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TOTAL INNOVATION MANAGEMENT

INNOVATION MANAGEMENT STANDARD

SUPPORTING DOCUMENTATION

INNOVATION METRICS

TIM-PD-004-R2

PDMA Edition
1st of January, 2015

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INTRODUCTION TO THE INNOVATION METRICS REFERENCE DOCUMENT

The TIM-PD-001-STD Innovation Management Standard provides the criteria for establishing an Innovation Management System (IMS) within an organization. An Innovation Management system improves an organization's innovation capability and provides for both capability and performance measurements that can be classified as evidence-based innovation. This reference document describes usable innovation metrics that can be used as measurements to assess and monitor an innovation management system.

Unlike traditional financial metrics, such as return on investment (ROI) or NPV (Net Present Value) measurements on the project level, this publication places an emphasis on the organization's capability to innovate and the effectiveness of the Innovation Management System. Innovation capability is systems-based and not results-oriented. However, when an organization maintains a high innovation capability, results will be forthcoming. The effectiveness of the Innovation Management System can be a synchronized set of performance-oriented measurements or outcomes.

APPLICABILITY AND SCOPE

This standard is applicable to all countries and any type of organization startup or established for developing an Innovation Management System (business, government, non-profits, sports and entertainment, etc.).

Organizations can assess their innovation maturity to the standards requirements and systematically adopt the six elements of the standard to develop their own unique Innovation Management System.

The standards provide the criteria necessary for individual learning, knowledge and management of a business model innovation framework and innovation projects.

Innovation objectives and subsequent projects may include creating new or improving technologies, products, services and processes.

Companion documents, Assessment Checklist, Guidelines and Reference Publications are available to support this standard and assist the end user in developing and implementing an Innovation Management System (IMS).

In compliance with the TIM-PD-001-STD Innovation Management Standard capability and effectiveness (performance) measurements are a requirement. Specific performance measurements will vary based upon the type(s) of innovation an organization is implementing. This document does not describe metrics on the project level even though some metrics on the project level may surface, their primary goal is a contribution to measurement of the overall management system.

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1.0 INNOVATION CAPABILITY METRICS

General

It is often said that innovation starts with an idea, hard work, and with some luck great things can happen and be developed. When an organization has allowed for and developed a capability to be innovative they have created the conditions necessary for innovation within an organization. Planting a seed however does not guarantee the growth of a plant unless you have created the right conditions under which growth can occur.

These conditions necessary for innovation are defined within an organization's Innovation Management System (IMS) in conformance with the TIM-PD-001-STD Innovation Management Standard. For the purpose of managing the IMS and to determine its ongoing suitability and effectiveness, measurements are required that result in usable metrics over time. A fully described and operational metric would consist of a measured result, a stated management goal for the metric, plus a trend over time to reach a stated management goal, in order for it to be usable.

Capability metrics are a combination of qualitative and quantitative measurements and goals that are usually compiled annually. This publication provides for sample quantitative measurements that can be tailored to suit the organization.

Qualitative measurements, metrics and an overall system maturity score are attainable using the TIM-PD-002-A Standard Assessment Checklist in combination with the TIM-PD-003-GL Interpretation Guideline which also contains Assessment Notes.

Please note: these metrics should not be confused with metric sets at the project or the operational level: this list is exclusively devoted to measuring the organization's innovation capability. For project level metrics the Interpretation Guideline could be a source of information.

1.1 Culture

1.1.1 An organization's culture can be best evaluated through observation and survey types of discussions and interviews with stakeholders. Some quantitative measurements are provided below that may provide additional insights:

Employee satisfaction levels expressed on a scale of 1 through x
Number of employee grievances as a percentage of average total employees
Employee turnover rate as a percentage of average total employees
Number of employees recognized for innovation as a percentage of average total employees
End user or customer levels of satisfaction expressed on a scale of 1 through x
End user or customer retention levels as a percentage of annual number of end users or customers
Supplier and partner levels of satisfaction expressed on a scale of 1 through x
Supplier and partner retention as a percentage of total supplier and partner numbers
Number of negative lawsuits and fines annually
Number of work environment additions and changes made annually.

1.2 Leadership

1.2.1 Like culture, innovation leadership is best evaluated through observation and survey type discussions and interviews with stakeholders. Some quantitative measurements are provided below:
Percent of executive management trained in innovation management and leadership
Percent of executive management time spent on each phase of innovation (front end, middle, back end)
Percent of middle and lower management trained in innovation management
Percent of middle and lower management time spent on each phase of innovation (front end, middle, back end)
Number of innovation communications implemented to stakeholders annually.

1.3 Resources

1.3.1. Resources deal mainly with people, finances and infrastructure requirements. Below are sample quantitative measurements:

Number of employees trained in innovation leadership, management and execution
Percentage of employees involved in innovation activities as a percentage of overall employees
Number of employees involved full time in innovation activities

Employee average time spent on innovation (broken down by phase and activity)
Number of external stakeholders involved in the innovation process
Amount of money invested in the innovation process
Amount of money allocated for innovation implementation
Number of infrastructure additions and improvements for innovation purposes
Amount of money spent on resources (people, finances and infrastructure) directly linked to innovation activities as a percent of overall costs.

1.4 Processes

1.4 Processes are best measured for their outcome effectiveness and performance. Below are some sample quantitative measurements.

Number of processes established for the front end of innovation (Discovery)
Number of processes established for the middle of innovation (Development)
Number of processes established for the back end of innovation (Deployment)
Number of processes established for the Innovation Management System overall
Number of processes compliant to TIM-PD-001-STD and its accompanying toolset
Adoption speed of new processes in other units of the organization
Number of projects started annually as a percentage of overall number of projects
Number of projects killed annually as a percent of overall number of projects
Number of projects completed successfully as a percent of overall average number of projects
Number of projects actively reviewed for evaluation and learning purposes as a percentage of overall average number of projects.

1.5 Monitoring and Measuring

1.5.1 This publication is based on the monitoring and measuring of innovation within an organization.

Number of capability measurements established, broken down by types
Number of performance measurements established, broken down by types
Number of functional areas of the organization implemented.

1.6 Improvement

1.6.1 Once an innovation capability has been established metrics provide the baseline for continual improvement. Sample quantitative measurements are provided below:

Number of employees available for, and trained in continuous improvement of the Innovation Management System

Number of processes established for continuous improvement of the Innovation Management System

Number of improvements made to the Innovation Management System annually

Number of new technologies and methodologies adopted annually, broken down by the nature of these adoptions.

2.0 INNOVATION PERFORMANCE METRICS

General

When an organization has established an innovation capability it can be measured to determine its effectiveness.

Performance metrics are a combination of outcomes achieved through the implementation of the IMS which will ultimately link directly to the organizations Innovation Objectives.

These measurements are required to manage the IMS, measure its effectiveness and for establishing continual improvement activities.

Most performance measurements are quantitative in nature. The TIM-PD-002-A Standard Assessment Checklist provides for qualitative measurements and an overall system maturity score.

2.1 Discovery

2.1.1 The front end of the innovation cycle addresses ideas needed for innovation, how they are created, gathered, selected, vetted and approved for further development. Below are sample quantitative measurements that are frequently used, including but not limited to:

- The number of ideas (and concepts, opportunities) created, collected and captured
- Percentage of ideas (and concepts, opportunities) from inside the organization
- Percentage of ideas (and concepts, opportunities) from outside the organization
- Percentage of ideas (and concepts, opportunities) banked for future use
- Percentage of ideas (and concepts, opportunities) turned down
- Percentage of ideas (and concepts, opportunities) approved for development
- Average time from idea generation to approval for development (compared to industry / branch / discipline benchmark)
- Amount of money spent under or over budget for each front end project and as a total overall.

2.2 Development

2.2.1 The middle of the innovation cycle addresses the development of the approved front end ideas. Below are sample quantitative measurements that are frequently used, including but not limited to:

- Number of development projects started
- Number of development projects in-process
- Number of development projects completed
- Number of development projects stopped (failed, or put on hold)
- Number of development projects completed on time
- Amount of money spent under or over development budget, per project and overall.

2.3 Deployment

2.3.1 The back end of the innovation cycle addresses the deployment of the developed innovation ideas. Below are sample quantitative measurements that are frequently used, including but not limited to:

- Number of successful deployment projects (completed and met project objectives)

Specific project objectives be both quantifiable or qualitative, and could include but are not limited to: revenue or profit goals, added value to identified stakeholders, innovation strategic goals achieved as specified in strategic plans.

Internal cost savings produced per deployment project

Percentage of new revenue from innovation, classified by type of innovation

Percentage of new output/profit from innovation, classified by type of innovation

Percentage of new users or customers from innovation, classified by type of innovation

Percentage increased market share from innovation, classified by type of innovation

Number of patents applied for

Number of patents granted

Number of new trademarks or sales marks registered, and their capitalization

Amount of money spent under or over deployment budget, per project and overall.

3.0 INNOVATION ASSESSMENT

General

The TIM-PD-002-A Standard Assessment Checklist provides a compliance and maturity evaluation of an Innovation Management System.

The assessment checklist is aligned to the requirements of the TIM-PD-001-STD Innovation Management Standard elements and clauses, which provide qualitative measurements for compliance and quantitative measurements for maturity and capability based on planning, execution and deployment.

4.0 NOTES ON BENCHMARKING

General

Many of the metrics specified in this document, once gathered, are also re-usable for benchmarking the organization against similar organizations in its own environment. Specific benchmarks are available from a variety of sources, but it is worthy noting the following considerations when using bechmarks.

Specific points to note when comparing one's own organization to others include but are not limited to the following:

4.1.1 Aim: what does the benchmark aim to achieve?

If the information used was collected with completely different purposes in mind originally (or for example is only partially collected as it was considered of secondary importance), the benchmark information may not be as reliable. Focus on a few well-collected, researched essential benchmarks may deliver more result than dilution of effort on collecting a multitude of off-topic imprecise ones.

4.1.2 Source of the benchmark: where does the data used in the benchmark come from, and how reliable is the identified source?

Who has actually collected the data, how was it stored and processed? Was it drawn from an existing corpus of data? When was the information collected, how current is it compared to ones own information?

4.1.3 Scope of the benchmark: is the data collected in the benchmark in scope?

Is the benchmark's information originally sourced and compiled for the same use for which it is being used?

4.1.4 What is the level of analysis of the benchmark? This could vary greatly.

- intra-organizational: between departments, units, divisions of the same organization
- inter-organizational: between two organizations
- branch/industry/discipline benchmarks
- regional or national benchmarks
- international benchmarks.

4.1.5 Is the benchmark data compiled using the same reliable data definitions as the one used for compiling one's own information? Are they aligned with the definitions used in the adopted Innovation Management System and compliant with the TIM-PD-001-STD Innovation Management Standard and underlying documentation? A simple, but very enlightening example is that of the definition of what constitutes a 'new' technology, product, service or process. In some sectors, that may be three years, in other branches, only one year as the pace of change in that environment is considerable. It is important to know which is which. Also, does a simple enhancement

or updated version of a technology, product, service or process turn the original product into a 'new' product again to be counted in the 'new' category? Are different categories of 'newness' adequately defined and described? This issue is purely used as an example to describe common confusions.

4.1.6 What kind of clarity exists on what happens with benchmark results, and if any, how is corrective action measured, can it be measured using the same benchmark background data?

4.2 Evidence-Based Innovation

As part of the regular, ongoing two-year cycle of improvements to the Innovation Management Standard, improved and smarter metrics could play an increasing role in improving Innovation Management practices. A term that could be used to describe this is Evidence-Based Innovation. Many so-called 'best' practices that exist today may actually not be commendable as such in other sectors or environments, or are based on yesterday's insights, or may come with very limited or no empirical evidence. Many have also fallen by the wayside before such evidence can actually be collected fully and analyzed. By offering a systemic collection of terms and concepts, and rigorous review, this standard contributes to collecting better empirical evidence on effectiveness, usability and appropriateness of tools, methods, and processes. Through using a systematic approval process based on consensus, the PDMA Standards Review Board expect to be able to improve the current standard by selecting what works, or at the minimum continue to qualify any commonly found practices with appropriate usage notes in the accompanying guidelines.