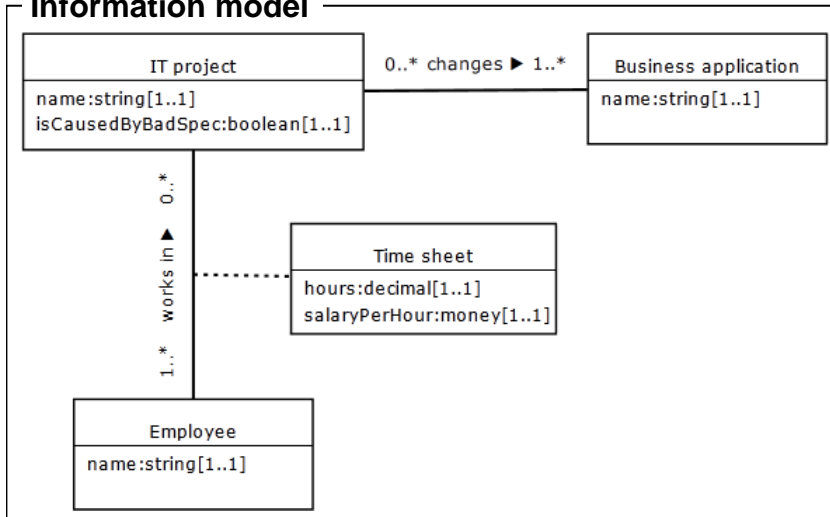


Costs of inadequate change specifications

Description

Measurement of the financial losses caused by inadequate change specifications.

Information model



Goals

- Ensure compliance
- Foster innovation
- Improve capability provision
- Improve project execution
- Increase disaster tolerance
- Increase homogeneity
- Increase management satisfaction
- Increase transparency
- Reduce operating cost
- Reduce security breaches

Organization-specific instantiation

Mapping:

Name in model	Mapped name	Contacts	Data sources
IT project			
name			
isCausedByBadSpec			
Business application			
name			
Employee			
name			
works in			
Time sheet			
hours			
salaryPerHour			

Properties:

KPI property	Property value	Observed values
Measurement frequency		
Interpretation		
KPI consumer		
KPI owner		
Target value		
Planned value(s)		
Tolerance value(s)		
Escalation rule		

Calculation

Sum of the hours spend multiplied by the corresponding salary per hour value for all employees working on IT projects caused by inadequate change specification.

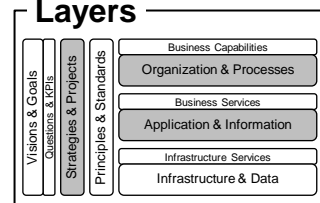
Code

EAM-KPI-0004

Sources

CobIT 4.0

Layers



Business case quality

Description

Measure of the stability of the ROI estimation over the project life time.

Information model



Goals

- Ensure compliance
- Foster innovation
- Improve capability provision
- Improve project execution
- Increase disaster tolerance
- Increase homogeneity
- Increase management satisfaction
- Increase transparency
- Reduce operating cost
- Reduce security breaches

Organization-specific instantiation

Mapping:

Name in model	Mapped name	Contacts	Data sources
Business case			
ROIatProjectProposal			
ROIatProjectEnd			
IT project			
name			
enables			

Properties:

KPI property	Property value	Observed values
Measurement frequency		Yearly
Interpretation		
KPI consumer		
KPI owner		
Target value		
Planned value(s)		
Tolerance value(s)		
Escalation rule		

Calculation

Estimated ROI at project proposal divided by estimated ROI at project end.

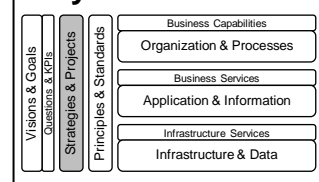
Code

EAM-KPI-0005

Sources

CobiT 4.0

Layers

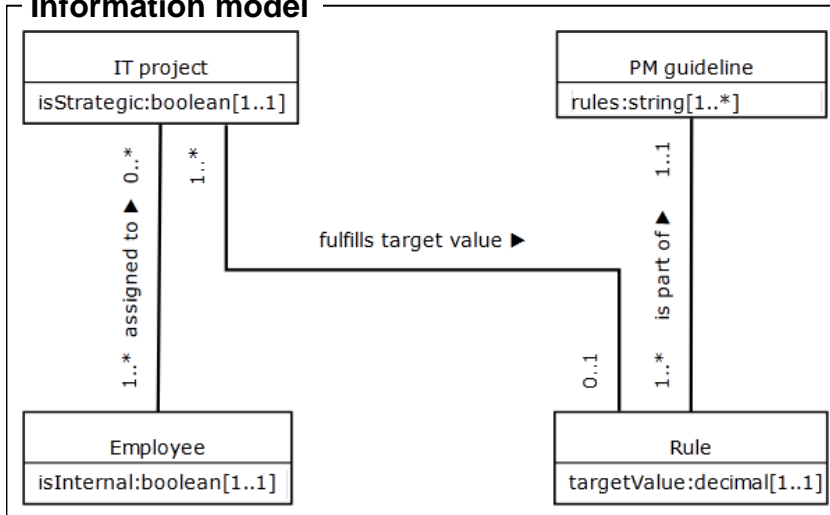


Project's employee and contractor mix

Description

A measure of the degree strategic and operational IT projects deviate from the intended employee and contractor mix.

Information model



Goals

- Ensure compliance
- Foster innovation
- Improve capability provision
- Improve project execution
- Increase disaster tolerance
- Increase homogeneity
- Increase management satisfaction
- Increase transparency
- Reduce operating cost
- Reduce security breaches

Organization-specific instantiation

Mapping:

Name in model	Mapped name	Contacts	Data sources
IT project			
isStrategic			
assigned to			
IT Employee			
isInternal			
fulfills target value			
Rule			
targetValue			
is part of			
PM guideline			
rules			

Properties:

KPI property	Property value	Observed values
Measurement frequency		Quarterly
Interpretation		
KPI consumer		
KPI owner		
Target value		
Planned value(s)		
Tolerance value(s)		
Escalation rule		

Calculation

Difference of the current employee & contractor mix for selected IT project and target value mix for selected IT project type.

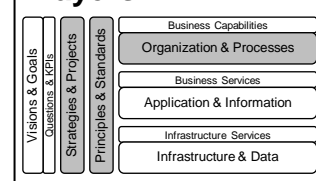
Code

EAM-KPI-0006

Sources

CobiT 4.0

Layers

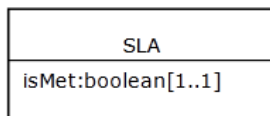


SLAs met

Description

Measure of SLA fulfillment.

Information model



Organization-specific instantiation

Mapping:

Name in model	Mapped name	Contacts	Data sources
SLA			
isMet			

Properties:

KPI property	Property value	Observed values
Measurement frequency		Monthly
Interpretation		
KPI consumer		
KPI owner		
Target value		
Planned value(s)		
Tolerance value(s)		
Escalation rule		

Goals

- Ensure compliance
- Foster innovation
- Improve capability provision
- Improve project execution
- Increase disaster tolerance
- Increase homogeneity
- Increase management satisfaction
- Increase transparency
- Reduce operating cost
- Reduce security breaches

Calculation

The number of SLA met, divided by the total number of SLA within a given time period.

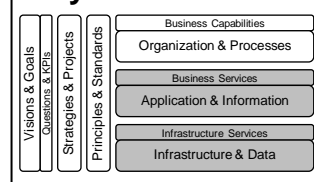
Code

EAM-KPI-0007

Sources

CobiT 4.0

Layers

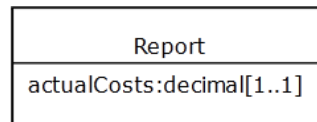
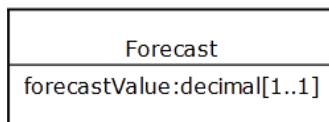


Forecast quality

Description

A measure of the forecasting accuracy of IT budgets. This measure is significant if funds are held for IT which are then not needed, causing a shortage elsewhere.

Information model



Goals

- Ensure compliance
- Foster innovation
- Improve capability provision
- Improve project execution
- Increase disaster tolerance
- Increase homogeneity
- Increase management satisfaction
- Increase transparency
- Reduce operating cost
- Reduce security breaches

Organization-specific instantiation

Mapping:

Name in model	Mapped name	Contacts	Data sources
Forecast			
forecastValue			
Report			
actualCosts			

Properties:

KPI property	Property value	Observed values
Measurement frequency		Yearly
Interpretation		
KPI consumer		
KPI owner		
Target value		
Planned value(s)		
Tolerance value(s)		
Escalation rule		

Calculation

Actual IT costs for certain period divided by the forecasted costs for the same period.

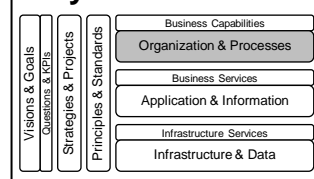
Code

EAM-KPI-0008

Sources

CobiT 4.0

Layers



Project performance index

Description

Measurement of the success of the project delivery in the 3 dimensions time, budget and quality.

Information model

IT project
isInTime:boolean[1..1]
isInBudget:boolean[1..1]
isInQuality:boolean[1..1]

Goals

Ensure compliance
 Foster innovation
 Improve capability provision
 Improve project execution
 Increase disaster tolerance
 Increase homogeneity
 Increase management satisfaction
 Increase transparency
 Reduce operating cost
 Reduce security breaches

Organization-specific instantiation

Mapping:

Name in model	Mapped name	Contacts	Data sources
IT project			
isInTime			
isInBudget			
isInQuality			

Properties:

KPI property	Property value	Observed values
Measurement frequency		Monthly
Interpretation		Traffic lights for each dimension; Overall measure: <ul style="list-style-type: none"> problematic if 3x yellow or at least 1x red normal if max 2x yellow good if 3x green
KPI consumer		
KPI owner		
Target value		
Planned value(s)		
Tolerance value(s)		
Escalation rule		

Calculation

Sum of achieved project goals (budget, time & quality) divided by the number of goals (3).

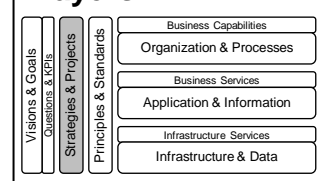
Code

EAM-KPI-0009

Sources

CobiT 4.0

Layers

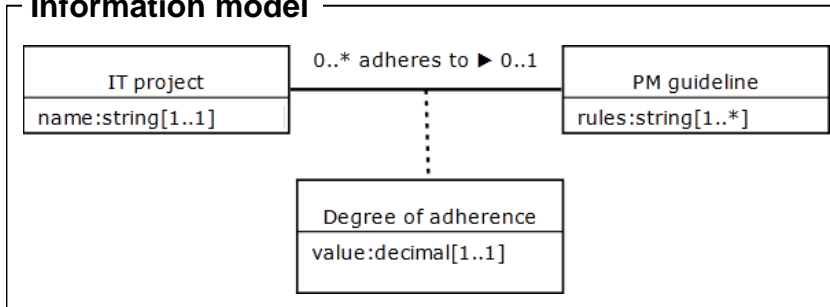


PM guideline adherence

Description

This measure indicates to which extent IT projects adhered to the PM methodology.

Information model



Goals

- Ensure compliance
- Foster innovation
- Improve capability provision
- Improve project execution
- Increase disaster tolerance
- Increase homogeneity
- Increase management satisfaction
- Increase transparency
- Reduce operating cost
- Reduce security breaches

Organization-specific instantiation

Mapping:

Name in model	Mapped name	Contacts	Data sources
IT project			
name			
adheres			
PM guideline			
rules			
Degree of adherence			
value			

Properties:

KPI property	Property value	Observed values
Measurement frequency		Quarterly
Interpretation		<ul style="list-style-type: none"> ▪ Full adherence if 100% ▪ Minor deviation if more than 75% ▪ Major deviation if less than 75%
KPI consumer		
KPI owner		
Target value		
Planned value(s)		
Tolerance value(s)		
Escalation rule		

Calculation

Percent of fulfilled PM guideline rules.

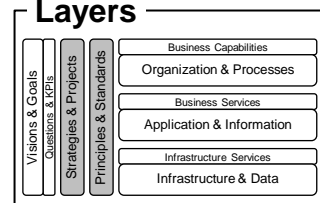
Code

EAM-KPI-0010

Sources

CobIT 4.0

Layers

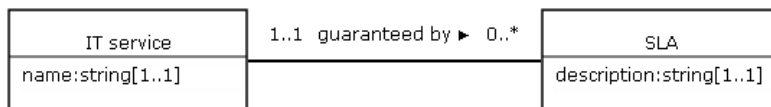


SLA diffusion

Description

A measure of how completely service level agreements have been drawn up for an organization's IT service portfolio.

Information model



Goals

- Ensure compliance
- Foster innovation
- Improve capability provision
- Improve project execution
- Increase disaster tolerance
- Increase homogeneity
- Increase management satisfaction
- Increase transparency
- Reduce operating cost
- Reduce security breaches

Organization-specific instantiation

Mapping:

Name in model	Mapped name	Contacts	Data sources
IT service			
name			
guaranteed by			
SLA			
description			

Properties:

KPI property	Property value	Best-practice
Measurement frequency		Quarterly
Interpretation		
KPI consumer		
KPI owner		
Target value		
Planned value(s)		
Tolerance value(s)		
Escalation rule		

Calculation

The number of IT services guaranteed by SLA, divided by the total number of IT services.

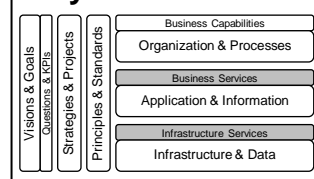
Code

EAM-KPI-0011

Sources

CobiT 4.0

Layers

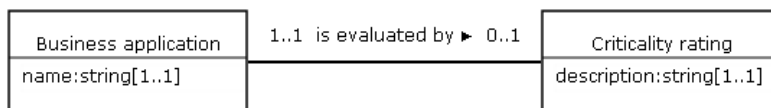


Application criticality ratings

Description

A measure of how completely application criticality rating is been performed for the IT application portfolio.

Information model



Goals

- Ensure compliance
- Foster innovation
- Improve capability provision
- Improve project execution
- Increase disaster tolerance
- Increase homogeneity
- Increase management satisfaction
- Increase transparency
- Reduce operating cost
- Reduce security breaches

Organization-specific instantiation

Mapping:

Name in model	Mapped name	Contacts	Data sources
Business Application			
name			
is evaluated by			
Criticality rating			
description			

Properties:

KPI property	Property value	Best-practice
Measurement frequency		Quarterly
Interpretation		
KPI consumer		
KPI owner		
Target value		
Planned value(s)		
Tolerance value(s)		
Escalation rule		

Calculation

The number of applications with criticality rating available divided by the total number of applications.

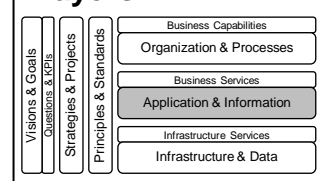
Code

EAM-KPI-0012

Sources

CobiT 4.0

Layers

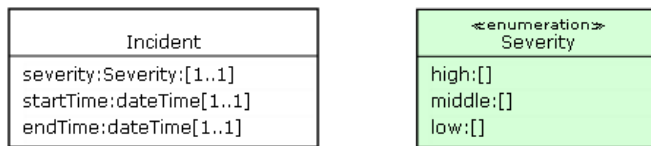


Incident duration

Description

Calculation of the average incident duration by severity level.

Information model



Goals

- Ensure compliance
- Foster innovation
- Improve capability provision
- Improve project execution
- Increase disaster tolerance
- Increase homogeneity
- Increase management satisfaction
- Increase transparency
- Reduce operating cost
- Reduce security breaches

Organization-specific instantiation

Mapping:

Name in model	Mapped name	Contacts	Data sources
Incident			
severity			
startTime			
endTime			
Severity			
high			
middle			
low			

Properties:

KPI property	Property value	Best-practice
Measurement frequency		Quarterly
Interpretation		
KPI consumer		
KPI owner		
Target value		
Planned value(s)		
Tolerance value(s)		
Escalation rule		

Calculation

Average duration (end time minus start time) for each severity level.

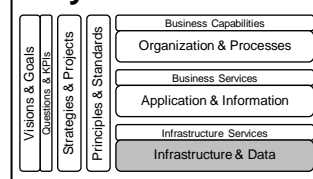
Code

EAM-KPI-0013

Sources

CobiT 4.0

Layers

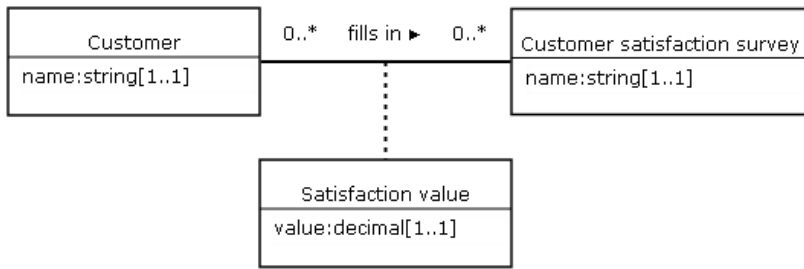


Customer satisfaction index

Description

A measure of customers satisfaction.

Information model



Goals

- Ensure compliance
- Foster innovation
- Improve capability provision
- Improve project execution
- Increase disaster tolerance
- Increase homogeneity
- Increase management satisfaction
- Increase transparency
- Reduce operating cost
- Reduce security breaches

Organization-specific instantiation

Mapping:

Name in model	Mapped name	Contacts	Data sources
Customer			
name			
fills in			
Customer satisfaction survey			
name			
Satisfaction value			
value			

Properties:

KPI property	Property value	Best-practice
Measurement frequency		Yearly
Interpretation		Good if > 1.7 Normal if between 1.7 and 2.3 Bad if < 2.3
KPI consumer		
KPI owner		
Target value		
Planned value(s)		
Tolerance value(s)		
Escalation rule		

Calculation

Average index across all participants of the customer satisfaction survey.

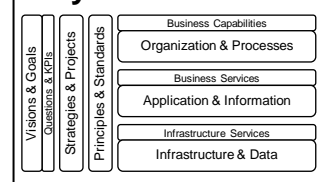
Code

EAM-KPI-0014

Sources

CobIT 4.0

Layers

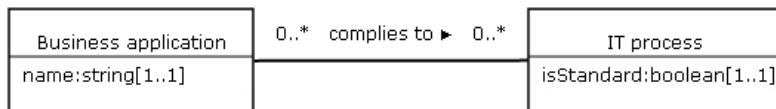


IT process standard adherence (application)

Description

Based on a management review, this measure indicates the extent to which IT applications adhered to the standardized IT processes.

Information model



Goals

- Ensure compliance
- Foster innovation
- Improve capability provision
- Improve project execution
- Increase disaster tolerance
- Increase homogeneity
- Increase management satisfaction
- Increase transparency
- Reduce operating cost
- Reduce security breaches

Organization-specific instantiation

Mapping:

Name in model	Mapped name	Contacts	Data sources
Business application			
name			
complies to			
IT process			
isStandard			

Properties:

KPI property	Property value	Best-practice
Measurement frequency		Yearly
Interpretation		Good if > 100% Normal if between 80% and 100% Bad if < 80%
KPI consumer		
KPI owner		
Target value		
Planned value(s)		
Tolerance value(s)		
Escalation rule		

Calculation

Number of applications compliant to standardized IT processes divided by the total number of applications.

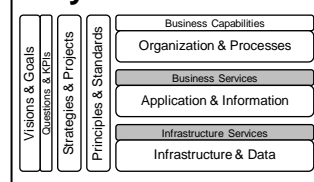
Code

EAM-KPI-0015

Sources

CobiT 4.0

Layers

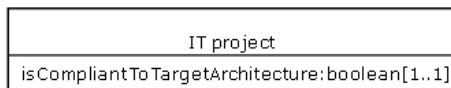


Project compliance to target architecture

Description

A measure that indicates the degree to which architectural standards are being applied in new IT projects.

Information model



Goals

- Ensure compliance
- Foster innovation
- Improve capability provision
- Improve project execution
- Increase disaster tolerance
- Increase homogeneity
- Increase management satisfaction
- Increase transparency
- Reduce operating cost
- Reduce security breaches

Organization-specific instantiation

Mapping:

Name in model	Mapped name	Contacts	Data sources
IT project			
isCompliantToTargetArchitecture			

Properties:

KPI property	Property value	Best-practice
Measurement frequency		Quarterly
Interpretation		
KPI consumer		
KPI owner		
Target value		
Planned value(s)		
Tolerance value(s)		
Escalation rule		

Calculation

Number of IT projects were solutions and technologies comply with the enterprise's architectural standards, divided by the total number of IT projects.

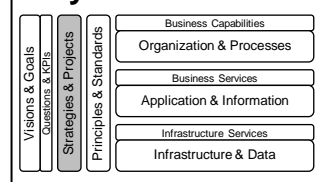
Code

EAM-KPI-0016

Sources

CobiT 4.0

Layers



Previously identified risks occurred

Description

A measure of the efficacy of the IT risk management.

Information model

IT risk
identified:boolean[1..1]
occurred:boolean[1..1]

Goals

Ensure compliance
 Foster innovation
 Improve capability provision
 Improve project execution
 Increase disaster tolerance
 Increase homogeneity
 Increase management satisfaction
 Increase transparency
 Reduce operating cost
 Reduce security breaches

Organization-specific instantiation

Mapping:

Name in model	Mapped name	Contacts	Data sources
IT risk			
identified			
occured			

Properties:

KPI property	Property value	Best-practice
Measurement frequency		Yearly
Interpretation		
KPI consumer		
KPI owner		
Target value		
Planned value(s)		
Tolerance value(s)		
Escalation rule		

Calculation

The number of occurred & previously identified risks divided by the total number of occurred risks.

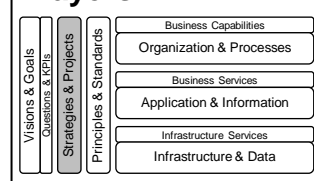
Code

EAM-KPI-0017

Sources

CobiT 4.0

Layers



Not previously identified risks occurred

Description

A measure of the efficacy of the IT risk management.

Information model

IT risk
identified:boolean[1..1]
occurred:boolean[1..1]

Goals

Ensure compliance
 Foster innovation
 Improve capability provision
 Improve project execution
 Increase disaster tolerance
 Increase homogeneity
 Increase management satisfaction
 Increase transparency
 Reduce operating cost
 Reduce security breaches

Organization-specific instantiation

Mapping:

Name in model	Mapped name	Contacts	Data sources
IT risk			
identified			
occurred			

Properties:

KPI property	Property value	Best-practice
Measurement frequency		Yearly
Interpretation		
KPI consumer		
KPI owner		
Target value		
Planned value(s)		
Tolerance value(s)		
Escalation rule		

Calculation

The number of occurred but not previously identified risks divided by the total number of occurred risks.

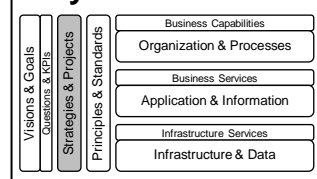
Code

EAM-KPI-0018

Sources

CobiT 4.0

Layers

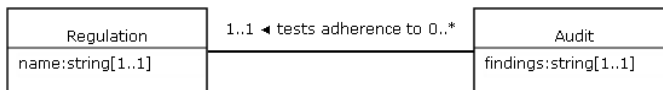


Workplace inspection

Description

A measure of how the workplace rules are attained to by the employees.

Information model



Goals

- Ensure compliance
- Foster innovation
- Improve capability provision
- Improve project execution
- Increase disaster tolerance
- Increase homogeneity
- Increase management satisfaction
- Increase transparency
- Reduce operating cost
- Reduce security breaches

Organization-specific instantiation

Mapping:

Name in model	Mapped name	Contacts	Data sources
Audit			
findings			
tests adherence to			
Regulation			
name			

Properties:

KPI property	Property value	Best-practice
Measurement frequency		Yearly
Interpretation		
KPI consumer		
KPI owner		
Target value		
Planned value(s)		
Tolerance value(s)		
Escalation rule		

Calculation

Number of workplaces without findings divided by total number of inspected workplaces.

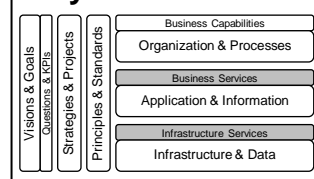
Code

EAM-KPI-0019

Sources

CobiT 4.0

Layers

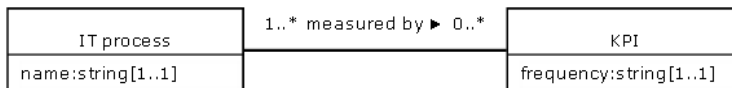


IT processes measured by KPIs

Description

Degree of completeness of the IT process controlling.

Information model



Goals

- Ensure compliance
- Foster innovation
- Improve capability provision
- Improve project execution
- Increase disaster tolerance
- Increase homogeneity
- Increase management satisfaction
- Increase transparency
- Reduce operating cost
- Reduce security breaches

Organization-specific instantiation

Mapping:

Name in model	Mapped name	Contacts	Data sources
IT process			
name			
measured by			
KPI			
frequency			

Properties:

KPI property	Property value	Best-practice
Measurement frequency		Quarterly
Interpretation		Good if > 70 % Normal if between 35% and 70% Bad if < 35%
KPI consumer		
KPI owner		
Target value		
Planned value(s)		
Tolerance value(s)		
Escalation rule		

Calculation

Number of IT processes with defined and regularly measured KPIs divided by the total number of IT process.

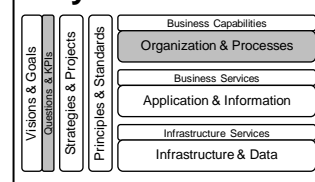
Code

EAM-KPI-0020

Sources

CobiT 4.0

Layers

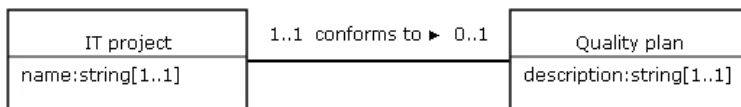


Project's quality plan availability

Description

A measure of the efficacy of IT quality assurance management.

Information model



Goals

- Ensure compliance
- Foster innovation
- Improve capability provision
- Improve project execution
- Increase disaster tolerance
- Increase homogeneity
- Increase management satisfaction
- Increase transparency
- Reduce operating cost
- Reduce security breaches

Organization-specific instantiation

Mapping:

Name in model	Mapped name	Contacts	Data sources
IT project			
name			
conforms to			
Quality plan			
description			

Properties:

KPI property	Property value	Best-practice
Measurement frequency		Quarterly
Interpretation		
KPI consumer		
KPI owner		
Target value		
Planned value(s)		
Tolerance value(s)		
Escalation rule		

Calculation

Number of IT projects with defined quality plan divided by the total number of IT projects.

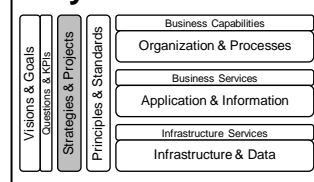
Code

EAM-KPI-0021

Sources

CobiT 4.0

Layers

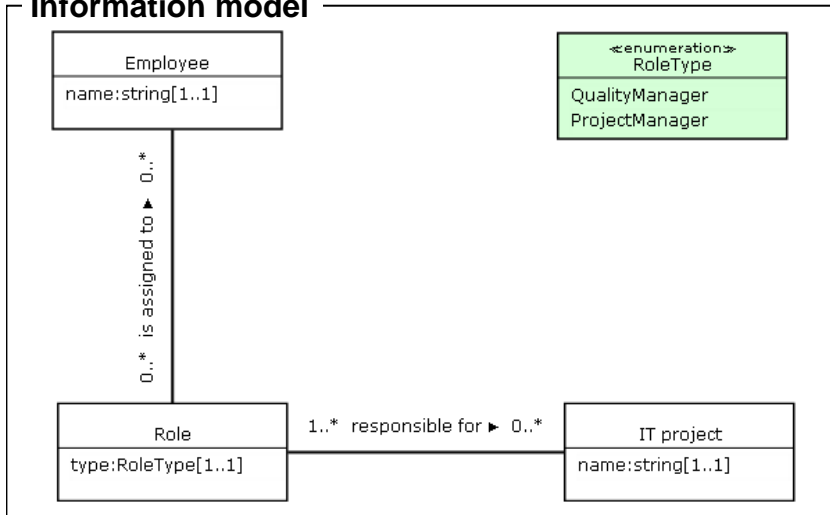


Projects with quality manager ≠ project manager

Description

Degree of the separation of quality and management responsibilities within IT projects.

Information model



Goals

- Ensure compliance
- Foster innovation
- Improve capability provision
- Improve project execution
- Increase disaster tolerance
- Increase homogeneity
- Increase management satisfaction
- Increase transparency
- Reduce operating cost
- Reduce security breaches

Organization-specific instantiation

Mapping:

Name in model	Mapped name	Contacts	Data sources
Role			
type			
assigned to			
Employee			
name			
responsible for			
IT project			
name			
RoleType			
QualityManager			
ProjectManager			

Properties:

KPI property	Property value	Observed values
Measurement frequency		Quarterly
Interpretation		
KPI consumer		
KPI owner		
Target value		
Planned value(s)		
Tolerance value(s)		
Escalation rule		

Calculation

Number of IT projects with employee assigned to QA role ≠ employee assigned to PM role divided by the total number of IT projects.

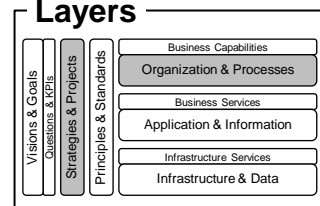
Code

EAM-KPI-0022

Sources

CobIT 4.0

Layers

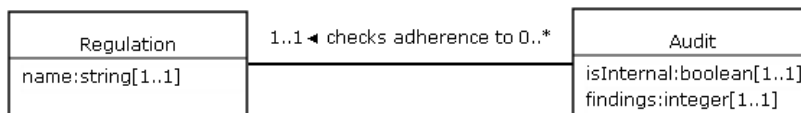


Audit findings

Description

Based on compliance audits, this measure indicates the extent to which the IT adhered to internal and external compliance e.g. SOX, Basel, etc.

Information model



Goals

- Ensure compliance
- Foster innovation
- Improve capability provision
- Improve project execution
- Increase disaster tolerance
- Increase homogeneity
- Increase management satisfaction
- Increase transparency
- Reduce operating cost
- Reduce security breaches

Organization-specific instantiation

Mapping:

Name in model	Mapped name	Contacts	Data sources
Audit			
isInternal			
findings			
checks adherence to			
Regulation			
name			

Properties:

KPI property	Property value	Best-practice
Measurement frequency		Yearly
Interpretation		
KPI consumer		
KPI owner		
Target value		
Planned value(s)		
Tolerance value(s)		
Escalation rule		

Calculation

Number of findings regarding compliance test frameworks.

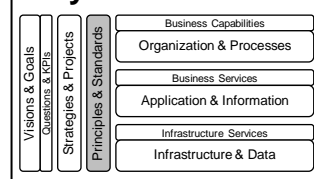
Code

EAM-KPI-0023

Sources

CobiT 4.0

Layers

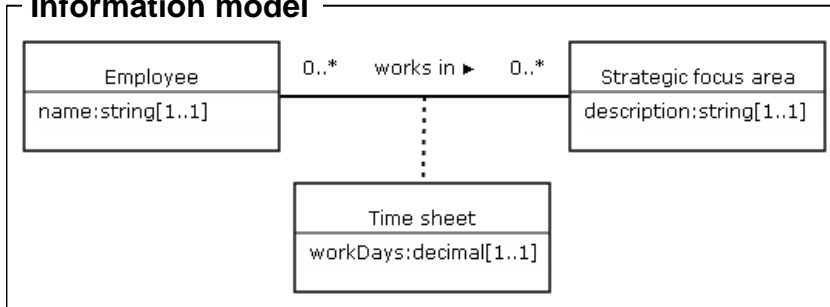


Employees in strategic focus areas

Description

A measure taking a resource perspective of the need to increase the amount of effort expended on strategic focus areas according to IT strategy.

Information model



Goals

- Ensure compliance
- Foster innovation
- Improve capability provision
- Improve project execution
- Increase disaster tolerance
- Increase homogeneity
- Increase management satisfaction
- Increase transparency
- Reduce operating cost
- Reduce security breaches

Organization-specific instantiation

Mapping:

Name in model	Mapped name	Contacts	Data sources
Employee			
name			
works in			
Strategic focus area			
description			
Time sheet			
workDays			

Properties:

KPI property	Property value	Best-practice
Measurement frequency		Yearly
Interpretation		Individual targets per IT unit.
KPI consumer		
KPI owner		
Target value		
Planned value(s)		
Tolerance value(s)		
Escalation rule		

Calculation

Number of findings regarding compliance test frameworks.

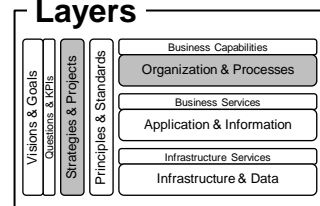
Code

EAM-KPI-0024

Sources

CobiT 4.0

Layers

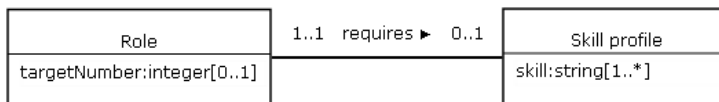


Skill profile description availability

Description

A measure of how completely job descriptions and HR planning have been drawn up.

Information model



Goals

Ensure compliance
 Foster innovation
 Improve capability provision
 Improve project execution
 Increase disaster tolerance
 Increase homogeneity
 Increase management satisfaction
 Increase transparency
 Reduce operating cost
 Reduce security breaches

Organization-specific instantiation

Mapping:

Name in model	Mapped name	Contacts	Data sources
Role			
targetNumber			
requires			
Skill profile			
skill			

Properties:

KPI property	Property value	Best-practice
Measurement frequency		Yearly
Interpretation		
KPI consumer		
KPI owner		
Target value		
Planned value(s)		
Tolerance value(s)		
Escalation rule		

Calculation

Number of described roles with attached target number divided by the number of all IT roles.

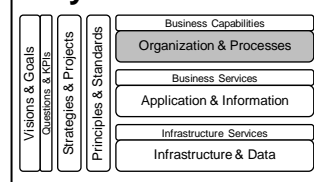
Code

EAM-KPI-0025

Sources

CobiT 4.0

Layers

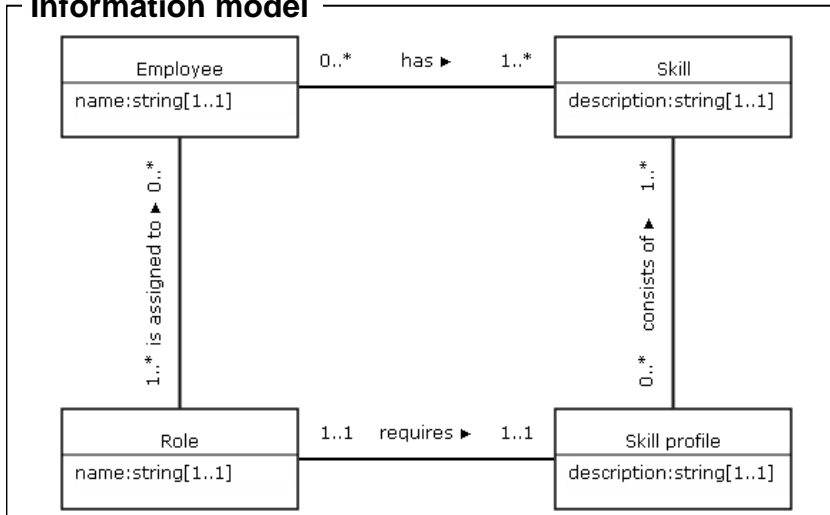


Employee qualification (1)

Description

A measure of the performance of the training & HR process.

Information model



Goals

- Ensure compliance
- Foster innovation
- Improve capability provision
- Improve project execution
- Increase disaster tolerance
- Increase homogeneity
- Increase management satisfaction
- Increase transparency
- Reduce operating cost
- Reduce security breaches

Calculation

Number of employees meeting the required skill profiles divided by the total number of employees.

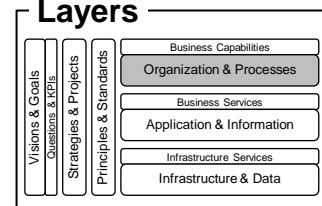
Code

EAM-KPI-0026

Sources

CobiT 4.0

Layers



Employee qualification (2)

Organization-specific instantiation

Mapping:

Name in model	Mapped name	Contacts	Data sources
Employee			
name			
has			
Skill			
description			
is assigned to			
Role			
name			
requires			
Skill profile			
description			
consists of			

Properties:

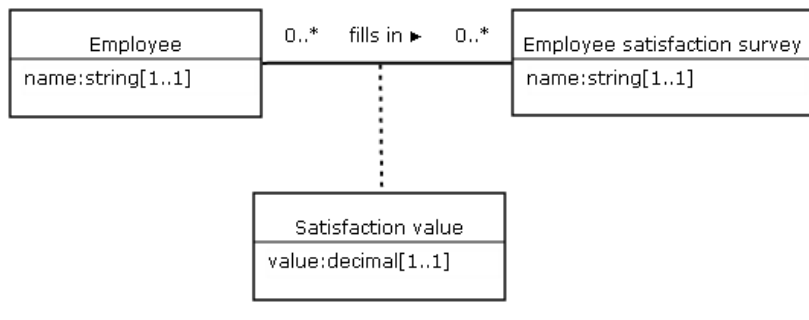
KPI property	Property value	Observed values
Measurement frequency		Yearly
Interpretation		Good if = 100% Normal if between 60 % and 100% Bad if < 60%
KPI consumer		
KPI owner		
Target value		
Planned value(s)		
Tolerance value(s)		
Escalation rule		

Employee satisfaction index

Description

A measure of IT employee satisfaction based on a survey.

Information model



Goals

- Ensure compliance
- Foster innovation
- Improve capability provision
- Improve project execution
- Increase disaster tolerance
- Increase homogeneity
- Increase management satisfaction
- Increase transparency
- Reduce operating cost
- Reduce security breaches

Organization-specific instantiation

Mapping:

Name in model	Mapped name	Contacts	Data sources
Employee			
name			
fills in			
Employee satisfaction survey			
name			
Satisfaction value			
value			

Properties:

KPI property	Property value	Best-practice
Measurement frequency		Yearly
Interpretation		Good if > 1.7 Normal if between 1.7 and 2.3 Bad if < 2.3
KPI consumer		
KPI owner		
Target value		
Planned value(s)		
Tolerance value(s)		
Escalation rule		

Calculation

Average index across all participants of the employee satisfaction survey.

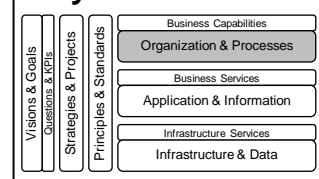
Code

EAM-KPI-0027

Sources

CobiT 4.0

Layers

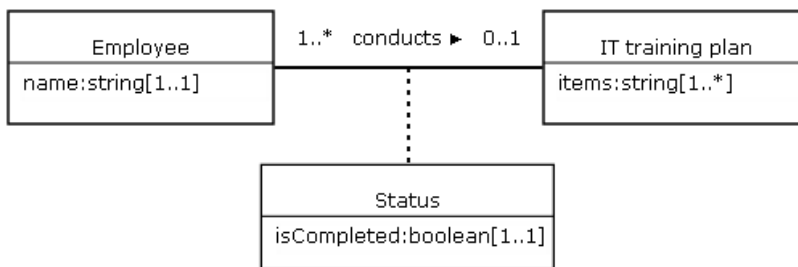


IT staff training

Description

A measure of how completely IT training plans have been assigned and completed.

Information model



Goals

- Ensure compliance
- Foster innovation
- Improve capability provision
- Improve project execution
- Increase disaster tolerance
- Increase homogeneity
- Increase management satisfaction
- Increase transparency
- Reduce operating cost
- Reduce security breaches

Organization-specific instantiation

Mapping:

Name in model	Mapped name	Contacts	Data sources
Employee			
name			
conducts			
IT training plan			
items			
Status			
isCompleted			

Properties:

KPI property	Property value	Best-practice
Measurement frequency		Yearly
Interpretation		
KPI consumer		
KPI owner		
Target value		
Planned value(s)		
Tolerance value(s)		
Escalation rule		

Calculation

Number of employees completed their training plan divided by the total number of employees.

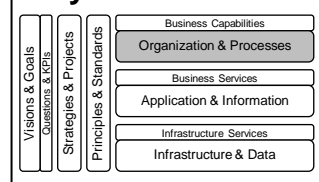
Code

EAM-KPI-0028

Sources

CobiT 4.0

Layers

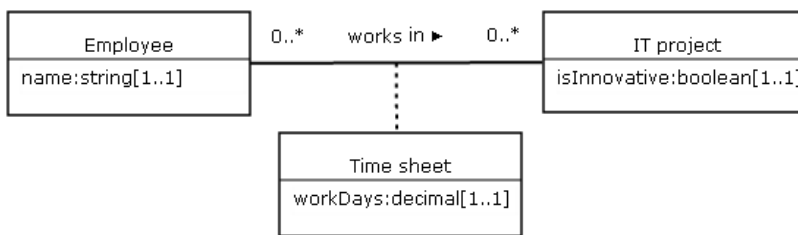


Employees in innovative projects

Description

A measure taking a resource perspective of the need to increase the amount of effort expended on innovative projects.

Information model



Goals

- Ensure compliance
- Foster innovation
- Improve capability provision
- Improve project execution
- Increase disaster tolerance
- Increase homogeneity
- Increase management satisfaction
- Increase transparency
- Reduce operating cost
- Reduce security breaches

Organization-specific instantiation

Mapping:

Name in model	Mapped name	Contacts	Data sources
Employee			
name			
works in			
IT project			
isInnovative			
Time sheet			
workDays			

Properties:

KPI property	Property value	Best-practice
Measurement frequency		Yearly
Interpretation		
KPI consumer		
KPI owner		
Target value		
Planned value(s)		
Tolerance value(s)		
Escalation rule		

Calculation

Cumulative project workdays spent on innovative projects, divided by the total number of workdays available.

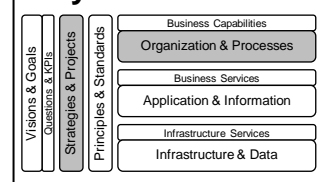
Code

EAM-KPI-0029

Sources

CobiT 4.0

Layers

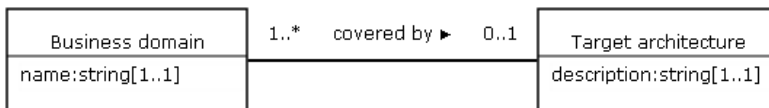


Business domain coverage of target architecture

Description

A measure of how completely the target architecture has been drawn up for the business (process) domains.

Information model



Goals

- Ensure compliance
- Foster innovation
- Improve capability provision
- Improve project execution
- Increase disaster tolerance
- Increase homogeneity
- Increase management satisfaction
- Increase transparency
- Reduce operating cost
- Reduce security breaches

Organization-specific instantiation

Mapping:

Name in model	Mapped name	Contacts	Data sources
Business domain			
name			
covered by			
Target architecture			
description			

Properties:

KPI property	Property value	Best-practice
Measurement frequency		Yearly
Interpretation		
KPI consumer		
KPI owner		
Target value		
Planned value(s)		
Tolerance value(s)		
Escalation rule		

Calculation

Number of business (process) domains not covered by target architecture divided by the total number of business (process) domains.

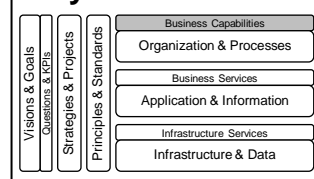
Code

EAM-KPI-0030

Sources

CobiT 4.0

Layers

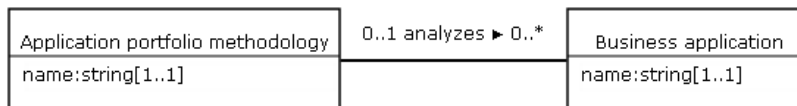


Application portfolio methodology analysis

Description

This measure indicates the extent to which applications are analyzed according to a given application portfolio methodology.

Information model



Goals

- Ensure compliance
- Foster innovation
- Improve capability provision
- Improve project execution
- Increase disaster tolerance
- Increase homogeneity
- Increase management satisfaction
- Increase transparency
- Reduce operating cost
- Reduce security breaches

Organization-specific instantiation

Mapping:

Name in model	Mapped name	Contacts	Data sources
Application portfolio methodology			
name			
analyzes			
Business application			
name			

Properties:

KPI property	Property value	Best-practice
Measurement frequency		Quarterly
Interpretation		
KPI consumer		
KPI owner		
Target value		100%
Planned value(s)		
Tolerance value(s)		
Escalation rule		

Calculation

Number of applications analyzed by application portfolio methodology divided by the total number of applications.

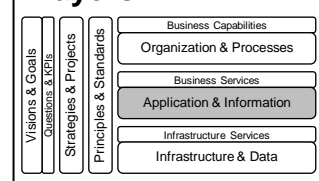
Code

EAM-KPI-0031

Sources

CobiT 4.0

Layers

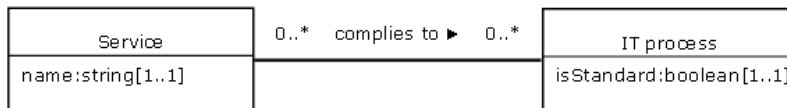


IT process standard adherence (service)

Description

Based on a management review, this measure indicates the extent to which IT services adhered to standardized IT processes.

Information model



Goals

- Ensure compliance
- Foster innovation
- Improve capability provision
- Improve project execution
- Increase disaster tolerance
- Increase homogeneity
- Increase management satisfaction
- Increase transparency
- Reduce operating cost
- Reduce security breaches

Organization-specific instantiation

Mapping:

Name in model	Mapped name	Contacts	Data sources
Service			
name			
complies to			
IT process			
isStandard			

Properties:

KPI property	Property value	Best-practice
Measurement frequency		Yearly
Interpretation		Good if 100% Normal if between 80% and 100% Bad if < 80%
KPI consumer		
KPI owner		
Target value		
Planned value(s)		
Tolerance value(s)		
Escalation rule		

Calculation

Number of applications analyzed by application portfolio methodology divided by the total number of applications.

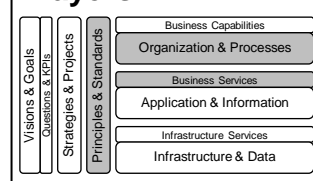
Code

EAM-KPI-0032

Sources

CobiT 4.0

Layers

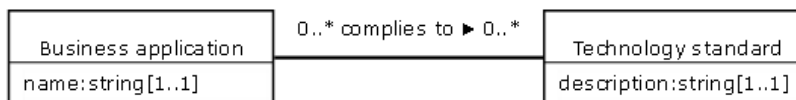


Business application technology standards compliance

Description

Measurement of the compliance degree of business applications to technology standards.

Information model



Goals

- Ensure compliance
- Foster innovation
- Improve capability provision
- Improve project execution
- Increase disaster tolerance
- Increase homogeneity
- Increase management satisfaction
- Increase transparency
- Reduce operating cost
- Reduce security breaches

Organization-specific instantiation

Mapping:

Name in model	Mapped name	Contacts	Data sources
Business application			
name			
complies to			
Technology standard			
isStandard			

Properties:

KPI property	Property value	Best-practice
Measurement frequency		Quarterly
Interpretation		
KPI consumer		
KPI owner		
Target value		
Planned value(s)		
Tolerance value(s)		
Escalation rule		

Calculation

Measurement of the compliance degree of business applications to technology standards.

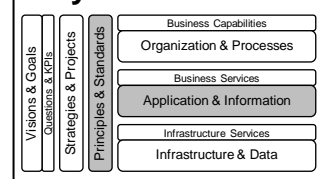
Code

EAM-KPI-0033

Sources

CobiT 4.0

Layers



Feasibility study performance index

Description

Measurement of the efficiency of the feasibility studies development process.

Information model

Feasibility study
deliveredOnBudget:boolean[1..1]
deliveredOnTime:boolean[1..1]

Goals

Ensure compliance
 Foster innovation
 Improve capability provision
 Improve project execution
 Increase disaster tolerance
 Increase homogeneity
 Increase management satisfaction
 Increase transparency
 Reduce operating cost
 Reduce security breaches

Organization-specific instantiation

Mapping:

Name in model	Mapped name	Contacts	Data sources
Feasibility study			
deliveredOnBudget			
deliveredOnTime			

Properties:

KPI property	Property value	Best-practice
Measurement frequency		
Interpretation		
KPI consumer		
KPI owner		
Target value		
Planned value(s)		
Tolerance value(s)		
Escalation rule		

Calculation

Number of feasibility studies delivered on time and on budget divided by the total number of delivered feasibility studies.

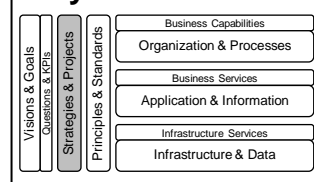
Code

EAM-KPI-0034

Sources

CobiT 4.0

Layers

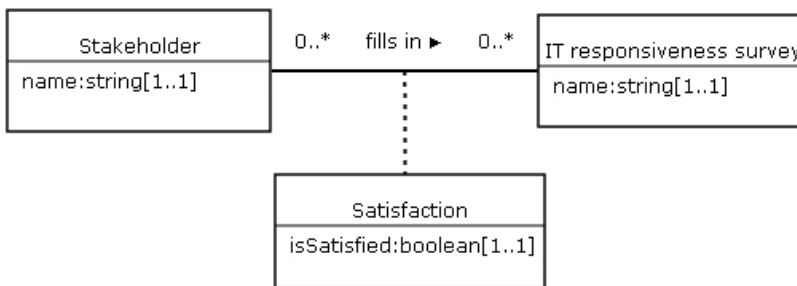


IT responsiveness satisfaction index

Description

Measurement of the stakeholder satisfaction in respect to the IT responsiveness.

Information model



Goals

- Ensure compliance
- Foster innovation
- Improve capability provision
- Improve project execution
- Increase disaster tolerance
- Increase homogeneity
- Increase management satisfaction
- Increase transparency
- Reduce operating cost
- Reduce security breaches

Organization-specific instantiation

Mapping:

Name in model	Mapped name	Contacts	Data sources
Stakeholder			
name			
fills in			
IT responsiveness survey			
name			
Satisfaction			
isSatisfied			

Properties:

KPI property	Property value	Best-practice
Measurement frequency		
Interpretation		
KPI consumer		
KPI owner		
Target value		
Planned value(s)		
Tolerance value(s)		
Escalation rule		

Calculation

Number of satisfied stakeholders divided by the total number of stakeholders.

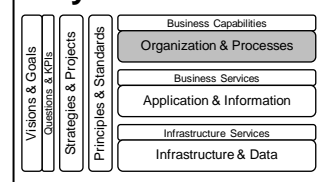
Code

EAM-KPI-0035

Sources

CobiT 4.0

Layers

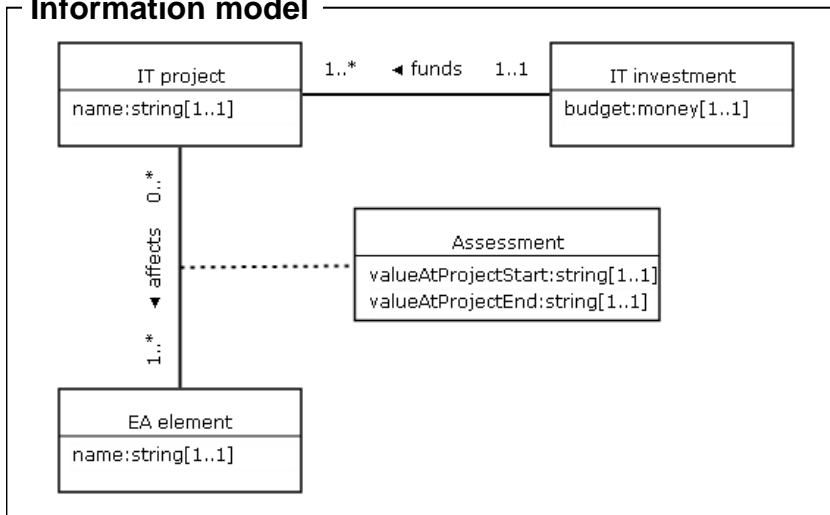


IT investment delivering predefined benefits

Description

Measurement of IT investment forecast accuracy.

Information model



Goals

- Ensure compliance
- Foster innovation
- Improve capability provision
- Improve project execution
- Increase disaster tolerance
- Increase homogeneity
- Increase management satisfaction
- Increase transparency
- Reduce operating cost
- Reduce security breaches

Organization-specific instantiation

Mapping:

Name in model	Mapped name	Contacts	Data sources
IT investment			
budget			
funds			
IT project			
name			
affects			
EA element			
name			
Assessment			
valueAtProjectStart			
valueAtProjectEnd			

Properties:

KPI property	Property value	Observed values
Measurement frequency		
Interpretation		
KPI consumer		
KPI owner		
Target value		
Planned value(s)		
Tolerance value(s)		
Escalation rule		

Calculation

Number of IT investments delivering predefined benefits divided by total number of IT investments.

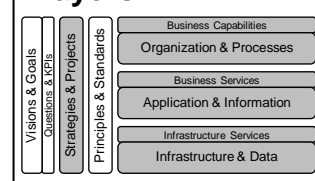
Code

EAM-KPI-0036

Sources

CobIT 4.0

Layers

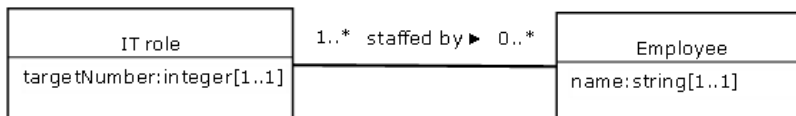


IT roles staffed

Description

Measurement of the completeness of the staffing process.

Information model



Goals

- Ensure compliance
- Foster innovation
- Improve capability provision
- Improve project execution
- Increase disaster tolerance
- Increase homogeneity
- Increase management satisfaction
- Increase transparency
- Reduce operating cost
- Reduce security breaches

Organization-specific instantiation

Mapping:

Name in model	Mapped name	Contacts	Data sources
IT role			
targetNumber			
staffed by			
Employee			
name			

Properties:

KPI property	Property value	Best-practice
Measurement frequency		
Interpretation		
KPI consumer		
KPI owner		
Target value		
Planned value(s)		
Tolerance value(s)		
Escalation rule		

Calculation

Number of IT roles staffed divided by the total number of IT roles.

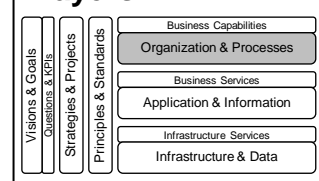
Code

EAM-KPI-0037

Sources

CobiT 4.0

Layers

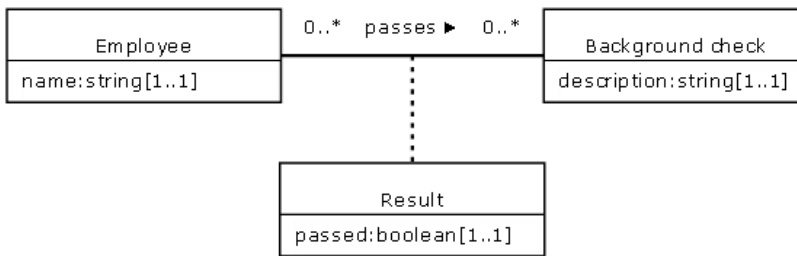


Background checks

Description

Measurement of the completeness of the background check process.

Information model



Goals

- Ensure compliance
- Foster innovation
- Improve capability provision
- Improve project execution
- Increase disaster tolerance
- Increase homogeneity
- Increase management satisfaction
- Increase transparency
- Reduce operating cost
- Reduce security breaches

Organization-specific instantiation

Mapping:

Name in model	Mapped name	Contacts	Data sources
Employee			
name			
passes			
Background check			
description			
Result			
passed			

Properties:

KPI property	Property value	Best-practice
Measurement frequency		
Interpretation		
KPI consumer		
KPI owner		
Target value		
Planned value(s)		
Tolerance value(s)		
Escalation rule		

Calculation

Number of employees who have performed and passed defined background checks divided by the total number of employees.

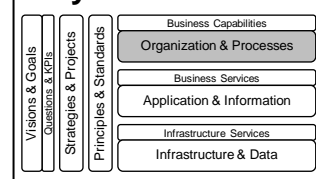
Code

EAM-KPI-0038

Sources

CobiT 4.0

Layers

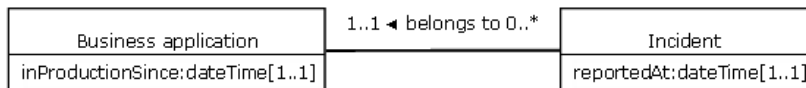


Defects uncovered prior to production

Description

Completeness of the defect identification process prior to production.

Information model



Goals

Ensure compliance
 Foster innovation
 Improve capability provision
 Improve project execution
 Increase disaster tolerance
 Increase homogeneity
 Increase management satisfaction
 Increase transparency
 Reduce operating cost
 Reduce security breaches

Organization-specific instantiation

Mapping:

Name in model	Mapped name	Contacts	Data sources
Incident			
reportedAt			
belongs to			
Business application			
inProductionSince			

Properties:

KPI property	Property value	Best-practice
Measurement frequency		
Interpretation		
KPI consumer		
KPI owner		
Target value		
Planned value(s)		
Tolerance value(s)		
Escalation rule		

Calculation

Total number of defects discovered between prior to production, divided by the total number of defects discovered after production date.

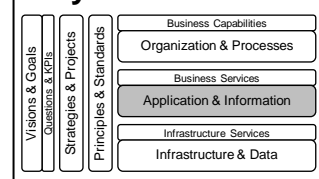
Code

EAM-KPI-0039

Sources

CobiT 4.0

Layers

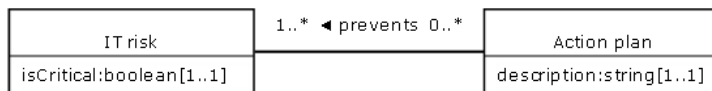


Action plans for critical IT risks

Description

Measurement of the completeness of defined action plans for prevention of critical IT risks.

Information model



Goals

- Ensure compliance
- Foster innovation
- Improve capability provision
- Improve project execution
- Increase disaster tolerance
- Increase homogeneity
- Increase management satisfaction
- Increase transparency
- Reduce operating cost
- Reduce security breaches

Organization-specific instantiation

Mapping:

Name in model	Mapped name	Contacts	Data sources
Action plan			
description			
prevents			
IT risk			
isCritical			

Properties:

KPI property	Property value	Best-practice
Measurement frequency		
Interpretation		
KPI consumer		
KPI owner		
Target value		
Planned value(s)		
Tolerance value(s)		
Escalation rule		

Calculation

Number of critical IT risks with preventive action plans divided by the total number of critical IT risks.

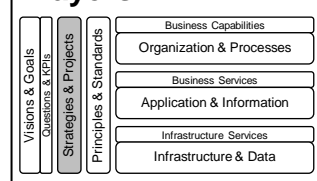
Code

EAM-KPI-0040

Sources

CobiT 4.0

Layers

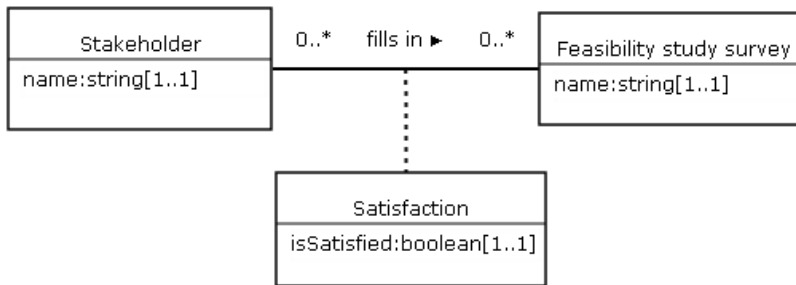


Feasibility study satisfaction index

Description

Measurement of the stakeholder satisfaction in respect to the feasibility study.

Information model



Goals

- Ensure compliance
- Foster innovation
- Improve capability provision
- Improve project execution
- Increase disaster tolerance
- Increase homogeneity
- Increase management satisfaction
- Increase transparency
- Reduce operating cost
- Reduce security breaches

Organization-specific instantiation

Mapping:

Name in model	Mapped name	Contacts	Data sources
Stakeholder			
name			
fills in			
Feasibility study survey			
name			
Satisfaction			
isSatisfied			

Properties:

KPI property	Property value	Best-practice
Measurement frequency		
Interpretation		
KPI consumer		
KPI owner		
Target value		
Planned value(s)		
Tolerance value(s)		
Escalation rule		

Calculation

Number of satisfied stakeholders divided by total number of stakeholders.

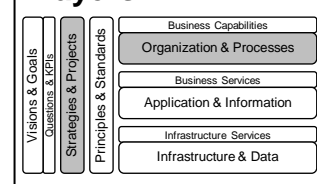
Code

EAM-KPI-0041

Sources

CobiT 4.0

Layers

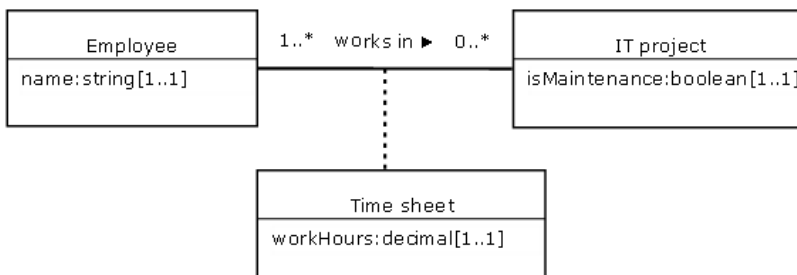


Maintenance projects effort

Description

Maintenance effort ratio.

Information model



Goals

- Ensure compliance
- Foster innovation
- Improve capability provision
- Improve project execution
- Increase disaster tolerance
- Increase homogeneity
- Increase management satisfaction
- Increase transparency
- Reduce operating cost
- Reduce security breaches

Organization-specific instantiation

Mapping:

Name in model	Mapped name	Contacts	Data sources
Employee			
name			
works in			
IT project			
isMaintenance			
Time sheet			
workHours			

Properties:

KPI property	Property value	Best-practice
Measurement frequency		
Interpretation		
KPI consumer		
KPI owner		
Target value		
Planned value(s)		
Tolerance value(s)		
Escalation rule		

Calculation

Value of effort spent on maintaining existing applications divided by total value of effort spent.

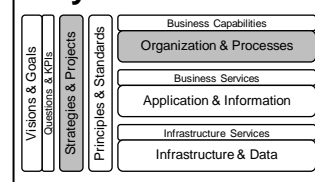
Code

EAM-KPI-0042

Sources

CobiT 4.0

Layers



Business applications compliant with IT architecture and technology standards

Description

Measurement of business application compliance.

Information model

Business application
isCompliantWithITArchitecture:boolean[1..1]
isCompliantWithTechnologyStandard:boolean[1..1]

Goals

Ensure compliance
 Foster innovation
 Improve capability provision
 Improve project execution
 Increase disaster tolerance
 Increase homogeneity
 Increase management satisfaction
 Increase transparency
 Reduce operating cost
 Reduce security breaches

Organization-specific instantiation

Mapping:

Name in model	Mapped name	Contacts	Data sources
Business application			
isCompliantWithITArchitecture			
isCompliantWithTechnologyStandard			

Properties:

KPI property	Property value	Best-practice
Measurement frequency		
Interpretation		
KPI consumer		
KPI owner		
Target value		
Planned value(s)		
Tolerance value(s)		
Escalation rule		

Calculation

Number of business applications compliant with the defined IT architecture and technology standards divided by total number of business applications.

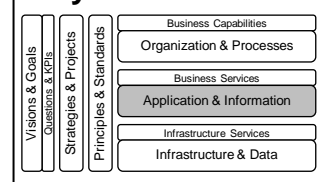
Code

EAM-KPI-0043

Sources

CobiT 4.0

Layers

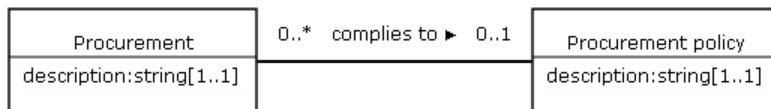


Procurement policies compliance

Description

Measurement of procurement compliance.

Information model



Goals

- Ensure compliance
- Foster innovation
- Improve capability provision
- Improve project execution
- Increase disaster tolerance
- Increase homogeneity
- Increase management satisfaction
- Increase transparency
- Reduce operating cost
- Reduce security breaches

Organization-specific instantiation

Mapping:

Name in model	Mapped name	Contacts	Data sources
Procurement			
description			
complies to			
Procurement policy			
description			

Properties:

KPI property	Property value	Best-practice
Measurement frequency		
Interpretation		
KPI consumer		
KPI owner		
Target value		
Planned value(s)		
Tolerance value(s)		
Escalation rule		

Calculation

Number of procurements in compliance with procurement policies divided by total number of procurements.

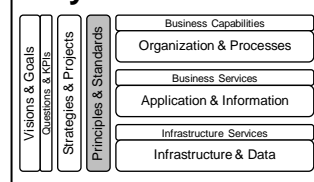
Code

EAM-KPI-0044

Sources

CobiT 4.0

Layers

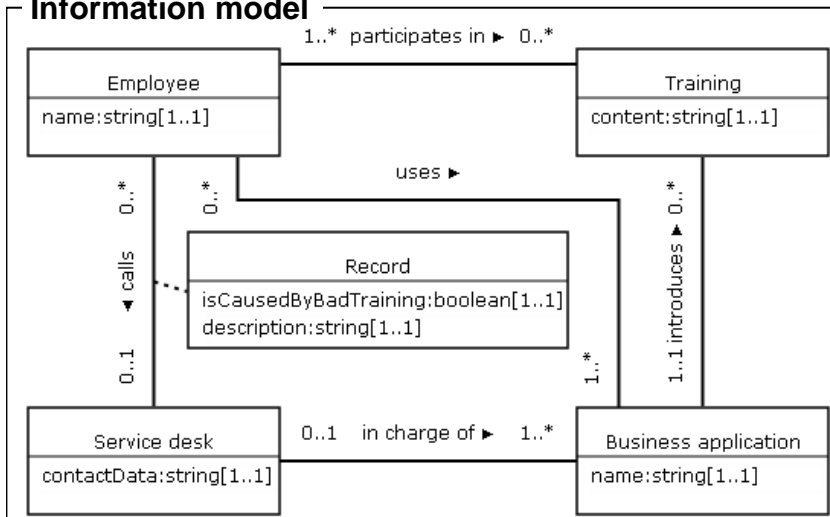


Service desk calls caused by inadequate training (1)

Description

Measurement of training completeness.

Information model



Goals

- Ensure compliance
- Foster innovation
- Improve capability provision
- Improve project execution
- Increase disaster tolerance
- Increase homogeneity
- Increase management satisfaction
- Increase transparency
- Reduce operating cost
- Reduce security breaches

Calculation

Number of service desk calls from users due to inadequate training divided by total number of service desk calls.

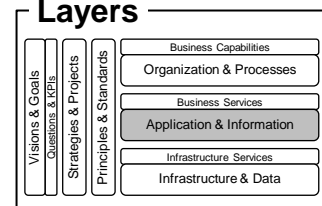
Code

EAM-KPI-0045

Sources

CobIT 4.0

Layers



Service desk calls caused by inadequate training (2)

Organization-specific instantiation

Mapping:

Name in model	Mapped name	Contacts	Data sources
Employee			
name			
participates in			
Training			
content			
calls			
Service desk			
contactData			
in charge of			
Business application			
name			
introduces			
Record			
isCausedByBad			
Training			
description			
uses			

Properties:

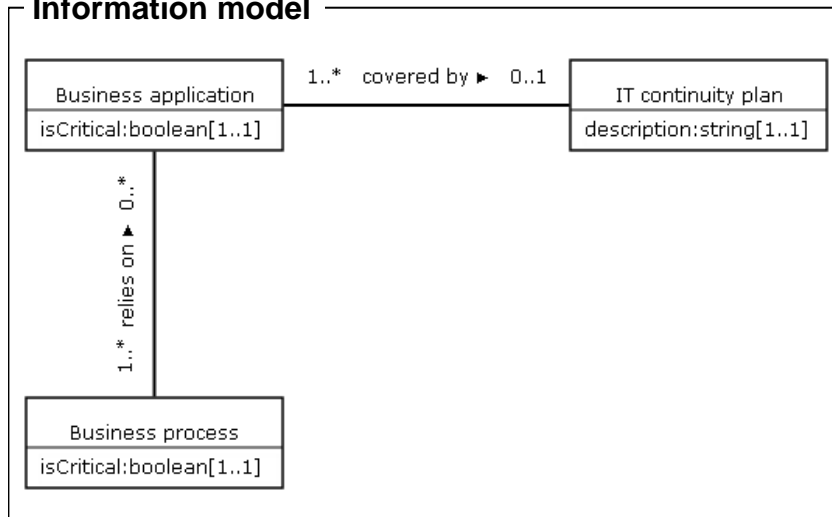
KPI property	Property value	Observed values
Measurement frequency		
Interpretation		
KPI consumer		
KPI owner		
Target value		
Planned value(s)		
Tolerance value(s)		
Escalation rule		

IT continuity plans for business applications supporting critical processes

Description

Measurement of the coverage of IT continuity plans in respect to business-critical processes.

Information model



Goals

- Ensure compliance
- Foster innovation
- Improve capability provision
- Improve project execution
- Increase disaster tolerance
- Increase homogeneity
- Increase management satisfaction
- Increase transparency
- Reduce operating cost
- Reduce security breaches

Organization-specific instantiation

Mapping:

Name in model	Mapped name	Contacts	Data sources
Business application			
isCritical			
covered by			
It continuity plan			
description			
Business process			
isCritical			
relies on			

Properties:

KPI property	Property value	Observed values
Measurement frequency		
Interpretation		
KPI consumer		
KPI owner		
Target value		
Planned value(s)		
Tolerance value(s)		
Escalation rule		

Calculation

Number of business-critical processes relying on business applications not covered by IT continuity plan divided by total number of business-critical processes.

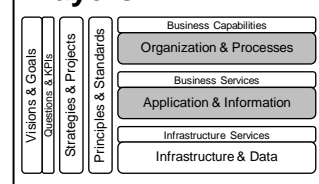
Code

EAM-KPI-0046

Sources

CobiT 4.0

Layers

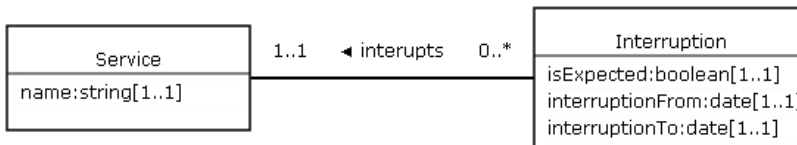


Unexpected service interruption duration

Description

Measurement of unexpected service downtime duration.

Information model



Goals

- Ensure compliance
- Foster innovation
- Improve capability provision
- Improve project execution
- Increase disaster tolerance
- Increase homogeneity
- Increase management satisfaction
- Increase transparency
- Reduce operating cost
- Reduce security breaches

Organization-specific instantiation

Mapping:

Name in model	Mapped name	Contacts	Data sources
Interruption			
isExpected			
interruptionFrom			
interruptionTo			
interrupts			
Service			
name			

Properties:

KPI property	Property value	Best-practice
Measurement frequency		
Interpretation		
KPI consumer		
KPI owner		
Target value		
Planned value(s)		
Tolerance value(s)		
Escalation rule		

Calculation

Overall duration of unexpected interruptions of critical services per given time period.

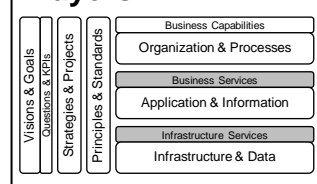
Code

EAM-KPI-0047

Sources

CobiT 4.0

Layers

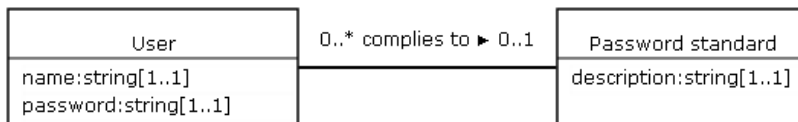


Password standard compliance

Description

Measurement of the degree of user password compliance to a given standard.

Information model



Goals

- Ensure compliance
- Foster innovation
- Improve capability provision
- Improve project execution
- Increase disaster tolerance
- Increase homogeneity
- Increase management satisfaction
- Increase transparency
- Reduce operating cost
- Reduce security breaches

Organization-specific instantiation

Mapping:

Name in model	Mapped name	Contacts	Data sources
User			
name			
password			
complies to			
Password standard			
description			

Properties:

KPI property	Property value	Best-practice
Measurement frequency		
Interpretation		
KPI consumer		
KPI owner		
Target value		
Planned value(s)		
Tolerance value(s)		
Escalation rule		

Calculation

Number of user passwords compliant to the password standard divided by the total number of users.

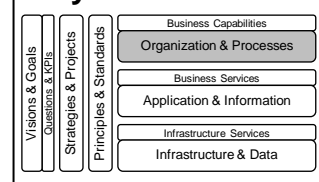
Code

EAM-KPI-0048

Sources

CobiT 4.0

Layers

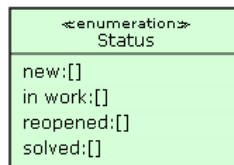
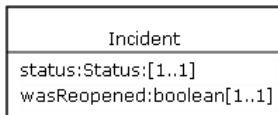


Reopened incidents

Description

Measurement of the efficacy of the incident solutions.

Information model



Goals

- Ensure compliance
- Foster innovation
- Improve capability provision
- Improve project execution
- Increase disaster tolerance
- Increase homogeneity
- Increase management satisfaction
- Increase transparency
- Reduce operating cost
- Reduce security breaches

Organization-specific instantiation

Mapping:

Name in model	Mapped name	Contacts	Data sources
Incident			
status			
wasReopened			
Status			
new			
in work			
reopened			
solved			

Properties:

KPI property	Property value	Best-practice
Measurement frequency		
Interpretation		
KPI consumer		
KPI owner		
Target value		
Planned value(s)		
Tolerance value(s)		
Escalation rule		

Calculation

Number of incidents reopened divided by the total number of incidents.

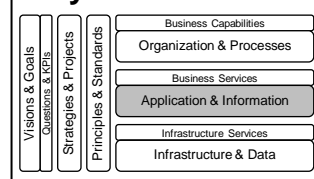
Code

EAM-KPI-0049

Sources

CobiT 4.0

Layers

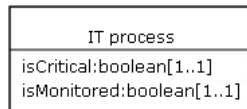


Critical IT processes monitoring

Description

Measurement of critical IT process monitoring completeness.

Information model



Goals

- Ensure compliance
- Foster innovation
- Improve capability provision
- Improve project execution
- Increase disaster tolerance
- Increase homogeneity
- Increase management satisfaction
- Increase transparency
- Reduce operating cost
- Reduce security breaches

Organization-specific instantiation

Mapping:

Name in model	Mapped name	Contacts	Data sources
IT process			
isCritical			
isMonitored			

Properties:

KPI property	Property value	Best-practice
Measurement frequency		
Interpretation		
KPI consumer		
KPI owner		
Target value		
Planned value(s)		
Tolerance value(s)		
Escalation rule		

Calculation

Number of critical IT processes monitored divided by the total number of critical IT processes.

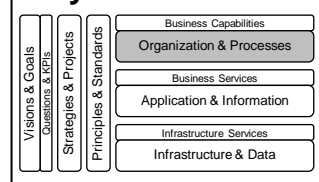
Code

EAM-KPI-0050

Sources

CobiT 4.0

Layers

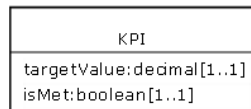


KPI targets met

Description

Measurement of performance target fulfillment.

Information model



Goals

- Ensure compliance
- Foster innovation
- Improve capability provision
- Improve project execution
- Increase disaster tolerance
- Increase homogeneity
- Increase management satisfaction
- Increase transparency
- Reduce operating cost
- Reduce security breaches

Organization-specific instantiation

Mapping:

Name in model	Mapped name	Contacts	Data sources
KPI			
targetValue			
isMet			

Properties:

KPI property	Property value	Best-practice
Measurement frequency		
Interpretation		
KPI consumer		
KPI owner		
Target value		
Planned value(s)		
Tolerance value(s)		
Escalation rule		

Calculation

Number of performance targets met divided by the total number of performance targets.

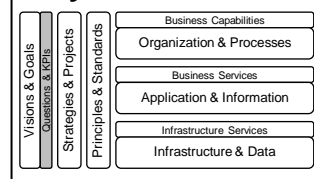
Code

EAM-KPI-0051

Sources

CobiT 4.0

Layers

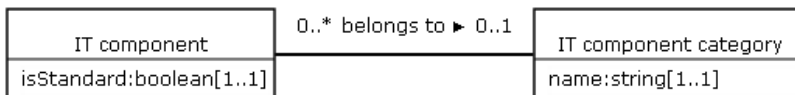


IT component category standardization

Description

This measure indicates how far the actual standardization of used IT components is within a given IT component category.

Information model



Goals

- Ensure compliance
- Foster innovation
- Improve capability provision
- Improve project execution
- Increase disaster tolerance
- Increase homogeneity
- Increase management satisfaction
- Increase transparency
- Reduce operating cost
- Reduce security breaches

Organization-specific instantiation

Mapping:

Name in model	Mapped name	Contacts	Data sources
IT component			
isStandard			
belongs to			
IT component category			
name			

Properties:

KPI property	Property value	Best-practice
Measurement frequency		
Interpretation		
KPI consumer		
KPI owner		
Target value		
Planned value(s)		
Tolerance value(s)		
Escalation rule		

Calculation

The number of standardized IT components assigned to a given IT component category divided by the total number of IT components assigned to the same category.

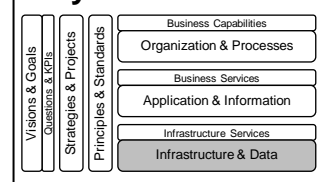
Code

EAM-KPI-0052

Sources

CobiT 4.0

Layers



The EAM KPI Catalog is developed in several steps. In version 1.0 we present 52 literature-based and practice-proven KPIs relevant for EA management documented with a uniform template. To navigate through the catalog, EA management goals as well as architectural layers and cross-cutting aspects can be used. Furthermore, each KPI comes with an information model depicting the data required. The roadmap for the upcoming versions of the EAM KPI Catalog is visualized in Figure 5.1.

Beside the collection of additional KPIs, the next step E1 consists of an evaluation of the included KPIs with industry partners. This step ensures the applicability of all KPIs and their relevance for EA management. In addition, the KPI description template will be evaluated and best-practice KPI configurations will be added to the catalog.

Step G1 will be performed in parallel to step E1 in order to improve the navigation for the EAM KPI Catalog. Therefore, typical goals for EA management will be collected, assessed and added to the existing goals originating from relevant literature. Afterwards, within step E2 the linkage between the new goal categories and their related KPIs will be established and evaluated with practitioners.

In order to provide further support for implementing KPIs, within step I1 the requirements for a KPI implementation language will be assessed. Based on these requirements a query language will be designed and developed and a tool study will be performed regarding already available implementations. After that, in step V1 all KPI descriptions will be enhanced with appropriate visualization recommendations. Depending on the result of the tool study, an individual tool support for KPIs will be set up during step I2. Finally, the outcomes of steps I1, V1 and I2 will be evaluated with industry partners during step E3.

5. Roadmap

Id	Stage	Version	Task	2012				2013			
				Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
1	E1	v 1.1	Evaluation of the catalog structure and of the documented KPIs with industry partners								
2	G1	v 1.2	EAM goal consolidation								
3	E2	v 1.3	Evaluation of the links between KPIs and EAM goals together with industry partners								
4	I1	v 1.4	Elicitation and documentation of requirements for a KPI implementation language								
5	V1	v 1.5	Visualizations for KPIs								
6	I2	v 1.6	Tool support: Implementation of the EAM KPI catalog								
7	E3	v 2.0	Evaluation of the EAM KPI catalog implementation with industry partners								

Figure 5.1: Roadmap for the EAM KPI Catalog

Bibliography

- [BP00] Black, J.; Porter, L.: *Management: meeting new challenges*. Prentice Hall. 2000. 9780321014078.
- [Bu10] Buckl, S.; Dierl, T.; Matthes, F.; Schweda, C. M.: *Building Blocks for Enterprise Architecture Management Solutions*. In (Harmsen, F. e. a., Ed.): *Practice-Driven Research on Enterprise Transformation, second working conference, PRET 2010, Delft*. pages 17–46. Berlin, Heidelberg, Germany. 2010. Springer.
- [De82] DeMarco, T.: *Controlling Software Projects: Management, Measurement, and Estimates: Management, Measurement and Estimation*. Prentice Hall. 1982. 978-0131717114.
- [Dr06] Drucker, P. F.: *The Practice of Management*. Harper Paperbacks. Oxford, UK. Reissue edition. 2006.
- [In07] International Organization for Standardization: *ISO/IEC 42010:2007 Systems and software engineering – Recommended practice for architectural description of software-intensive systems*. 2007.
- [IT09] ITGI: *CobiT 4.1*. Technical report. IT Governance Institute. Rolling Meadows, IL, USA. 2009.
- [KAV05] Kaisler, S.; Armour, F.; Valivullah, M.: *Enterprise Architecting: Critical Problems*. In *Proceedings of the Proceedings of the 38th Annual Hawaii International Conference on System Sciences (HICSS'05)-Track 8-Volume 08*. Washington, DC, USA. 2005. IEEE Computer Society Washington, DC, USA.
- [Ku10] Kuetz, M.: *Kennzahlen in der IT. Werkzeuge für Controlling und Management*. dpunkt.verlag. Heidelberg, Germany. 4th edition. 2010. 978-3898647038.
- [LKL10] Lucke, C.; Krell, S.; Lechner, U.: *Critical Issues in Enterprise Architecting — A Literature Review*. In *Proceedings of the Sixteenth Americas Conference on Information Systems (AMCIS 2010)*. Lima, Peru. 2010.

Bibliography

- [Of00] Office of Government Commerce (OGC): *ITIL – Service Delivery*. IT Infrastructure Library (ITIL). The Stationery Office. Norwich, UK. 2000.
- [SZ92] Sowa, J. F.; Zachman, J. A.: *Extending and Formalizing the Framework for Information Systems Architecture*. *IBM Systems Journal*. 31(3):590–616. 1992.
- [Wi07] Wittenburg, A.: *Softwarekartographie: Modelle und Methoden zur systematischen Visualisierung von Anwendungslandschaften*. PhD thesis. Fakultät für Informatik, Technische Universität München, Germany. 2007.

To enable enterprise architects to measure and track their goal achievements, this catalog provides 52 key performance indicators (KPIs) discovered and applied in industry projects or documented in relevant literature.

Benefits of this catalog:

- **EA management goals:** starting with your EA management goals identify relevant KPIs
- **KPI template:** adapt the selected KPIs on your enterprise context using a structured template
- **Information model:** determine which information is needed for the calculation of the selected KPIs
- **EA layers:** determine which elements of your EA are covered by the selected KPIs
- **User's guide:** measure your EA management goals achievement pursuing a simple four-step approach

Containing practice proven KPIs and hints towards future research topics, this catalog targets at practitioners and academic audience.