

## MEASURING INNOVATION EXCELLENCE

### MEASUREMENT FRAMEWORK FOR PwC'S WHEEL OF INNOVATION EXCELLENCE CONCEPT

Tina Škerlj, SmartCon, Slovenia  
skerlj.tina@gmail.com

#### **Abstract:**

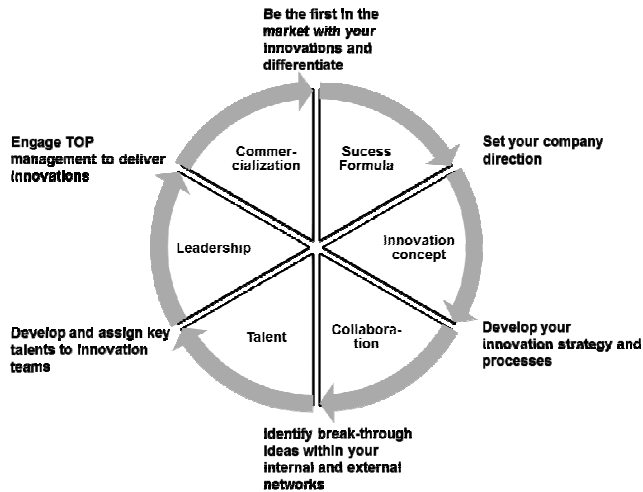
This article discusses and presents an approach to the development of an innovation measurement framework. Innovations are vital for company's long term success and therefore many theories and different innovation concepts exist. One of the frameworks developed recently and on real life observations and data practice coming from Central and Eastern Europe is a concept called PwC Wheel of Innovation Excellence. The goal of this article is to develop and presents a measurement framework for this specific innovation concept. The developed framework will have to strongly link strategy and innovation and has to be able to present it to the users (employees) to motivate them to further innovate and explore the unknown. The presentation of the innovation "status" should such that it can be understood by wide audiences (easy to use) and should foster communication among employees. The measurement framework also needs to be able to measure less tangible and hardly measurable aspects of innovation. A special type of questionnaire needs to be developed to measure them. The result of the article is a measurement framework that consists of questionnaires to assess innovation activities, KPI's to measure them and a dashboard to display them.

*Keywords: innovation management, innovation measurement, management, competitive advantage, key performance indicators*

## 1. PWC'S WHEEL OF INNOVATION EXCELLENCE CONCEPT

The PwC Wheel of Innovation Excellence (Kubena, Okes-Voysey, Vizjak, 2012) provides a guideline for innovation and can be used to systematically strengthen a company's power to innovate and speed up the innovation process (**Napaka! Vira sklicevanja ni bilo mogoče najti.**). It is a framework, which addresses essential aspects for successful innovation management.

Picture 1: The PwC Wheel of Innovation Excellence

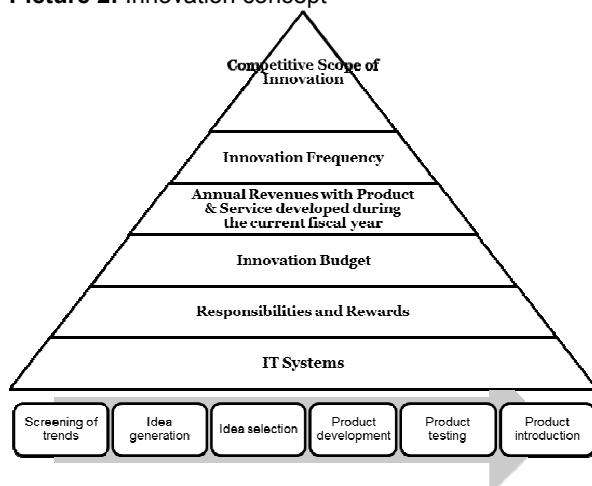


Source: Kubena, Okes-Voysey, Vizjak, 2012, p. 36.

The PwC Wheel of Innovation Excellence starts with setting a clear direction for the company and follow-up respective actions.

- The PwC Success Formulas (Vizjak, 2011; Kroger, Vizjak, Moriarty, 2008) help companies to make the right strategic decisions. Defining the right growth strategy is a key starting point to be able to develop correct innovation strategies and processes.
- The second step of the PwC Wheel of Innovation Excellence is a clear innovation concept which includes a rigorous day-to-day management making innovation operational (Picture 2). The innovation concept includes all tasks and activities that enhance the development, introduction and commercialization of innovation from a simple trend to an idea and then to a real product or service.

Picture 2: Innovation concept



Source: Kubena, Okes-Voysey, Vizjak, 2012, p. 66.

Two *competitive scopes of innovations* are distinguished, the industry shark and the international champion, who are targeting with their innovation concept at becoming first in the world with an innovative product or service, while the local specialist and regional hero target to be first in adapting to their local region. Additionally two *innovation frequencies* for the design of an innovation concept

are distinguished: the local specialist and the international champion are targeting single breakthrough innovations every few years, while the regional hero and the industry shark target many innovations in different product/service areas or every year.

This has a big influence on the six key process steps. The financial *revenue target* is a further important decision regarding the innovation concept as it drives the intensity and speed of the innovation process, combined with the size of the *innovation budget* as a further key decision. Additional clearly defined *organizational responsibilities and rewards* of the assigned people as well as *IT support* is required.

- Collaboration, which helps to identify ideas within the company's internal and external networks, is the next part of the PwC Wheel of Innovation Excellence. Instead of developing in an isolated internal team, each company has the chance to strategically leverage internal and external sources of ideas and take them to market through multiple channels. This "open innovation" concept can reduce development costs by 60-90% (Herder, 1992), simultaneously reducing time-to-market. It is also proven that companies with technology based external relations are more innovative than companies without these linkages (Roelandt, 1997, p.9).
- Committed and empowered people are the fourth step in the PwC Wheel of Innovation Excellence. To implement a functioning innovation strategy a company must on one hand hire bright people and on the other hand empower these high potentials to enable them to cultivate their own vision and contribute to the success of the organization. Developing and assigning key talent for innovation teams becomes even more critical in times of perceived talent shortages.
- Creative leadership, which fosters innovativeness, is the next part of the PwC Wheel of Innovation Excellence. Innovative leadership includes communication of the company's vision, creation of an innovation friendly framework, evaluation and selection of managers, training and education opportunities for entrepreneurial behavior, installation of an open market for ideas and talents as well as the establishment of performance oriented reward systems that effectively promote innovation.
- Successful commercialization of innovation is of strategic importance to companies and represents the last step of the PwC Wheel of Innovation Excellence. Commercialization involves formulating the manufacturing and supply chain strategies, generating implementation plans and putting these plans into action. During the commercialization phase companies need to align the human and financial resources, overcome internal corporate politics, implement formal processes, sustain leadership alignment, strengthen decision-making attitude and choose adequate distribution channels.

A key improvement opportunity of the PwC Wheel of Innovation Excellence is to develop and implement a practical way of measuring innovation effectiveness and efficiency. Executives have difficulties in finding practical indicators that clearly measure what is important. A lack of metrics deprives companies of the ability to measure progress and drive corrective actions.

The main goal of this scientific article is to discuss and develop a comprehensive measurement framework for the PwC Wheel of Innovation Excellence innovation concept. The measurement framework will consist of structured questionnaires to assess the innovation activities status. It will propose key performance indicators to measure innovation and in the end propose an effective dashboard to display them.

## 2. HOW OTHER INNOVATION CONCEPTS ARE MEASURED? WHY IT IS SO HARD TO MEASURE INNOVATION?

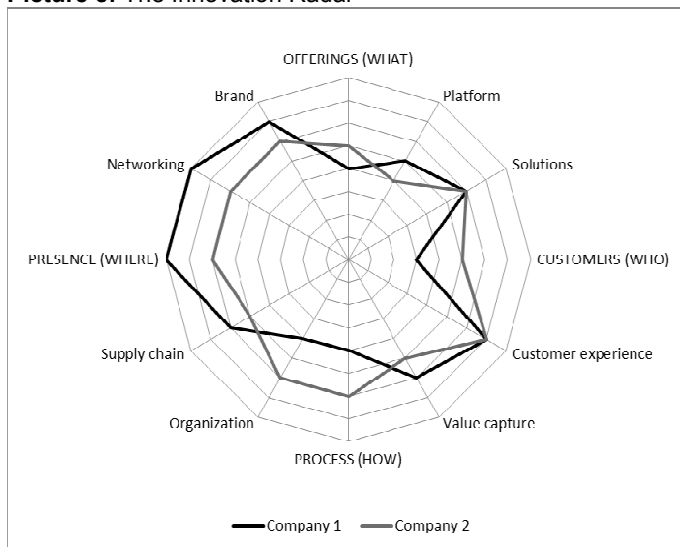
In this section we will present some of the other established innovation management concepts and the way they are measuring company innovativeness. The most important learnings from these measurement practices will be applied to the development of the measurement framework for PwC Wheel of Innovation Excellence.

### 2.1. Innovation Radar, by Kellogg School of Management, 2006

The Innovation Radar is a framework to look at innovation in a very broad sense. Its authors Sawhney, Arroniz and Wolcott (2006) have defined innovation as "the creation of substantial new value for

customers and the firm by creatively changing one or more dimensions of the business system". Based on this definition Sawhney et al. propose a framework that includes 12 dimensions of innovation (Picture 3).

**Picture 3: The Innovation Radar**



Source: Author

The model has been proven by scientific research (Chen, Sawhney, 2012), where it has been confirmed that factors like offering, platform, solution, customers, experience, brand and presence significantly influence overall company performance. They are strongly linked with product innovation. Further suggestions have been made that innovation in customer facing activities can make a bigger difference in company performance than innovation in internal operations. One other important finding is that focused innovators are typically outperforming broad innovators. Practice says that companies which focus on excelling in 2 to 5 innovation vectors will tend to have better business performance than their competition.

There are two important learnings that we should take from the Innovation Radar. Firstly, it provides means in understanding and pursuing innovation in a holistic way and at the same time it provides a link between innovation and company performance. Secondly, it provides a visual representation of where a company excels and lags in innovation across its business system. This information can be used to innovate in dimensions in which the competitors have not considered.

## 2.2. Innovation Master Plan, by Langdon Morris, 2011

The Innovation Master Plan (Morris, 2011) is a management framework exploring and discussing innovation activities in format that is close to today's managerial practices. It discusses innovation by asking the most basic questions in a readable and structured format. Why and what to innovate? How and who should innovate? And where should the innovation happen?

Innovation measurement is thoroughly discussed in this work and the most important takeaways include:

- There will always be a certain level of uncertainty in measuring innovation due to the fact that we are exploring the unknown
- ROI is a valid metric in innovation but should be applied to innovation projects with caution (not too soon, more suitable for incremental innovations, risk of limiting the innovations to the known world)
- Innovation is also a learning process. Successes and failures in the innovation are therefore both indicators of innovation progress.
- There are metrics that have been particularly useful to companies when measuring innovation. Each of them will be included in our measurement framework.
- Qualitative input can be collected in a form of provocative questions which can lead people to think deeply about the work they are doing.

- Innovation metrics aligned with people rewards is an important aspect of influencing people behavior.
- Dashboards are a useful tool to make the innovation process perceived as opened and accessible which will inspire employees to participate.

### **2.3. Measuring Innovation – BCG Senior Management Survey, 2009**

Research done by Boston Consulting Group (Andrew, 2009) shows that companies are struggling in terms of measuring innovation; what to measure, how to collect the data, how to use data to make decisions. Key findings of the report are:

- Only 32% of interviewed are satisfied with their innovation measurement practice.
- Most of the interviewed (73%) believe that innovation should be tracked as rigorously as other business operations, but only 46% of companies actually do so.
- A small number of companies (27%) attempt to drive innovation by linking employee incentives to innovation metrics.
- The most widely tracked components of innovation are company profitability (79%), overall customer satisfaction (75%) and incremental revenue from innovation (73%).
- The metrics that most employees pay attention to – the ones that have great impact on their behavior and attitude towards company's innovation efforts – are incremental revenue from innovation and overall customer satisfaction.

BCG is concluding that executive's understanding of the importance of measuring innovation efforts is improving, yet small number companies follow through in implementing them. BCG is suggesting that measurement of innovation-to-cash (ITC) should focus on inputs, innovation processes and outputs. As important aspects to be measured (and they are often under measured) they expose speed of innovation and management of the innovation portfolio.

## **3. MEASUREMENT FRAMEWORK FOR PWC WHEEL OF INNOVATION EXCELLENCE**

The inputs from the studied literature have helped greatly in defining our measurement framework. These are the main guidelines that we used in designing our measurement system:

1. The measurement tool will have to emphasize the importance of the link between the company strategy and the role of innovation. This is done by thorough investigation of company's success factors, alignment of strategic and innovation goals, growth and customers satisfaction goals. The above topics are the ones that are most tightly connecting strategy with innovations and are also the ones that most influence employee behaviour.
2. The results for the innovation measurement will have to be displayed in a simple graphical format. In this way the tool will be easier to use for companies and at the same time will have greater impact as majority of people are better understanding graphically represented data (Prašnikar, Škerlj, 2006).
3. The questions and performance indicators will be structured in different levels to allow customers to monitor and measure different levels of details of their innovation practices. The questions and KPI's are structured in 3 distinct layers as follows:
  - 1. Level: basic innovation KPI's that are suitable for most of the companies. They are focused on innovation results and are easily quantifiable.
  - 2. Level: advanced innovation indicators that show the next level of details. They are focused on both innovation inputs and results.
  - 3. Level: of indicators that measure the quality of innovation processes that are most difficult to measure.
4. The measurement framework will provide means to measure not only tangible aspects of innovation (new customers revenue, innovation budget,...) but also to gather some (intangible) understanding about employees perception of their working environment and its innovativeness (innovation culture). This information can be beneficial to the management to influence the innovation culture with their actions and behaviours.

The measurement framework built on the above mentioned guidelines consists of the following components:

- A set of quantitative, qualitative and provoking questions that are used to gather data about the innovation inputs, processes and outputs and are able to make people think about their daily innovation practices
- A set of measurable innovation performance indicators that can be compared with expected values (plans, last years results, ...)
- A dashboard that is representing the gathered information in the context of the PwC Innovation Excellence concept.

### 3.1. Questions

The measurement questions are aligned with the PwC innovation aspects. They are further grouped into quantitative questions that measure performance of chosen innovation aspects and into qualitative and provocative questions that can help gather employee opinions about the innovation activities. The first group of questions measures innovation aspects that are easier to measure, the second group focuses more on aspects that are not easily measurable. Provocative questions raise awareness about the importance of everyday innovative behaviors with employees.

The quantitative questions are organized into three levels to create three versions of the innovation framework (Table 1):

- Level 1: is a basic innovation assessment and comprises of questions that asses basic indicators of innovativeness
- Level 2: assesses intermediate innovation aspects and adds some more innovation KPIs mainly in the area of inputs
- Level 3: is the most advanced version of the framework that assesses also the performance of specific innovation processes and activities

An overview of questions is shown in Table 2.

**Table 1:** Overview of measurement framework questions. The questions are structured according to PwC innovation aspects and the depth of assessment

	Quantitative questions			Qualitative and Provocative Questions
	Level 1	Level 2	Level 3	
Success Formulas	3	5	3	8
Innovation concept	4	8	11	23
Collaboration	3	2	2	7
Talent	2	2	2	5
Leadership	1	1	3	10
Commercialization	3	5	6	5
TOTAL	16	23	27	58

Source: author

**Table 2:** List of questions to assess the first innovation aspect - Success Formulas

Qualitative Metrics	Do you have an innovation strategy which is formulated in writing?
Quantitative Metrics	What is the ratio of investment into non-incremental innovations - YoY?
Quantitative Metrics	What business growth do we expect from innovations; in percent and absolute?
Quantitative Metrics	What is the ratio of capital invested in early stages vs return earned in the sales stage?
Quantitative Metrics	Is the net portfolio increase at least 5 to 10 times greater than the investment?
Quantitative Metrics	Is the number of non-incremental innovations delivered to the market increasing?
Quantitative Metrics	What the percent of revenue in core categories from new products/services?
Quantitative Metrics	What the percent of revenue in new categories from new products/services?
Quantitative	What is the overall profit from new services?

Metrics	
Quantitative Metrics	What is the average time from development of a strategic concept to the operational implementation of the innovation?
Quantitative Metrics	Amount of capital invested into innovations? In absolute numbers and percentage of revenues - YoY.
Quantitative Metrics	Did our innovation investment managed through portfolios yield appropriate results in terms of sales growth, profit growth and ROI?
Qualitative Metrics	Are we targeting the right parts of our business with our existing innovation efforts?
Qualitative Metrics	Do we change as fast as our markets do?
Qualitative Metrics	Are we flexible enough?
Qualitative Metrics	Is our strategic goal clear enough so that we can translate it into innovation activities?
Qualitative Metrics	How well do our strategies match the way the market is evolving? (For example, is the market is moving rapidly into a particular technology, does our organization have the expertize?)
Qualitative Metrics	Do we have an effective innovation dashboard so that we know what we are doing?
Qualitative Metrics	Are we measuring innovation appropriately?

Source: author

### 3.2. Innovation Performance Indicators

The innovation indicators are linked to the quantitative questions and can be calculated from the answers to them (

Table 3).

**Table 3:** Overview of Innovation key performance indicators over PwC innovation aspects and the depth of assessment

	Level 1	Level 2	Level 3	Total
Success Formulas	3	4	5	12
Innovation concept	3	4	6	13
Collaboration	2	3	4	9
Talent	2	3	2	7
Leadership	3	4	6	13
Commercialization	3	3	3	9
TOTAL	16	21	26	63

Source: author

Indicators are normalized – compared with targets – and displayed on a scale from 0 to 1. In cases where the measured result is higher than the set goal we propose to limit the indicator value to 1 – for easier displaying in graphical format (

Table 4).

**Table 4:** Calculation of KPI's for the innovation aspect Success Factors on level 1. All the KPI's and their values come from a real case and have been anonymized for use in this article.

KPI	Description	Target	Measurement	Value
Revenue from new services	Sales revenue from services developed in this year	Sales revenue for services 1, 2, and 3 combined is 970.000€. (Service 1 – 320.000€ Service 2 – 240.000€ Service 3 – 410.000€)	931.000€ (335.000€ 202.000€ 394.000€)	0,96 (=931/970)
Innovation cycle length (from idea	Time span from idea generation sales launch. Depends of service and should be compared with	4 months from project start of active sales in at least 3 territories.	Service 1 – 3 months Service 2 – 4 months Service 3 – 4 months	0,92 (=3,66/4)

to sales)	planned value or last year average.			
ROI from innovations	Sales from products/services launched this year vs investments made	Sales from services 1, 2 and 3 should yield a 3,5 times the invested money. Investment made was 280.000€.	Revenue from services 1,2,3 was 931.000€.	0,95 (=3,3/3,5)

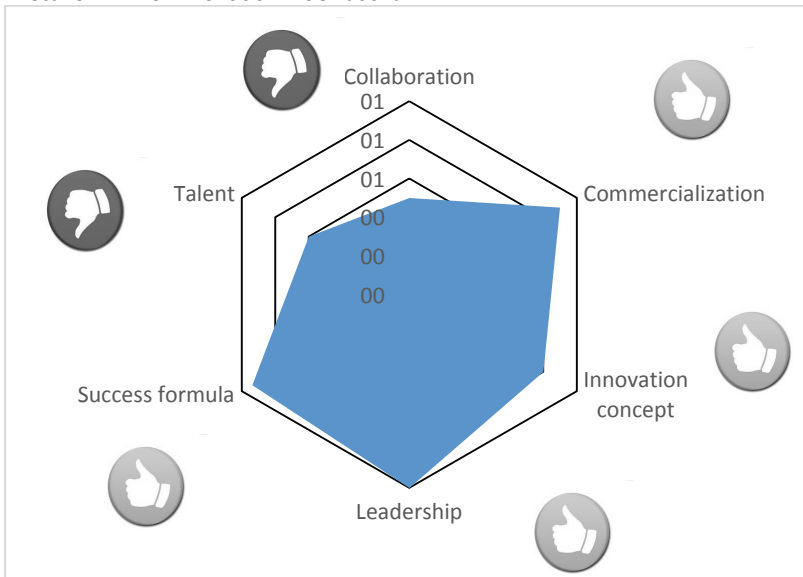
Source: author

### 3.3. Dashboard

The innovation dashboard is best displayed in a form of a spider chart where the axis represents the 6 innovation aspects. The KPI's are normalized to 1 and the dashboard displays an overview of achievements of the result in different innovation aspects. A bigger "spider" means better achievements of results. A target is achieved when the KPI score is 1.

The answers to the qualitative and provocative questions are also summarized and displayed in the graph as thumbs up or down that display the employee perception of the company activities in specific aspects. An example of the innovation dashboard displaying the achievement of the innovation KPIs with the spider chart can be seen in Picture 2. The employee perception of company activities in various aspects is displayed with thumbs and typically reinforces the KPI measurement.

Picture 2: The Innovation Dashboard



Source: author

## 4. BENEFITS OF THE MEASUREMENT FRAMEWORK

The proposed measurement framework is a good and practical tool for companies that would like to measure innovation in accordance with the PwC Wheel of Innovation Excellence concept. The framework should help companies implementing innovation measurement as it provides a questionnaires and KPI's in a structured way. The proposed graphical representation of the innovation dashboard should help companies spread positive innovation attitude and in this way contribute to their improved innovation culture and results. In the end the proposed measurement framework should also reduce the time of implementation of an innovation measurement tool as at describes its building pieces, questions, KPI's and dashboard approach.

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