PD CEN/TS 16555-6:2014

BSI Standards Publication

Innovation management

Part 6: Creativity management

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National foreword

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A list of organizations represented on this committee can be obtained on request to its secretary.

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Contents

Page

Foreword

This document (CEN/TS 16555-6:2014) has been prepared by Technical Committee CEN/TC 389 “Innovation Management”, the secretariat of which is held by AENOR.

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The CEN/TS 16555 series consists of the following parts with the general title *Innovation management*:

— *Part 1: Innovation Management System*;

— *Part 2: Strategic intelligence management*;

— *Part 3: Innovation thinking*;

— *Part 4: Intellectual property management*;

— *Part 5: Collaboration management*;

— *Part 6: Creativity management*;

— *Part 7: Innovation management assessment.*

Part 7 is in preparation.

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Introduction

Innovation is the implementation of a new or significantly improved product, service, process or working practice. This includes new marketing methods and business models. The critical step on the road to innovation is the idea or inspiration that provides the impetus to commit the time and resources necessary to bring it to fruition.

This document focuses on the creation and identification of new ideas and opportunities that can lead to innovation. It outlines the conditions necessary to inspire ideas and their subsequent collection, selection and development. In keeping with the emphasis of this Technical Specification, particular attention is given to idea generation within small and medium-sized enterprises (SMEs), their organizational structures and needs.

Different levels of innovation are considered: incremental, radical and disruptive, and the implications of each level for organizations and their innovation management systems. Case studies are included in Annex A to provide insight through the experience of others. Collaboration is often essential to the successful inception and development of new ideas, and is covered in more depth in CEN/TS 16555-5, *Innovation management — Part 5: Collaboration management*. In addition, this document complements CEN/TS 16555-3, *Innovation management — Part 3: Innovation thinking.*

1 Scope

This Technical Specification provides guidance for managing the process of originating new ideas from which innovations may be developed.

It is applicable to all types of organization including manufacturing and services industries, the voluntary sector, governmental and social enterprise but with a particular focus on small- and medium-sized enterprises (SMEs).

The guidance in this TS covers issues to be considered by those responsible for managing innovation, in particular during the creative phase, and the sourcing of ideas from within and outside the organization.

This document is one of six parts that support Part 1 of the series, CEN/TS 16555-1, *Innovation management — Part 1: Innovation management system.*

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

CEN/TS 16555-1, *Innovation Management — Part 1: Innovation Management System*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in CEN/TS 16555-1 and the following apply.

3.1
creativity
process of generating new ideas through original thinking

Note 1 to entry: This can range from an artistic design to an invention and includes, for example, new business ideas and management processes.

3.2
disruptive innovation
new technology that has the potential to make the current practice obsolete or create a new one

Note 1 to entry: The novelty of such ideas, however, can mean slow adoption by the market and so carries greater risk for the innovator. Examples include the bagless vacuum cleaner and tablet computer.

3.3
incremental innovation
repeated small improvements to a product, service or process over time to improve revenue, efficiency and working practices

3.4
radical innovation
step change in current practice that introduces something new to the world

Note 1 to entry: Often results in replacing existing technology or methods, for example, the internet.

4 Understanding creativity within an organization

CEN/TS 16555-1:2013, 11.6, briefly describes creativity management and how it is possible to successfully manage creativity by following a clear set of principles that stimulate the generation of new ideas; this document provides more detail.

It is important to distinguish between creativity and innovation within the context of working within an organization. Creativity is the process of identifying problems and the generation of ideas to solve those problems whereas innovation involves the selection, development and successful implementation of creative ideas.

Managing creativity requires a different approach to managing other functions within an organization. The management activity should be confined to the support structure and mechanisms around creativity and not the process of creativity itself. However, setting up the conditions that are the most conducive to people having new ideas does not guarantee that they will. Ideas occur to people under a wide variety of circumstances, for example, through chance, through working hard on a problem or while relaxing. Ideas can also be generated from interactions with colleagues, customers, researchers and other stakeholders. Wherever and however ideas occur, they should be written down or recorded so they are not lost.

A hands-off approach allows those thinking and working, individually or collectively, to find a productive methodology. This can involve being challenged by their peers. However, challenge from those in authority or from a fiscal perspective can have a negative effect. Constructive criticism can be as powerful a motivator as approval.

5 Creative leadership and setting policy

The process of generating creative ideas is integral to a wider ongoing innovation management process (see also CEN/TS 16555-1:2013, Clause 8). As such it should be embedded in an organization's policy, sanctioned and supported by the organization's leadership and accepted by staff and other stakeholders. The leadership should define the reasons for idea creation and the scale of its ambition. This in turn should lead to:

— selecting the best person(s) to manage the creative process;

— fostering a culture conducive to the generation of new ideas;

— determining available competencies and the need for additional training/support;

— defining the level of innovation being sought (incremental, radical or disruptive);

— the allocation of suitable and sufficient resources; and

— deciding from whom and from where ideas will be sourced.

6 Managing the creative process

In line with the organization's policy, the leadership should decide if new ideas are to be sought from within the organization, from affiliated organizations or from outside the organization. One strategy is to find and adapt proven innovations developed by other organizations in different territories, markets or spheres of operation (see A.2, Case study 2).

If from outside, then sources should include:

— selected synergistic organizations: consultants, partners, suppliers and others in the value chain (see A.2, Case study 3);

— a wider group as part of an open innovation ‘call’, ‘competition’ or ‘commission’ to innovation support agencies and consultants;

— individuals on a mass scale, for example, through crowd-sourcing which is the process of soliciting ideas from the public or non-expert group.

If from within the organization then:

— it should be decided if employees should spend time generating ideas in company time or in their own time;

— if in company time, resources should be allocated on a time and/or monetary basis against which employees can log, thereby legitimizing the activity.

It is important to match the people in the organization from whom ideas are to be sourced, to the innovation outcome being sought. For example, if improvements to working practices, productivity or management of the organization are required, then all members of the organization can be involved. Alternatively, for a technologically complex problem it may be better to seek ideas from an expert or a multidisciplinary team.

Ideas can be sought from within an organization in a number of ways by, for example:

— an open policy encouraging employees or others to submit ideas at any time;

— a general call, where the management positively seeks ideas from employees on any subject;

— providing stimulus material or a brief in the form of identified market needs, response to competitors, new technology developments, changes in economic, legal or societal circumstances;

— staging creative events to brainstorm ideas and opportunities around specific issues; or

— a brief focused on a specific problem/opportunity that needs a realizable solution within a time frame.

NOTE In Nordic countries, the introduction of employee driven innovation programmes ensure that all of an organization’s personnel are involved in the process of innovation. As a result, all available knowledge, skill and competence is engaged in workplace innovation.

7 Types of creative ideas

7.1 General

There are two types of creative idea:

1) those that identify a need (a need in search of an answer); and

2) those providing a solution (an answer in search of a need).

Each is as valid as the other and can occur independently. People can be good at one, or the other or both. How the human brain conceives ideas is subject to much research but it is clear that through the assimilation of knowledge, experience and first-hand observation, novel and unexpected connections can occur. It is advisable therefore to expose people to the widest range of stimuli and information, both inside and outside their areas of expertise. For example subscribing to trade and technical journals/newsletters, attending seminars and conferences in parallel or related spheres of activity. (Stimulus for ideas can be provided by strategic intelligence, which is dealt with in more detail in CEN/TS 16555-2).

7.2 Ideas identifying a need

The likelihood of an innovation succeeding is significantly increased if the need for it can be established at the outset. One approach to idea generation is to find previously unknown needs or wants through a variety of techniques, which include:

— strategic intelligence, patent database searches and market analysis;

— networking, e.g. with peers, attending industry events, exposure to the state-of-the-art, parallel and competitive activities and future challenges;

— observational, ethnographic and field research; (see A.1, Case study 1);

— collaboration with customers, partners or academic institutions (collaboration is dealt with in more detail in CEN/TS 16555-5);

— analysis of product, service or system failure;

— personal experience.

EXAMPLE A need in the toothbrush market between expensive electric and cheaper manual brushes was identified. Following a rapid mechanical innovation process, a low-cost battery operated toothbrush for children was launched by a small company. After initial sales success under the original brand, the brush was licensed to a global company for a very considerable sum of money.

7.3 Ideas identifying a solution

A solution idea can be the starting point for an innovation.

Defining the value of a solution idea needs to be extremely rigorous. It is easy to commit resources based on the apparent brilliance of an idea before determining its potential market appeal or usefulness (this can be done using the stage gate process which is explained in more detail in Clause 9). Exploiting solution ideas that are outside the core business of the organization can lead to a need for change in its business model. This is acceptable, if it is an anticipated or a welcome outcome, but if not, searching for an exploitation partner or licensee may be preferable.

EXAMPLE The sticky note which developed out of the accidental formulation of a low tack self-adhesive.

8 Encouraging participation in idea generation – motivation

It is good practice to understand what motivates people to participate in an organization’s innovation programme and to share their ideas. The establishment of an innovation culture should be encouraged by providing incentives at an individual level.

Motivators include:

— **altruism** – for the good of the department, organization or country;

— **reciprocity** – financial or material reward, as a challenge or to increase job interest;

— **reputation** – an increase in personal or collective status and respect.

9 Evaluation and selection of ideas

9.1 Idea generation

The process of deliberately creating ideas is sometimes known as ideation. A variety of techniques have been developed to help individuals and groups think creatively and to produce new ideas. The best known of these is brainstorming, where groups of people are encouraged to interact by a facilitator. Typically a problem or objective is described and participants build on each other's ideas to generate a list of possible solutions.

However, research has shown that not everyone performs well in brainstorming or collective idea sessions. Many people have their best ideas when working alone. This can be for a number of reasons including motivation, for example, clear individual idea ownership rather than group ownership. It may be preferable therefore to use collective sessions to identify rather than solve opportunities and problems.

Leaders should identify the preferences of individuals and manage idea generation accordingly.

It should also be noted that generating ideas and developing them into innovations can be an enjoyable and rewarding experience. Not only does it connect colleagues who otherwise may not work together but it provides a break from the organization's routine activity cycle.

Following the successful implementation of an innovation, consider publicly acknowledging, within the organization, the contribution of the idea originator and others who participated in its development and exploitation.

NOTE There are many different tools and methods besides brainstorming to help generate and select ideas, details of which are available in publications and via the internet, for example, *Techniques of structured problem solving* by Arthur B. VanGundy[1)], *The mind map book* by Tony Buzan[1)].

9.2 Collecting ideas

When it comes to collecting ideas, it is essential to maintain equality in their value, as within an organization, people's positions and personalities can hinder or promote an idea, intentionally or otherwise. Ideas can be fragile in the early stages of development but there are techniques to protect them from bias during the initial evaluation and selection process, for example, setting a submission format involving the following:

— a maximum of two sides of A4 paper using words, diagrams or visuals;

— the idea initiator should describe the idea, and why it is better than the current practice;

— initial research and/or data that backs up the idea and which indicates feasibility/market need/fit to the organization's business model and/or an outline business plan;

— a rough proof-of-principle model (real or virtual) can help to demonstrate the idea;

— ideas can be submitted to a template on an organization's intranet site where selected fields are left to be completed.

It is important to keep the idea submission process as simple as possible to encourage initiative-takers to take the first step. Practice has shown that putting mentors in place is a good way to ensure that a creative individual receives guidance if necessary.

It is good practice to determine the intellectual property status of a new idea at this stage (for example by searching patent databases) to:

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— establish freedom to use;

— avoid potential infringement of third party rights;

— to help define its areas of novelty;

— avoid expending resources unnecessarily.

(For more detail see also CEN/TS 16555-4.)

9.3 Selecting and refining ideas

This can be the most difficult task as it relies upon multiple criteria being met, some of which are measurable, and others which are subjective or based on instinct. It is important to have a large number of ideas as many will not pass the first stage selection criteria. Typically one third of the time should be spent on idea creation and two thirds on selection and development.

Ideas can be, for example, voted on by either all members of the organization, a selection of suitably qualified staff or perhaps a panel partly, or completely, comprising external experts.

Ideas should be categorized into levels of potential, for example:

— selected for next stage development;

— promising but needs further conceptual thinking;

— interesting but not worth pursuing at this time (not appropriate to company's current business, finance, technological needs, market, etc.).

It is important not to discard any ideas but to keep them on file. A review procedure should be set up where ideas are revisited at intervals to assess if they have become feasible through changes in market conditions, advances in technology, changes in the organization's capabilities, availability of funding, etc. This activity should form part of the organization's broader knowledge and idea management system.

Consider appointing an idea champion, who may or may not be the idea originator, to maintain momentum and enthusiasm when obstacles are encountered. Ownership of the idea by one or more people improves its chances of success. Also changing members of the selection panel as the idea is being developed can bring in additional experience and a fresh perspective.

A selection process should be agreed upon and criteria against which early ideas are to be judged, for example:

— is there market need or demand?

— is the idea technically feasible?

— is it economically feasible to implement and market?

— is it competitive? What is the unique selling point? Can it displace the competition?

— is the market ready economically, emotionally, or politically?

— what is the profit or value potential?

— does it fit the organization's strategy/business model? If not, can it be licensed to a company more appropriate to exploit it?

Typically this is part of a multiple ‘stage gate’ process through which ideas should pass to progress to the next level of development (see Figure 1 and CEN/TS 16555-3). The selection criteria should be more stringent and specific the nearer the launch date approaches.

It may not be possible to answer all stage gate questions without some further development of the idea. It is necessary therefore to consider carefully the likelihood of successfully resolving obstacles and the scale of resource necessary to overcome them. Some level of risk is unavoidable.

Idea selection and development typically follows a divergent-convergent-divergent-convergent pattern where ideas are generated, discarded and narrowed down to those with promise. Those selected are again subjected to expansive creative thought before being refined down again by rigorous selection. This process may well require totally new creative thinking and the need to collaborate with others, internal and external to the organization with specialist knowledge, to solve problems.

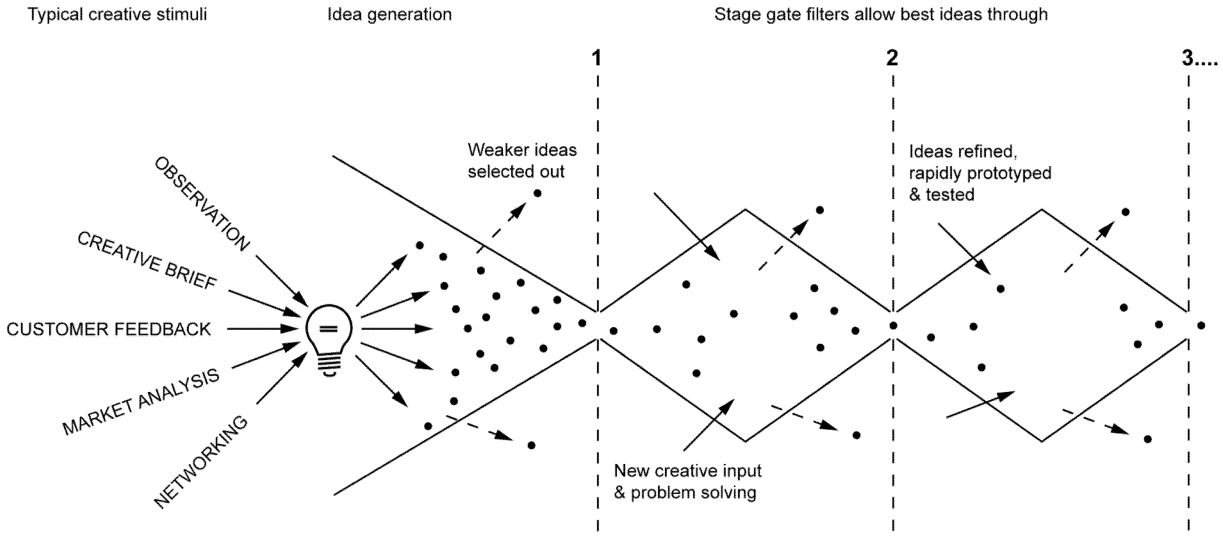

Figure 1 — Typical stage gate idea refinement and selection process

Making frequent rough prototypes, either real or virtual, and testing them, with end users if possible, significantly reduces idea refinement time and can expose fatal flaws at an early stage.

10 Documentation and intellectual property

All records, meeting minutes, names of those involved and contemporaneous notes generated from an idea’s inception should be retained. In certain territories, the idea originator should be named on patent applications. Not only does this documentation provide a potential resource for other new ideas but it can be useful should the originality of the idea be challenged at a later date.

A clear policy should be set with regard to intellectual property and employee contracts, for example, ‘any ideas originated by company employees, inside or outside working hours are the property of the company’. Contracts and agreements should also be made with freelancers and subcontractors.

It is not possible to protect ideas but the results of creative thinking, once written down or recorded, can be subject to patent rights, copyright, registered designs and trademarks. Secrecy should be maintained during the development of ideas as a matter of policy. However, there are certain points where formal protection should be sought, for example, before exposing ideas to obtain user or market feedback and before collaborating with third parties. A useful tool is a non-disclosure agreement (NDA) where those receiving information agree to keep it confidential. Intellectual property rights and their protection are explained in more detail in CEN/TS 16555-4.

Annex A
(informative)

Case studies

A.1 Case study 1 – Sourcing ideas from end users

The orthopaedic department of Hospital A, while achieving notable success in reducing mortality rates and patient processing, recognized it needed to do more to improve the patient experience. They identified the value of involving patients directly in the process of generating ideas to improve the hospital experience. Through networking, managers were introduced to the experience-based design (EBD) process. The EBD approach is a way of understanding how patients actually feel about their experiences.

Patients were asked to keep diaries throughout their joint replacement therapy and their interviews were recorded at home after surgery. Viewing the interviews had a major impact on all staff involved, from nurses to consultants. Staff and patients then came together to generate ideas for improving patient experience both in the hospital and at home afterwards. By co-designing services together with patients many changes to previous practice have been made with significant improvements to all aspects of the patient experience.

The EBD project has been so successful that it is being implemented across other departments. It has been responsible for a cultural shift within the department resulting in patients and staff being regular problem solvers. It has demonstrated the value of networking with professionals from different disciplines.

A.2 Case study 2 – Adapting an idea from outside the organization

County Council B and its partners created an intervention programme to serving prisoners and their families, with the aim of reducing re-offending. Its innovation lies in the whole-family social outcome. This programme is an internationally recognized parenting programme for high-risk families originally developed in the US. Working with partners including the prison and a prisoners' family support group, the council adapted the principles underpinning the programme for application in a prison environment.

Research has shown a clear link between the weakness of prisoners' family ties and re-offending rates: 45 % of prisoners lose contact with family while in prison, yet maintaining family ties can reduce re-offending rates by 50 %. Financially the investment is recouped twice over for each prisoner deterred from re-offending.

Research in the US has also shown that the intervention significantly reduces problem behaviour, delinquency, alcohol and drug abuse in children, and improves social competencies and school performance. Long term, there are huge potential savings to society in terms of benefits, healthcare, and welfare services if this approach is scaled up and rolled out.

The programme has been innovative in the way that it has been redesigned in order to be taken into the prison setting for the first time in the UK. It is a new programme for prison staff with the delivery of psychosocial interventions to the whole family which has not been tried in the past. As a result of completing the group sessions the aspirations of families have changed encouraging further engagement with the programme once the prisoner has been released.

This example demonstrates how an idea from outside the organization can be creatively adapted to suit a different service context.

A.3 Case study 3 – Collaborating with an external partner

Company C is a UK based company manufacturing wire joining and tensioning products for industry and agriculture. Through a government sponsored programme, Company C worked with an external design agency to generate new creative ideas. The designers introduced a structured brainstorming and idea generation process which drew out new ideas from Company C's employees which they had previously been unable to articulate.

Subsequently Company C have developed their own creative idea and innovation process to which they have given a proprietary name. This has resulted in the generation of a far higher number of ideas and has streamlined their innovation process. The company is now growing at 20 % per annum and aims to generate 25 % of its turnover from products launched within three years.

Rather than develop a creative ideas process internally, Company C brought in expert consultants to work on a live project and therefore learn by experience. This had many benefits including the adoption of ideas from the consultants, adoption of their own ideas as a result of the consultant's coaching, and developing their own sustainable innovation process for the future.

Bibliography

[1] CEN/TS 16555-2, *Innovation management — Part 2: Strategic intelligence management*

[2] CEN/TS 16555-3, *Innovation management — Part 3: Innovation thinking*

[3] CEN/TS 16555-4, *Innovation management — Part 4: Intellectual property management*

[4] CEN/TS 16555-5, *Innovation management — Part 5: Collaboration management*

[5] *Nordic strategy for employee driven innovation,* 2013

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