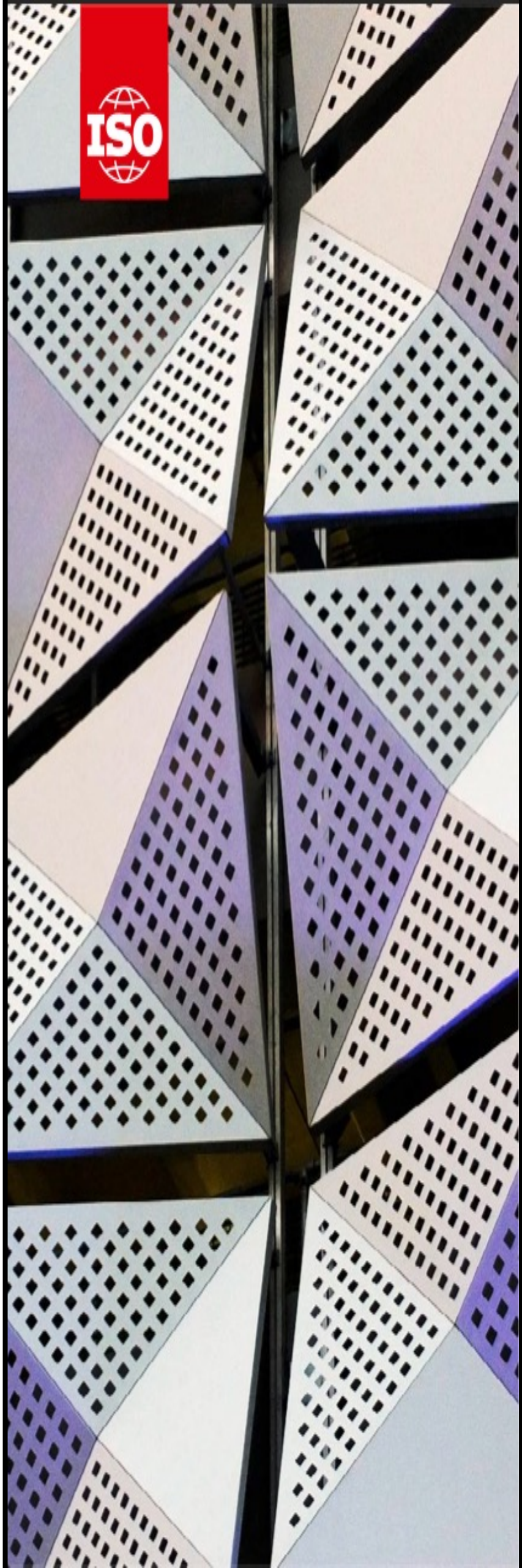




ISO 56007 (2021)

Idea Management - Guidance

ISO /CD

56007

ISO TC 279/WG 3

Secretariat: AFNOR

**Innovation management - Idea
management - Guidance**

CD stage

Warning for WDs and CDs

This document is not an ISO International Standard. It is distributed for review and comment. It is subject to change without notice and may not be referred to as an International Standard.

Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

**STRICTLY FOR ACADEMIC
RESEARCH PURPOSES ONLY**

ALAN MUMBY UWTSD

© ISO 2021

All right reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requestor.

ISO copyright office
[CP401](#) ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

Contents

Foreword	5
0 Introduction	6
0.1 General	6
0.2 Guidelines	6
0.3 Framework	6
0.4 Relationship to other innovation management standards	7
1 Scope	9
2 Normative references	9
3 Terms and definitions	9
4 Preparing for idea management	10
4.1 General	11
4.2 Key terms for idea management	11
4.3 Uncertainty	12
4.4 Fundamental questions and principles	14
4.5 Idea progression	14
4.6 Innovation considerations	16
4.7 Idea management methods	17
5 People and organization	19
5.1 General	19
5.2 Leadership	20
5.3 Culture	20
5.4 Strategy	21
5.5 Governance	21
5.6 Idea management portfolio	22
5.7 Enabling factors – resources	22
5.8 Enabling factors – organizational support	24
6. Idea management processes and activities	25
6.1 General	25
6.2 Identification	26
6.2.1 Selecting the right path	27
6.2.2 Inspiring ideas	27
6.2.3 Sourcing ideas	28
6.2.4 Generating and capturing ideas	29
6.2.5 Scoping ideas	29
6.3 Concept Creation	30
6.3.1 What is a concept?	30
6.3.2 Clustering/theming	31
6.3.3 Concept generation	31
6.3.4 Cataloguing concepts uncertainties	32
6.3.5 Selecting concepts	32
6.5.2 Why do it?	34
6.5.3 When to do it?	34
6.5.4 Who does it?	34
6.5.5 What is the process?	34
6.6 Selection	35
6.6.1 What is selection?	35
6.6.2 Why do it?	36
6.6.3 When to do it?	36
6.6.4 Who does it?	36
6.6.5 What is the process?	36

6.6.5.1 How to determine selection criteria? _____	37
6.6.5.2 How many criteria should there be? _____	37
6.6.5.3 Selection for development (Go/no-go criteria) _____	37
6.6.5.4 Early-stage selection _____	38
7 Evaluation _____	40
Annex A _____	43
A.1 Types of innovation _____	43
A.2 Idea management methods _____	44
A.3 Idea Management Method Description Examples _____	45
A 3.1 Linear methods _____	45
A 3.2 Non-linear methods _____	45
A 3.3 Funnel methods _____	46
A 3.4 Online collaboration methods _____	46
A 3.5 Scope and scale methods _____	47
A 3.6 Bottom-up and top-down methods _____	47
A 3.7 Organizational set-up methods _____	48
Annex B _____	50
B 1 Uncertainty categories and levels _____	50
B 2 Example of uncertainty level screening tool by category _____	51
B 3 Example of such as questions by category of uncertainty _____	52
Annex C _____	53
C 1 Inspiration for ideas _____	53
C 1.1 Customer/User-Focused Ideas _____	53
C 1.2 Market-Focused Ideas _____	54
C 1.3 Product/Problem-Focused Ideas _____	54
C 1.4 Impact-Focused Ideas _____	55
C 1.5 Future-Focused Ideas _____	55
C 1.6 Business-Focused Ideas _____	56
C 1.7 Technology-Focused Ideas _____	56
C 2 Selection criteria recommended in 6.6.5.3 _____	57
C 3 Example of a decision tree for go/no go selection - see 6.6.5.3 _____	60
C 4 Writing a proposition _____	62
Bibliography _____	65

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT), see www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC/279, *Innovation Management*, Working Group WG 3, *Tools and Methods*, Task Force 56007.

A list of all parts in the ISO 56000 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at www.iso.org/members.html.

0 Introduction

0.1 General

The ability to innovate is central to any organization's growth, viability, and impact within society. Idea management is a framework for managing the front end of innovation, utilizing tools and methods for identifying opportunities, creating concepts, and validating concepts to be considered for development and deployment.

Any organization wishing to innovate needs to bring good ideas and opportunities through to fruition to provide a stream of potential innovations. This idea management standard guides activities from intention through to selection for development.

0.2 Guidelines

This standard guides people and organizations to realize value from their ideas and opportunities at both the strategic and operational levels.

Ideas and opportunities can come from anywhere, e.g., top down, bottom up, inside or outside the organization. They can span the continuum of innovation types from incremental to radical. Organizations will need to manage their efforts at different levels of sophistication and complexity, depending on their size, maturity, context, and ambition.

This standard supports these different levels according to type of organization and desired innovation outcome. It also can help users select and adapt methods and tools that are appropriate to their specific circumstances.

Types of organizations and users of this Standard include:

- a. *Established, large organizations (for profit and social value)* desiring to be more systematic about their idea and opportunity management activities,
- b. *Small and Medium Enterprises (SMEs)* looking to bring more structure to their activities,
- c. *Startups/Venture Capitalists* considering how to evaluate ideas and opportunities more systematically,
- d. *Non-profit organizations* seeking to leverage idea management activities to build a more innovative organization for the benefit of their interested parties,
- e. *Non-governmental organizations (NGOs)* aiming to transform innovation ecosystems through more effective and efficient idea management activities,
- f. *Individuals inside or outside of an organization* looking for a framework for managing ideas and opportunities, and
- g. *Universities and research institutions* exploring new ways to create value.

0.3 Framework

Figure 1 below presents idea management as one element of an innovation management system. Idea management covers the front end of innovation and includes those activities

within the dashed circle. The Figure emphasizes the iterative nature of idea management, with learning cycles that reduce uncertainty and lead toward realizing value.

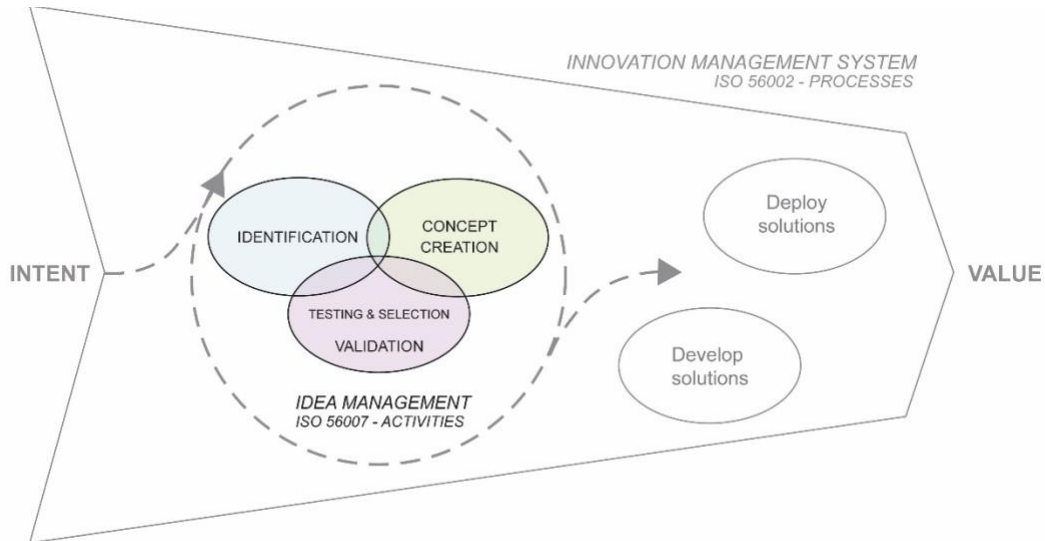


Figure 1: Idea management framework in relation to 56002 IMS Operation processes

The main clauses of this standard provide information and guidance as follows:

- *Clause 4* is about preparing for idea management, including key terms of reference, fundamental questions to ask, the progression of ideas, innovation drivers to consider, and different methods that can apply.
- *Clause 5* focuses on people and organizational considerations and how they could affect idea management.
- *Clause 6* details idea and opportunity management activities and their interrelationships through identification, concept creation and validation (further refined into testing and selection).
- *Clause 7* covers review and evaluation of idea management activities and efforts.

0.4 Relationship to other innovation management standards

This document relates to the ISO 56000 family of standards, developed by ISO/TC 279 as follows:

- a) ISO 56000 *Innovation management – Fundamentals and vocabulary*, for understanding the main terms, definitions, concepts, and principles of innovation management.
- b) ISO 56002 *Innovation management – Innovation management system – Guidance*, for establishing, implementing, maintaining, and continually improving an innovation management system.
- c) ISO 56003 *Innovation management – Tools and methods for innovation partnership – Guidance*, for working together to innovate.

- d) ISO TR 56004 *Innovation management assessment – Guidance*, for planning, implementing, and acting upon the results of an innovation management assessment.
- e) ISO 56005 *Innovation management – Intellectual property management – Guidance*, for establishing and implementing an intellectual property (IP) framework, strategy, and tools for IP management activities.
- f) ISO 56006 *Innovation management – Tools and methods for strategic intelligence – Guidance*, for developing and providing intelligence to enable strategically driven innovation decisions.
- g) ISO 56008 *Innovation management – Tools and methods for innovation measurement – Guidance*, for planning, designing, and selecting indicators and metrics to measure innovation activities and portfolio.

Innovation management – Idea management - Guidance

1 Scope

This document provides guidance on managing ideas and opportunities by:

- Explaining the reasons for and the value of managing ideas effectively
- Describing how to prepare for idea management, including people and organisation issues
- Detailing idea management activities and their interrelationships
- Outlining activity and process evaluation considerations that are important for innovation success

This standard addresses a sub-set of processes as described in ISO 56002 – identifying opportunities, creating concepts, and validating them. The activities within these processes, when managed together, bring forward viable concepts for development. Developing these concepts into solutions and deploying these solutions is outside the scope of this standard and is addressed by ISO 56002.

This document provides guidance for any innovation type along the continuum from incremental to radical innovation, as defined in ISO 56000.

This document is intended for:

- Any user involved in innovation, whether for an organisation or individual
- Any organisation type or scale
- Any understanding of value realization, whether for profit, social impact, changes in strategic direction, or any other purpose

This standard can help organizations learn how to systematically manage their ideas and opportunities to realize greater value from idea management activities. There is no one method or set of tools for use in all situations. Choice is impacted by a range of related considerations to be addressed in this document.

2 Normative references

There are no normative references in this document.

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 56000 apply. For those definitions that are not included in ISO 56000, descriptions have been provided in this document to align with the definitions that will be included in the next version of 56000.

These descriptions are as follows:

3.1

area of opportunity

exploratory domain or strategic focus area in which to identify an idea or opportunity.

3.2

idea

notion, understanding, conception or thought as the starting point for innovation.

3.3

concept

result of the evolution and refinement of an initial idea or opportunity or integration of related ideas or opportunities.

3.4 idea management

framework for managing the front end of innovation, utilizing tools and methods for identifying opportunities, creating concepts, and validating concepts to be considered for development and deployment.

3.3

opportunity

matching of a stated or unstated issue or problem to be solved, need or desire with a known or new solution to create value.

3.4

Uncertainty

state of deficiency of information, understanding or knowledge.

For ease of readability, the term idea management is used throughout this document to mean “idea and opportunity management”.

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://iso.org/obp/>
- IEC Electropedia: available at <http://www.electropedia.org/>

4 Preparing for idea management

4.1 General

Preparing successfully for idea management requires the following:

- Understanding its key terms to create a common language,
- Knowing which questions to ask to enable learning,
- Considering organization specific innovation drivers,
- Gaining a clear view of idea and opportunity progression, and
- Becoming familiar with how different methods can be applied.

As outlined in ISO 56002, each of these methods refers in one way or another to all or parts of three fundamental activities: identification, concept creation and validation. In this standard, validation is further divided into testing and selection.

Testing covers all the activities that contribute to reducing uncertainties as described in 4.2. Selection covers the decision-making activities that are necessary to identify ideas or opportunities that deserve further attention and ultimately become concepts suitable for development. Selection may also lead to rework or archiving of ideas that are not meeting selection criteria as outlined in 6.6

4.2 Key terms for idea management

The organization should consider the following terms to prepare for managing ideas:

- An *area of opportunity* can address a current strategy or strategic intent to sustain, grow or renew an organization.
- An *idea* can be inspired spontaneously or by an area of opportunity, by a stated or unstated issue or problem to be solved, need or desire, through serendipity or by a direct challenge or brief. It can also lead to an opportunity.
- An *opportunity* emerges from a set of circumstances that can lead to a potential innovation. It can also lead to an idea.
- An *uncertainty* is a lack of knowledge or understanding across a wide range of factors.

Ideas and opportunities can have different levels of uncertainty. Figure 2 below describes the relationship of these key terms.



Figure 2: Relationship of idea, opportunity, and area of opportunity

The organization should treat ideas and opportunities as the starting points for idea management. Idea management uses these inputs to create and validate concepts, which can then be developed and deployed to realize value. Drivers of value can include pursuing new strategic ambitions, identifying specific areas for exploration, addressing organisational challenges, developing new products, services, or operating models, and/or building upon insights about interested party behaviour.

4.3 Uncertainty

Uncertainty arises from a state of deficiency of information, understanding or knowledge. Since idea management is about exploring new areas of opportunity, any new idea or opportunity faces different levels of uncertainty expressed as assumptions, questions, unknowns, or potential problems that need to be solved. These uncertainties address factors, such as, market need, technological feasibility, social acceptance, strategic, resource or business model fit, interested party expectations, environmental responsibility, estimated cost or time to develop, etc.

a. Uncertainties vs. risks

Even though they are often confused, uncertainties and risks are not the same. Risks can be analysed and assigned a probability of occurrence. Whereas risks can be mitigated and hedged against based on probability, uncertainties can only be reduced through further investigation, testing and learning to fill gaps in knowledge and understanding. Contrary to risks, a probability of occurrence cannot be assigned to uncertainties, which arise due to a lack of information, understanding, or knowledge. The possibility to find the information could be assigned a probability but not the uncertainty itself.

The inability to obtain the missing information, understanding, or knowledge, creates the risk that the missing knowledge negatively affects the concept. Risk can be an effect of uncertainty and can be described as a deviation from the expected, where the consequences of an event and its probability/likelihood of occurrence can frequently be quantified from available information, experience and/or capabilities.

b. Uncertainty reduction

The aim of idea management is to identify and reduce uncertainty to an acceptable level by filling gaps in information, understanding or knowledge, through a process of idea and opportunity refinement and the generation of concepts. It requires iteration and re-evaluation against a set of options or selection criteria (see 6.6). When uncertainty is reduced sufficiently and the concept is deemed to be validated, it is then ready for development.

Reducing the level of uncertainty can thus be achieved through exploration and testing methods or tools, such as, prototypes, tests, market studies, research projects, pilots, verifying assumptions, iterative creative input, research and data acquisition, simulations, storyboarding, modelling, in-market experiments, or reaching out to internal/external experts within networks to seek answers to questions. Building prototypes is a way to learn and acquire knowledge about feasibility. Using methods, such as agile or design thinking, are efficient ways to verify customer needs or desires as well as suitability of the desired solution.

In this standard, the activities for obtaining missing information, understanding or knowledge are included as part of testing. Testing, along with selection, is one of the two components of validation. Further information on managing the reduction of uncertainty is outlined in 6.3.4 (cataloguing concept uncertainties) and 6.5 (testing).

c. Screening for uncertainty

As the management of ideas varies considerably with the level of uncertainty, the organization should screen for levels of uncertainty. As outlined in 5.6, screening into three levels of low, medium and high can be effective for portfolio management as well as for selecting idea management methods.

Annex B provides examples of specific methods and tools to describe uncertainty across organization, technical, resource, market/mission, organization and interested party categories as well as how to screen for and ask key questions based on levels of uncertainty.

4.4 Fundamental questions and principles

The organization should consider how the following questions apply to current and planned innovation initiatives.

Why look for new ideas? There are many reasons for deciding to pursue new ideas including: competition, new technology, drop in sales/growth, economic, statutory obligation, political and social change, outdated innovations, customer/user engagement, mission ambitions, etc.

What are the objectives? Make enquiries more specific by asking “How do these objectives?” help to focus idea management efforts on types of innovation or on customers or products or service attributes or mission purpose.

When will/might this happen? Timing, sequence, identifying milestones are all important considerations for planning and keeping ideas and opportunities on track.

Who to enrol and convince? Examples of key questions to consider are “Who is involved in creating and validating ideas?” “Do we have the right capabilities?” “Who is to benefit?” “Who might resist or be disadvantaged by this idea?” “Who performs which roles?”

Where to focus? Expand efforts by asking questions, such as, “Where else might we...?” or focus efforts on “Where will this work best?” for envisioned ideas and opportunities.

Which idea management options are best? Choose among a specific set of options, e.g., “Which methods and tools are most appropriate for idea refinement or setting up experiments?”

How to set this up for success? Once a pain/need/desire is established, seek to ensure that idea and opportunity management efforts are successful. Which are the best methods to use? Consider framing questions, such as, as “How might we...?”.

These questions provide a learning framework for understanding the drivers and success factors for idea management.

It is also important to consider these questions through the lens of the 56000 innovation management principles that can be specifically related to idea management as follows:

- Adaptability – Developing adaptable structures and processes,
- Managing uncertainty – Ability to manage uncertainty and risk, and
- Exploiting insights – Effectiveness in capturing insights to successfully exploit them.

4.5 Idea progression

Idea management can be used both within and independent from more complete innovation management systems, i.e., for single ideas or more comprehensive initiatives. For illustration, see Figure 1 in the introduction to this document.

The organization should handle ideas and opportunities differently based on their levels of uncertainty. This requires iterating through activities and learning through practice, reducing uncertainty with each iteration, and selecting ideas and concepts to progress

with or stop based on their potential to deliver value. Ask questions then verify the answers based on assumptions, selection criteria, etc. and repeat the cycle of learning.

To reduce uncertainty, the organization should:

- Conduct market analysis about competition and value potential
- Seek customer/user feedback from prototypes and customer observation about an idea, opportunity or concept and what features, products, services, and solutions are most likely to be of interest to users and customers
- Use personas and user experience analysis to study pains, needs, desires, and motivations about how a potential customer or user could adopt a new product, service, or solution.
- Seek feedback from interested parties, import ideas from experimentation, distribution, and supply chain partners, and get support from internal financial and organizational leaders about the organization's ability to produce and deploy a new product, service, or solution.
- Use business, competitive, and strategic intelligence together with brand and intellectual property analysis about return on investment and viability related to an idea, opportunity, or concept.
- Use future-casting, back-casting, horizon analysis, trend analysis, scenario planning, and strategic planning about future potential to explore additional opportunities related to an area of opportunity.

Figure 3 below illustrates the progression of ideas, opportunities and concepts and their relationship with idea management processes. The order of activities is not universal and should be adapted for the circumstances to define the processes. The more this is practiced, the easier and more successful idea management can be.

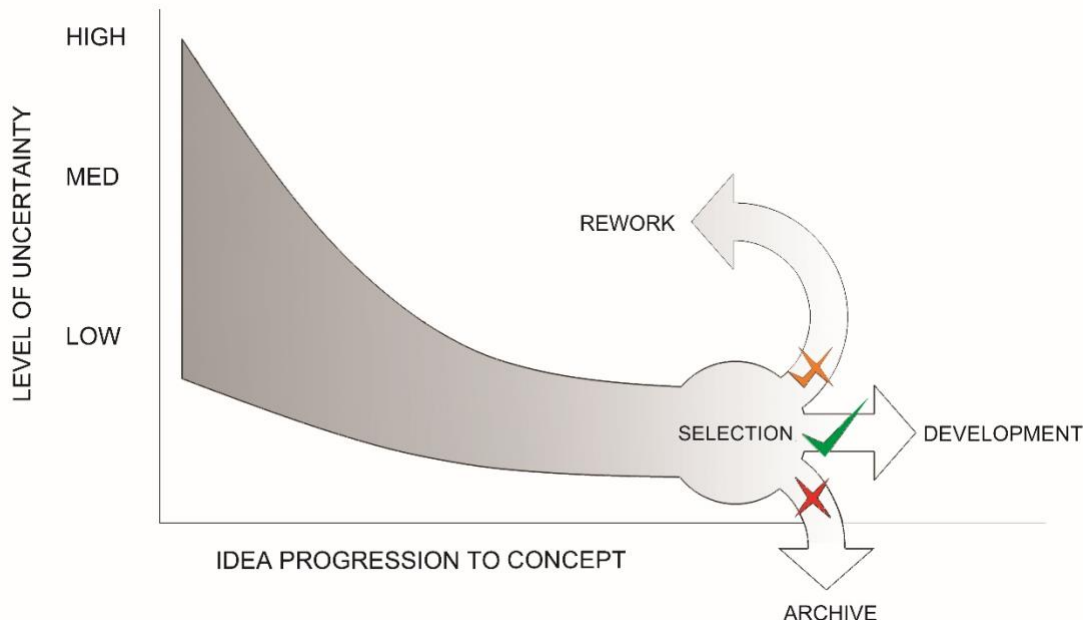


Figure 3: Reduction of uncertainty through research, testing and iteration

More detailed, practical guidance on idea management processes and related activities is provided in Clause 6 of this document.

4.6 Innovation considerations

Different considerations can influence how ideas and opportunities should be managed, including which methods and tools to use and how to use them. These can include how to think, what to think about, how to assess contributions, and how to make go/no-go decisions.

a. Scale/scope

The origin of the idea, effort to manage it or its eventual impact can determine scale and scope. Ideas or opportunities can be trivial or game-changing or anywhere in between.

- Scale relates to size and evolution of an idea.
- Scope sets its boundaries.

Where the scale or scope is not well known, experimenting at small scale first and iterating until enough is known to enable further management of the idea, opportunity, or concept.

b. Uncertainty/risk

Methods and tools can be applied differently along the continuum of uncertainty. Incremental and radical innovations are the bookends from low to high uncertainty, respectively.

Risk appetite and risk management are additional considerations that may impact the choice of tools and methods..

c. Value

Some innovations realize great *value* to interested parties whereas others only realize minimal value. Disruptive innovations eventually displace established solutions. Incremental innovations can be less disruptive and bring value to improve or extend the lifecycle of existing solutions.

Interested parties determine value, in terms of revenue, profit, growth, renewal of offerings, quality of life, social responsibility, sustainability, citizen impact, etc. This impacts the scale, nature, and priority of idea management efforts.

d. Types of innovation

Types of innovation can be categorized based on their degree of change, internal or external relationship to the organization, performance, cost, or customer value, etc. A listing of innovation types is provided in Annex A 1.

e. User and organization types

Examples of users and organization types who might be interested in idea management are described in the introduction to this document. To clarify and refine idea management choices, identify the type of organization as a starting point and its objectives for idea management.

f. Strategy and portfolio fit

How ideas and opportunities fit with an organization's current strategy and/or strategic intent guide selection considerations as well as any contributions to portfolio objectives. This can be particularly relevant as an organization matures idea management processes and its portfolio grows.

4.7 Idea management methods

The organization should prepare, plan for and choose methods & tools, informed by all the considerations outlined above. Ensuring small, low-cost iteration early in the idea management process is also valuable in enabling efficiency and sustainable success of idea management efforts. An awareness of the range and uses of available methods enables and simplifies idea management planning and decisions.

Hundreds of methods are available, usually belonging to one of the categories in Table 4.1 below. Some can combine characteristics from different categories. Some methods focus on the idea management processes themselves, while others focus on the organization, governance, or culture. How ideas are generated and managed is different in each method.

Table 4.1 provides a brief description, potential benefits and examples and guidance on those methods that might be more suited to one user type versus another.

Description	Benefits and examples	Suitability by user type
<u>Linear</u> Activities partitioned into distinct phases with transitions from one phase to another governed by phased decision points	Controlled and easily measured nature can reduce and mitigate risk related to ideas and concepts. <i>E.g., waterfall, phase-gate</i>	a, b, c, d, e, g
<u>Non-linear</u> Ideas evolve over time through repeated prototype/learning cycles	Each iteration reduces uncertainty and obtains important feedback from users and other stakeholders to incorporate into the subsequent prototype release. <i>E.g., spiral, iterative, agile</i>	a, b, c, d, e, g

<u>Open/Closed</u> Ideas and knowledge retained internally (closed) or ideas and knowledge is accepted from external entities (open) <i>E.g., Open Innovation Model</i>	Closed approach protects intellectual property, including trade secrets, but the open approach involves stakeholders and expands ideas.	a, c, d, e, f, g
<u>Funnel</u> Large number of ideas are obtained at the outset, then systematically narrowed down resulting in only the best being implemented	The narrowing down process can be linear or iterative in nature and can be open or closed in approach.	a, c, d, e, g
<u>Online/ Collaborative</u> Enlisting the services of many people, often unpaid volunteers, employing the Internet as the communications medium. Typically, a goal is announced as a challenge to which innovators can respond. <i>E.g., Crowdsourcing, Idea challenge</i>	Captures ideas and knowledge from the most diverse set of problem solvers. Can also cost a fraction of the amount of internally developed solutions.	a, c, d, e, f, g
<u>Scale and scope</u> Methods with low degree of change, incremental or sustaining innovations, involve studying the current system in detail and analysing where improvements are needed. Methods with high degree of change, radical and breakthrough innovations, envision a future based on possibilities then back-cast from the future to the present to define learning iterations to attain an envisioned future	Low degree of change methods are nearer-term, systematic, and repeatable consistent with development. <i>E.g., ITRIZ</i> High degree of change methods reduce uncertainty over the longer-term. <i>E.g., The discovery-incubation-acceleration model, Directed evolution</i>	a, b, c, d, e, f, g
<u>Bottom-Up/Top-Down</u> Bottom-Up methods depend on ideas coming from all employees. Top-Down methods depend on ideas coming from senior sponsors in the organization.	Bottom-Up Bottom-Up methods collect many ideas from employees at the grassroots that can be or not be strategically linked.	a, b, c, d, e

	<i>E.g., employee challenges, microMBA training, hackathons</i> Top-Down Top-Down methods are most often driven by an innovation objective or strategy. <i>E.g., Strategic challenges, Strategic intent</i>	
<u>Organizational setup</u> Internal or corporate venture method involves installation of idea management and governance, alongside and in parallel with existing management structures. Embedded idea management methods involve installing innovative thinking as a core competency throughout the organization.	Venturing methods allow the existing management structure to remain unchanged. Embedded methods change the existing management mindset and business processes.	a, c, d, e
<u>Gamification</u> Application of game-design elements to motivate and stimulate problem-solving by users and other stakeholders.	Gaming elements can increase the involvement of others resulting in higher productivity and enhanced outcomes.	a, c, d, e, f, g

Annex A 2 presents more comprehensive information on methods.

5 People and organization

5.1 General

People and organizational considerations are important enablers to the success of idea management processes and activities. Since they clearly affect idea management, any user types, from an individual or start up to an established, large organization should take them into account according to its context.

Organisations and individuals should manage ideas and opportunities based on their ambitions. The scale and nature of appropriate guidance depend on the context. It should be matched to the roles, skills and experiences of people involved in idea management

and enable successful planning and execution of these efforts. This applies for individual ideas, broader initiatives and managing a portfolio of ideas and opportunities.

Where idea management relates to organisation-level initiatives (i.e., top-down), strongly linked to intent and strategy, the guidance framework should be comprehensive and deeply embedded across the organisation. The ultimate framework for idea management is a full innovation management system, as outlined in ISO 56002, which provides systematic guidance, covering organization context, leadership, culture, planning and resources. Where idea management is more loosely connected or on a smaller scale, the innovation management system may be applied in a less comprehensive or formal way.

5.2 Leadership

Decision-makers (as described in 6.6.4) should initiate and drive idea management to ensure these efforts align with their organisation's context, culture, strategy, ambition, capabilities, principles and for the benefit of internal and external interested parties. The scope of these efforts can vary based on an organization's size and purpose.

Idea management leadership should be visible, consistent and address the following elements:

- Fostering ideas and broader initiatives,
- Ensuring appropriate resources are available and used,
- Promoting openness, trust, and psychological safety,
- Making selection criteria explicit and transparent for all people involved in idea management,
- Developing idea management capabilities throughout their teams,
- Being clear on how to deliver value to the organization and its interested parties,
- Continuously capturing insights,
- Promoting perseverance of effort based on evidence, and
- Selecting the right people for idea generation roles.

Organizations should also recognize the role and contribution of people who identify opportunities, create as well as validate concepts, and encourage and reward them with the appropriate incentives (both intrinsic and extrinsic motivators).

Those involved in idea management should:

- Be naturally curious to ask thought provoking questions,
- Possess technical and business know-how to connect ideas with possibilities,
- Be excellent communicators and networkers to build compelling value propositions to enroll interested parties, and
- Be comfortable working under conditions of uncertainty.

5.3 Culture

A positive culture can deliver the desired behaviors and attitudes. It can focus efforts to reflect on organizational values, strategic ambitions, an appetite for innovation and leveraging of current capabilities. Culture and strategy are intricately linked.

Such a culture can also welcome and nurture ideas as they emerge. Organizations should continuously provide feedback on the ideas to encourage their progression.

The organizations should target a balance between spontaneous bottom-up and more directed top-down contributions. The role of decision-makers is to encourage and sustain a culture that is characterized by:

- Openness, discovery, curiosity, diversity, and respect.
- Learning, experimentation, creativity, change, and challenging assumptions,
- Networking, collaboration, constructive communication, participation (internally and externally),
- Balance of experience and evidence-based input to support the idea and opportunity management process, and
- Structured and unstructured idea elaboration processes to promote divergent and convergent thinking.

5.4 Strategy

Decision-makers should establish and own the organization's Innovation Strategy. ISO 56002 provides clear guidance on how to develop an innovation strategy.

Idea management should align with this strategy and address the question "Why and how to manage ideas, today and in the future?". Ideas and opportunities can arise from or influence current strategy and strategic intent. The strategy should not be dominated by a single idea management method."

Decision-makers should establish idea management processes and activities that address an organization's:

- Appetite for risk, tolerance for failure and capacity for change,
- Interests of its internal and external interested parties,
- Structures, resources, and capabilities in place as well as potential gaps,
- Ability to systematically generate ideas and identify opportunities for creation and validation of concepts, and
- Culture and governing principles to enable successful idea management.

5.5 Governance

Decision-makers should define the governing principles to support idea management processes, the capabilities to apply them consistently and the practices to deliver expected outcomes in learning and value terms.

Governance should address the following for effective and sustained idea management:

- Enabling effective use of idea management tools and methods,
- Allowing for appropriate questions and evaluation criteria based on idea and opportunity maturity,
- Managing allocation of resources for testing.
- Securing resources from beyond day-to-day sources, such as, R&D, market research, ecosystem,
- Ensuring appropriate levels of funding,

- Clarifying accountability, structures, roles, responsibilities and expectations of decision-makers, teams, and individuals,
- Rewarding and recognizing idea management efforts,
- Investigating where to look for sources of ideas and opportunities,
- Assuring effective management of intellectual property and assets,
- Managing portfolios of ideas, opportunities and concepts, and
- Creating an environment to redirect or stop efforts based on learning.

5.6 Idea management portfolio

An idea management portfolio is a collection of ideas, opportunities and concepts at different stages of maturity. It is a subset of an innovation portfolio focused on the generation of value to support the current strategy and the strategic intent. It comprises ideas and opportunities being identified, explored, conceptualized, tested, and then selected, or not, for development based on a validated concept. Within the portfolio, some meet shorter term objectives, driven by a problem to solve, while others, with a more uncertain and longer term application, can be driven by a strategic ambition of possible options to pursue.

When an organization desires to move beyond managing only a few ideas, it should establish and develop an idea management portfolio. An idea management portfolio should be balanced across many considerations, such as, extension to current versus creating new offerings, levels of uncertainty, time to value realization, idea quality and quantity throughput, existing versus new resources required, etc.

These considerations can require different processes to manage ideas, opportunities, and concepts within the portfolio. The criteria for managing a portfolio should be explicitly defined in a clear and transparent manner. Without explicit selection criteria, as outlined in 6.6, it is not possible to manage a portfolio with rigor and decide which idea, opportunity or concept should be pursued or not. No idea or opportunity should be deleted. It should be archived as a record to guide and be a possible resource for future idea and opportunity management.

Ideas, opportunities, and concepts can be organized and managed within portfolios, with different levels of uncertainty regarding their potential of becoming a successful innovation. The organization can build a portfolio that, when combined, covers the innovation continuum as follows:

- Incremental innovation, a low degree of change, to improve existing practice,
- Evolutionary or step change innovation, a medium degree of change, to find next generation products, services, etc., and
- Breakthrough or radical innovation, a high degree of change, focusing on longer term, game-changing opportunities.

5.7 Enabling factors – resources

Portfolio planning should extend to resource allocation and management, in financial, effort, opportunity and other terms. Portfolio balancing across uncertainty and risk can be valuable in this respect.

The organisation should determine and provide resources that are sufficient and appropriate to enable successful idea management. It should also establish a policy and regularly review it based on results obtained. Factors to consider are as follows:

a. Financial resources

Evaluating the financial opportunities, risks, and constraints associated with idea management activities, including the financial implications, and other risks of not exploring ideas, is required.

An organization should consider appropriate funding principles as follows:

- Establishing an effective funding mechanism via a self-funded central budget, local or operational budgets, and/or through customers, partners and government agencies.
- Allocating dedicated financial resources for idea management activities.
- Ensuring the funding, resource capacity and support are aligned to a priority list of ideas, opportunities, and concepts.
- Balancing funding for new ideas across different time horizons with different degrees of uncertainty, investment risk profiles and types of innovation outcomes.
- Identifying relevant sources for idea generation funding and accessing the right internal and external resources to build up idea management competence.
- Setting aside funds for partnering or acquiring start-ups that have developed new technologies, products, business models etc.

b. Time

People need time to generate an idea or opportunity and develop it to a sufficient level to describe it and share it with the rest of the organisation. An organisation should consider:

- Allocating time for staff to develop ideas and build on the ideas of others.
- Offering different options to work on ideas, such as, dedicating fixed time slots, using a percentage of work time or encouraging staff to use their free time.
- Adapting time management to the specific conditions and time constraints within the organization.

c. Roles

Idea management resources, with the right competences and mindset to manage ideas and opportunities, are required in roles, such as, idea originators, opportunity recognizers, coaches, and facilitators. Organizational support should be provided in technical, business, and personal terms to champion and enable an idea management culture.

Radical or breakthrough innovations and creation of new markets can require accessing significant technological expertise from outside the organization and building new business development expertise within. Incremental innovations or development projects and addressing new customer needs can require access to sufficient marketing or business development capabilities.

To be successful in their roles, these resources should consider:

- Idea management objectives, processes, activities, methods, and tools suitable to their context,
- Who to involve and the desired outcome,
- User/customer experiences to learn from, and
- Behaviors required for change.

5.8 Enabling factors – organizational support

The organization should determine and provide support that is sufficient and appropriate to guide successful idea management. Factors to consider are as follows:

a. Motivation and recognition

People are motivated to generate ideas and share them for many different reasons. Recognising the origins of an idea and rewarding the originator(s) for this contribution is an important factor to keep motivation high. It is also part of the organisation's ethics and transparency towards its staff and other interested parties.

It is important to understand intrinsic and external motivators and identify which ones apply to which individual in the organization. This will help improve both the quantity and quality of ideas and opportunities generated.

Motivators could include:

- Reciprocity: Financial or material reward
- Reputation: Personal or collective respect and status, within the organization or beyond
- Altruism: For the benefit of the individual, team, department, organization or even society
- Learning: For the benefit of individuals and teams, to further knowledge and evolve careers

Many inventors, idea originators and intrapreneurs do not need external motivation. They have an intrinsic drive or aptitude at coming up with new ideas and the entrepreneurial talent to frame their ideas within a broader business case.

Leadership should consider the following for these individuals:

- Carefully evaluate the potential of these individuals and their proposals.
- Assess fit of their proposals within the organization's strategic objectives.
- Assess the competences these individuals have to progress their ideas.
- If there is a good strategic and competence fit, allow them to pursue the further enhancement of their idea or opportunity and its development all the way through to deployment.

- If the strategic fit of the idea or opportunity is parallel to, or outside the organization's strategy/business model, potentially allow them to spin the idea out as a separate entity, while carefully evaluating the amount of control to retain over the spin off and intellectual assets involved.

b. Idea ownership

Ownership of ideas is complex and varies across different jurisdictions around the world. For example, in many jurisdictions a 'creation' or 'invention' belongs to the originator but there is no commonly accepted norm. Consultation with both intellectual property and legal specialists is recommended, to clarify the position related to the prevailing jurisdiction, in order to establish the organization's idea ownership and exploitation policy.

There are three categories of ownership situations where employees are involved:

- Creations and inventions by an employee who is employed to create or invent,
- Creations and inventions by an employee who is not employed to create or invent but uses the employer's resources, and
- Creations and inventions not connected to an employer or work of the individual employee and where no employer resources have been used.

ISO 56005 – Tools and methods for intellectual property management, provides guidance for developing an IP strategy for the idea generation activities, identification, concept creation and validation.

d. Responsible innovation

Organizations should consider other enablers to creating a better world, such as, alignment with the UN 17 Sustainable Development Goals (SDGs)¹ and making idea management more accessible² and inclusive to those with physical, language, or other limitations. This idea management standard should be the exemplar for responsible innovation.

6. Idea management processes and activities

6.1 General

Idea and opportunity management activities and their interrelationships form the core of this standard. The four activity areas of identification, concept creation, testing and selection are covered in this Clause. Idea management processes can vary and are based on sets of these interrelated activities.

What is an idea and how does it originate? In its simplest form, an idea is a notion or thought crossing the mind. It can be inspired randomly by the subconscious or by a consciously perceived opportunity. It can result from serendipity or from a direct challenge or brief. It can be generated within areas of opportunity, driven by a strategic or innovation intent.

¹ <https://sdgs.un.org/goals>

² <https://www.w3.org/WAI/standards-guidelines/wcag/>

As discussed earlier in Clause 4, there are many idea and opportunity management methods. They depend on factors and circumstances, such as, the nature of the innovation, the innovation processes, the scale of the idea, the interested parties, the level of innovation, the industry, etc. More detailed descriptions of idea management methods and types of innovation are provided in Annex A.

Each method supports activities organized around one or more processes. These processes could be more applicable than others for different organizations. This Clause identifies core activities to enable an organization to generate and determine which ones could be most relevant for a given process or approach. As shown in Figure 6.1, there are three categories of activities which relate to the: 1) identification of ideas or opportunities, 2) concept creation, including exploration, and 3) validation of concepts for further development, which includes testing and selection.

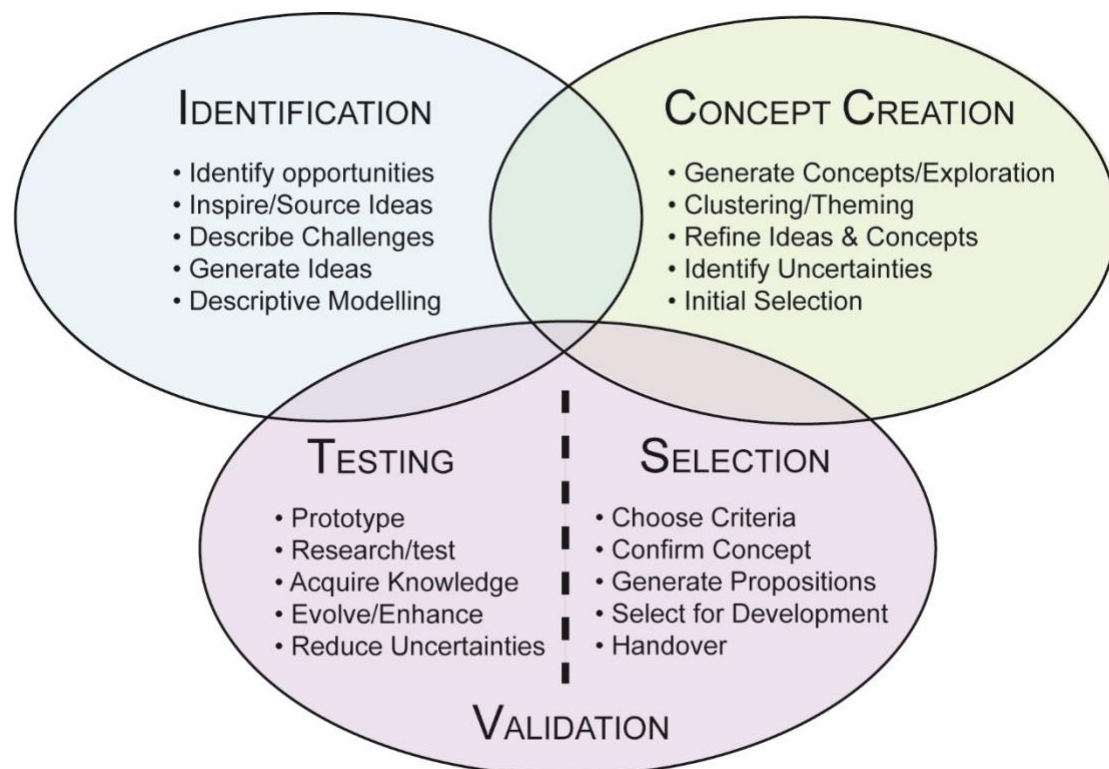


Figure 4: Idea management activities

6.2 Identification

Identification is about generating the seeds of ideas and opportunities that could become the inputs for Concept Creation (see 6.3). This Sub-clause describes the following:

- Sources, methods, and tools for inspiring and generating these ideas and opportunities,
- Guidelines for determining if an idea or opportunity qualifies for exploration, and
- Considerations for selecting the right path based on level of uncertainty.

6.2.1 Selecting the right path

One important consideration is the level of uncertainty of an idea or opportunity. Whilst for most ideas the level of uncertainty will be low or medium, some organizations will have ambitions to pursue strategic opportunities that take them into high levels of uncertainty as described in 4.3. Therefore, organizations should consider at least two paths based on uncertainty: 1) low to medium path, more typical of incremental and evolutionary innovation, and 2) high path more typical of radical/breakthrough innovation. Incremental and radical innovation are at opposite ends of the innovation continuum. Radical innovation requires the reduction of high levels of uncertainty, whereas incremental innovation requires the management of risk and lower levels of uncertainty. See Annex B 2 for additional background on screening for levels of uncertainty.

6.2.2 Inspiring ideas

Critical to being able to elaborate upon new ideas is understanding how ideas are inspired and motivated. Figure 6.2 shows seven focus areas that can drive the creation of new ideas. One way to get started creating ideas is to pick a focus first. Annex C 1 contains detailed descriptions of these areas and examples of idea generation methods for each of these focus areas. Some ideas represent incremental improvements, whereas others represent giant leaps forward leading to the creation of new markets and customer behaviors. For all these approaches, there are different parameters that can influence choice, as presented in 6.2.1.



Figure 5: Idea & opportunity inspiration focus areas

6.2.3 Sourcing ideas

Ideas can be categorized as being sourced from either within the organization or from outside it. Ideas can arise spontaneously outside or within an organization, be bottom up, or top down as part of a managed campaign. To benefit from all sources, decision-makers should put in place the appropriate strategic and operational processes and structures as addressed in Clause 5.

Whether the need for new ideas is to address a specific problem/issue or is a broader search for new directions, an appropriate plan should be made. Examples of different approaches to source ideas and opportunities are as follows:

- Informal open-ended call or request for proposal: Ongoing effort to capture inputs, usually from many internal and/or external interested parties.
- Idea generation project: Approved, as a standalone, single piece of work carried out by one individual or a team to address a problem or an opportunity.

- c. Challenge or campaign: Seek ideas across an organization or, more openly, amongst interested parties outside the organization, which may be open (looking for possibilities) or closed (searching for answers on a topic) or even could be in answer to a specific threat. It could:
 - i. Take the form of a project or campaign.
 - ii. Address either a problem or an opportunity.
 - iii. Be time-limited, with a commitment to conclude in a short timeframe.
 - iv. Be the answer to a Strategic Intent Ambition.
 - A vision of where the organization aspires to be in the future and looking for opportunities, within innovation areas of opportunity or themes that hold promise for delivering on these strategic innovation ambitions.

6.2.4 Generating and capturing ideas

Depending on the sources for inspiration within the seven focus areas in Figure 6.2, there are different idea and opportunity generation methods to select from. Examples of considerations when generating ideas and opportunities are provided below, a more complete list is available in Annex C 1:

- a. Creating the right environment: This requires addressing organizational aspects such as, breaking down barriers or silos, supporting creative and constructive contributions, using third party facilitators, retreating to an offsite venue, etc.
- b. Reward schemes: This defines how contributors are rewarded or recognized.
- c. Facilitating interactions: When facilitating the generation of ideas and opportunities, consider aspects such as user centered focus, skills available or required, assumptions being made, expected level of detail or maturity of submissions, path from concept to customer and match of idea or opportunity to capability. Providing stimulus material and break-out activities can help to maintain enthusiasm and energy levels.
- d. Applying methods: Brainstorming methods can help with the generation of ideas by tapping into different perspectives. Crowdsourcing methods can help to generate ideas from the market or academia. Hackathons can help to solve specific problems. Storyboarding, sketching and gamification can help to envision and simulate the experience. Biomimicry and strategic visioning can help to generate more strategic opportunities or areas of opportunity. Tools such as anthropology, design reduction, video recording, whiteboarding, suggestion box, observe and play, and field trips are ways to capture ideas and opportunities.
- e. Capturing ideas: All ideas and opportunities that are generated should be captured in a database, online system, or other archive for easy access by idea generators and others and to record learning as well as the disposition of ideas.

6.2.5 Scoping ideas

Once the activity stage of idea and opportunity generation is complete, there will be potentially a high number of ideas and opportunities at hand. Actions may be taken to

help scope these ideas and opportunities for concept creation, including exploration activities as follows:

- a. Describing or enhancing an idea or opportunity, e.g., presentation of a collage or an idea canvas.
- b. Collecting media and artifacts, photographing and video recording ideas and opportunities for digital capture.
- c. Scoring, evaluating and selecting ideas for further progress using an idea scoring process or idea stage evaluation. This selection process can be inspired by the content of Sub-clause 6.6 below.
- d. Preparing ideas for handing over to the next stage, Concept Creation.
- e. Ensuring those responsible for sharing ideas do so in a structured way, i.e., in a formal meeting, allowing for questions and explanation. Deliver all descriptive models such as, artifacts, mock-ups etc.
- f. Assessing positive and negative IP implications.
- g. Recognizing individuals and teams involved in idea and opportunity generation, e.g., prizes, rewards, announcements, etc.

6.3 Concept Creation

6.3.1 What is a concept?

A concept is the result of the evolution and refinement of an initial idea or opportunity or integration of related ideas or opportunities. It can provide a defined proposal for realizing or redistributing value or an understanding of critical uncertainties and assumptions. As such, it can be validated for potential development.

For the evolution and refinement of an idea or ideas into a concept, there can be defined hypotheses for the following:

- What is the assumed problem or set of problems to be addressed?
- Who are the assumed interested parties and their assumed needs or wants in relation to the assumed problem(s)?
- What is the assumed solution or set of solutions?
- What value is assumed to be created by the application of the assumed solution?

Hypotheses can be in the form of an assumption that can be tested, questions that can be answered or in the form of an identified unknown that needs to be explored.

The objective of concept creation is to transform an idea or collection of ideas into a workable concept through an evolving and iterative process of enhancement, refinement, and review.

An idea should address a stated or unstated need or desire, and create value in doing so, which is why an idea should be developed through to a concept. This can be carried out by individuals or by teams, collaborating with others, comprising expert individuals, as multidisciplinary groups.

6.3.2 Clustering/theming

The purpose of clustering or theming is to map and categorize the result of one or many ideas into a concept. The more ideas that feed into the process, the higher the likelihood of a higher value proposition. Many innovations are rarely traceable back to one single idea, but rather to a collection of ideas. There can be ideas that:

- Are similar
- Approach a specific need or desire from different directions
- Explore different potential features/benefits/attributes that deliver on the same need or desire
- Improve the outcome or impact

Those responsible for clustering should be defined/appointed prior to generating ideas and be ready and prepared to start work. One method is to visually capture the ideas on sticky notes on a wall and manually move similar ideas together into 'clusters', this can also be done electronically via collaboration boards or through discussion.

Refining or clustering ideas is an iterative process and can result in a five- to ten-fold reduction of ideas into well-defined clusters that can be classified for selection, rejection, rework or shelving. Idea clusters may need fresh creative input or be elaborated on, to provide higher value or to be more easily understood. The set of ideas under consideration should be compared, combined, deferred, and refined to condense the quantity to quality value ratio. The purpose should be to focus the accuracy of the ideas to the problem to maximize value realization.

Clusters may have the benefit of removing bias such that the ownership becomes neutral. However, it may be important to be able to trace/track back any single idea to its originator to enable reward management systems and feedback.

Criteria for how ideas are brought together into clusters and the themes of the clusters should be categorized/ organized according to different parameters, for example:

- Dimensions, common themes, patterns, business functions
- Innovation potential: incremental to breakthrough
- Levels of uncertainty, time to develop
- Technical feasibility, novelty, potential value, strategic relevance

Clusters should use the same format, be consistent and understandable, to facilitate further work for transformation into concepts.

6.3.3 Concept generation

Concept generation involves envisioning the ideal solution and generating a hypothesis (what it may be like) that captures the qualities of the potential solution. It should result in a description of the concept, which is suitably understandable by others. It should easily express what is novel and/or unique in the proposition.

Part of a concept is a high-level outline of the business or concept case that identifies the potential value. It should give enough information so that it is understood, what need it is addressing and how opportunities can be exploited. It should identify interested

parties and what value it will bring to them, any insight into them, their process, motivations, etc. in which the concept has been built upon.

The initial concept description can include:

- a. The *root causes* of the problems and pain/need/desire(s) that the concept is targeting.
- b. The potential *target group(s)* for the concept, who may be presented as personas.
- c. The *context* in which the concept may occur, such as the environment and/or situation.
- d. *Scenarios* for how the concept could be applied by the target group(s) in the defined context.
- e. *Functionality descriptions* of the specific innovative attributes/features of the concept.
- f. How the concept fulfills specific *requirements* set by the target group(s), the context, the scenarios, or the functionalities of the concept, such as usability or security requirements.
- g. How *value* could be created and captured.

It also involves identifying, documenting, and cataloguing the uncertainties (assumptions/questions/unknowns/potential problems that need to be solved) as the concept is refined through testing and selection. See Annex B for a helpful way to categorize unknowns that arise due to higher levels of uncertainty. Further concept generation should outline:

- Estimating the potential cost/time for reducing the remaining identified uncertainties. Provided that as many uncertainties as possible have been identified, this estimate will provide a scale of the effort necessary to go through the testing activities.
- Deciding an appropriate level of protection, e.g., keep secret, Non disclosure agreement, patent, etc. based on to whom and when the concept is to be exposed (see ISO 56005 Intellectual Property Management).

6.3.4 Cataloguing concepts uncertainties

Before any selection outcome can be determined, a concept, or components of that concept, will require critical uncertainties to be reduced through validation. An inventory of as many identifiable uncertainties as early as possible will allow for a more realistic assessment of the effort required for validation. As the sequence for reducing critical uncertainties may have a significant impact on the use of resources, choosing the most efficient sequence can only be achieved if, cataloguing of as many uncertainties as possible, has been done during the concept exploration phase. The more complete the catalogue of uncertainties, the more efficient the process for reducing them will be. See 6.4 for uncertainty reduction through validation.

6.3.5 Selecting concepts

Decisions as to whether to proceed further with an idea or opportunity, and later a concept, are made throughout their refinement process. Selection is made at minor and major points during the exploration and testing phases. Some decisions can be made by

the individual/team, while others require the involvement of leadership. Based on the defined criteria as shown in Figure 3 (see 6.6 Selection for how to define selection criteria), concepts should be selected on one of the following:

- It meets enough of the predetermined selection criteria and to a sufficient degree.
- It does not sufficiently meet some or all of the criteria to the predetermined level yet is promising enough to warrant further exploration and iteration.
- It significantly fails to meet the criteria to justify further expenditure of resources and should be archived for reference or possible consideration later.

6.4 Validation

Validation is the result of using tools and methods from 6.5 to test assumptions, answer questions and reduce uncertainty raised by an idea, opportunity, or concept. It should provide sufficient evidence, to the satisfaction of relevant parties, that confirms an initial hypothesis against established selection criteria. The purpose of selection is to determine whether concepts are suitable for development, rework or archiving.

Validation is an iterative process that comprises testing and selection. As validation is one of the most crucial and resource-consuming steps of idea management, its objective is to 'succeed or fail fast', in order to minimize time and resources used.

The results of validation are used both iteratively throughout the process as well as at key go/no go decision points. The outcomes of validation should include:

- Resources used for validation to date,
- The reduction of uncertainty achieved,
- Determining the remaining level of uncertainty and its potential impact on the feasibility of the concept,
- Further validation recommendations, and
- Likely future commitment of resources.

6.5 Testing

Testing is a process of obtaining missing information to provide an opportunity for organizations to learn and integrate outcomes into their knowledge management systems.

6.5.1 What is testing?

Testing includes different forms of activity. The types of testing tools or methods to use to inform the selection process depend on:

- The maturity of the concept
- The type of uncertainty or assumption identified

As the level of tolerance for uncertainty varies for both people and organizations, it should be determined to what extent each uncertainty should be reduced.

6.5.2 Why do it?

New ideas are often relying on assumptions or their analysis where information, knowledge or understanding is missing. Some uncertainties challenge the feasibility and success of a concept. Reducing them through testing is critical to verify if selection criteria (see 6.6) are met in a satisfactory manner.

The results of testing are used to modify or adapt a concept and ultimately to refine it until it is ready for selection.

6.5.3 When to do it?

Testing takes place when it is appropriate to reduce uncertainties, validate assumptions or obtain missing information, knowledge or understanding.

Types of testing methods used need to be chosen to suit the stage of concept evolution or refinement. They can be different when generating and visualizing concepts in the early stages compared with reducing uncertainties in the later stages.

There are key decision points during the idea and opportunity management process, when the results of testing should be made available for decision-makers, such as, when:

- Sifting and grouping underdeveloped ideas
- Defining ideas and scoping opportunities
- Evaluating concepts
- Formally selecting propositions for onward development

6.5.4 Who does it?

Testing procedures can be carried out by people within or even from outside the organization, such as:

- The idea originator, who may initially 'test' it before exposing it to third parties.
- Individuals or teams to refine the idea, opportunity, and/or concept
- Idea promoters within and outside the organization
- People not directly championing the idea to bring objectivity.

6.5.5 What is the process?

Methods for generating early-stage concepts and for validating them in the later stages increase in effort and cost for each iteration. The principle is to learn quickly and inexpensively. Early concepts may be tested with simple mock-up prototypes and by conducting initial tests with end user representatives.

Which testing process to use is driven by the:

- Type of idea
- Level of maturity of a concept
- Number and levels of uncertainty (see 4.3 and 5.6)
- Cost of testing
- Time required
- Selection criteria (see 6.6)

There is a wide range of testing methods to build understanding regarding an idea's viability, or a particular aspect of its viability, such as:

- Novelty and functionality
- Technical feasibility and usability
- Marketability and manufacturability/implementation

Examples of testing methods include:

- a. Reviewing literature and conducting market studies
- b. Interviewing experts and interested parties
- c. Undertaking R&D or experiments
- d. Creating proof of concepts (PoC) or simulations
- e. Building mock-ups or prototypes
- f. Using Story Boards for simulating the experience and Mood Boards for capturing feelings
- g. Reading documents, such as, the strategy plan to verify alignment with strategic objectives
- h. Building a minimum viable product (MVP)
- i. Assessing intellectual property protection potential and freedom to operate

It is important to choose an appropriate method to deliver the missing information, understanding, or knowledge for the uncertainty being addressed. One or more may be applied to either refine a concept further or to support decision making for selection.

Testing of uncertainties may lead to identifying additional uncertainties. New uncertainties may require the concept to be modified or necessitate further testing.

6.6 Selection

6.6.1 What is selection?

Selection is the process where ideas/opportunities/concepts are categorized for one of the following:

- Continued development, synthesis with other ideas
- Iteration and rework
- Parking or archiving for later development or reference

There are two aspects to selection:

- Defining the questions and selection criteria

- Deciding if an idea/opportunity/concept sufficiently answers the questions and meets the criteria

6.6.2 Why do it?

Selection is necessary so that resources can be allocated efficiently to only support ideas, opportunities, and concepts with the highest chances of providing value.

6.6.3 When to do it?

The most critical selection is the Go/No Go decision that should be formalized in a proposition document to support a concept moving into development and becoming a project.

Before the go/no-go decision selection also occurs at key points during the early stages of the process. The timing and frequency of these early-stage decisions varies depending on the idea generation and refinement process being used, such as, phase gate, iterative, agile (see 4.7).

6.6.4 Who does it?

Those involved in creating concepts and identifying potential solutions make micro-selections throughout the process.

Who the decision-makers selecting concepts for development are depends on the organization's context, size, corporate culture and structure. They can be investors, owners, senior leaders, innovation committees, heads of R&D or innovation, experts. See Sub-clause 5.2.

Decision-makers can also make selections:

- At interim stages using agreed criteria to evaluate whether an idea meets the minimum requirement to progress to the next stage.
- To move incremental innovation ideas more quickly, where uncertainty is low.

At critical selection points, these decision-makers make a judgement whether to proceed, iterate or archive ideas using the selection criteria relevant for that stage.

6.6.5 What is the process?

There are two different phases of the processes:

1. Early-stage selection. Since each idea consumes resources (time, skills, money, etc.), the decision to continue exploring it requires evaluation of its potential to reach development. Appropriate decision criteria should be chosen for these earlier stages. These can be a combination of quantitative and qualitative criteria, which include indicators (see 7.0) and informed opinion.
2. Go/no-go selection to proceed to development. This decision usually implies allocation of significant resources and can have strategic implications. The criteria

used in this phase are the most critical and provide the gateway for concepts into development. An example of a decision tree to support such a decision can be found in Annex C 3.

Depending on the nature or maturity of an idea or opportunity, decision-makers may have to make selections without the desired level of knowledge. The selection process is, therefore, strongly influenced by the decision-makers' level of tolerance to uncertainty.

6.6.5.1 How to determine selection criteria?

The criteria used to determine whether a concept is ready for handing over to development are the most critical. They should not be bypassed. They should be predetermined and, as such, can influence those selection criteria used in early exploration. This knowledge will influence the evaluation and selection during validation. For that reason, they are considered here first. See Annex C 2 and 6.6.5.3.

6.6.5.2 How many criteria should there be?

Idea/opportunity/concept selection can be a challenging process and itself should be iterated over time and from experience to improve it.

The choice of criteria can be dependent on various considerations, such as:

- Complexity of the idea/opportunity/concept
- Resources allocated to exploring it
- Urgency for results
- Profit potential
- Social impact potential

Fewer criteria could mean a shorter and less resource consuming process (proceed or fail fast) but with the consequence of ignoring certain criteria that may impact the feasibility of the concept. A higher number can provide more accurate and broader evaluation data, thereby reducing uncertainty, but take longer and consume more resources.

6.6.5.3 Selection for development (Go/no-go criteria)

The go/no-go selection of concepts should be based on meeting a number of core criteria. The relative importance of the criteria is influenced by considerations, such as, operational context, organization size, capability, strategic priority, etc. They need to be adapted to the specific requirements of the organization.

Core selection criteria should be agreed upon and set by the decision-makers. For transparency purposes, and to ensure that these criteria are properly addressed by everyone involved in innovation, they should be shared throughout the organization.

For understanding to be as complete as possible, decision-makers should be informed of all the corresponding risks, implications and residual uncertainties associated with each

selection criteria. This will allow them to make a more accurate judgement of the appropriateness and level of residual uncertainty of each criterion.

The following selection criteria should be considered. Judgement should nevertheless be exercised to ignore the criteria that may not be relevant in some specific circumstances. Annex C 2 contains a more detailed explanation of each of these criteria:

- a. Strategic fit
- b. Customer/user fit
- c. Market fit
- d. Business model fit
- e. Scope fit
- f. Definition of success/Return on investment
- g. Resources fit
- h. Availability of appropriate team
- i. Interested party acceptance
- j. Intellectual property protection
- k. Idea pipeline and/or portfolio fit
- l. Timeline fit
- m. Risk exposure
- n. Acceptability of other factors
- o. Collateral effects
- p. Sustainability and durability
- q. Effort required to reduce remaining uncertainties
- r. Feasibility of the potential action plan for development
- s. Overall coherence

Decision-makers should assess their relevance for their own context.

6.6.5.4 Early-stage selection

The criteria applied to determine viability should become more exacting as an idea or concept evolves and as the amount of time, money, and human effort to realize it increases. The sooner an idea can be categorized, as one with potential versus one that should be parked or archived, the better. However, in the early stages, ideas should be judged positively, such as, how ambitious or unconventional they are versus hard go/no/go criteria.

During an idea's early stage, refinement criteria should be regarded as questions to be answered rather than a filter. At the selection points, such as phase gates, a judgement call needs to be made whether each question has been answered sufficiently. The phase decision-makers may decide to proceed even if further information, understanding or knowledge is needed.

Selection criteria can be:

- Predetermined from the go/no-go criteria above.
- Developed in response to issues raised by the idea or opportunity as it evolves.

The type of selection criteria and when to apply them is guided by the:

- Type of innovation being sought, incremental, evolutionary or breakthrough (see 4.6)
- Idea generation model being used, such as, phase-gate, spiral, agile (see 4.7/Annex A 3).
- Idea source, general call for ideas, challenge, sandbox, brainstorming, serendipitous discovery, bottom up, top down, etc. (see 6.2.3)

The priority and degree to which an idea meets a criterion can be weighed by factors, such as, obtaining a patent being more important than strategic fit and a process only needing to be 85% efficient to be effective.

6.6.6 Proposition document

To allow decision-makers to make a judgement using appropriate criteria, as described in 6.6.5.3, each concept should be described in a suitable proposition document. This document should typically satisfy each criterion at an appropriate level for the corresponding selection stage.

Different formats for this document can be considered, such as a:

- Business proposal or plan, that includes both the justification of the project and how it is going to be handled.
- Business or concept case that provides the justification only with the action plan in a separate document.

Examples of communication documents are in Annex C 4.

6.6.7 In the case of handover after selection

In some cases, it is necessary to have a handover. Which is the action after a concept has been selected for further work possibly by another owner other than the one currently working with the concept. However, handovers can add complexity, which may result in loss of knowledge or less favorable results.

The new owner or receiving party should receive the proposition (see Annex C 4). The action plan that complements it or is included in the proposition should be as detailed as possible.

When preparing for handing over a concept one should also consider:

- Why/ for what purpose it is handed over.
- To what extent the receiving party has the necessary skills, motivation, time, influence and network to handle the development phase. An NDA might be required, if the receiving party is external.
- Ensuring a thorough knowledge transfer between the parties by clarifying the nature and extent of the handover activity, including who is responsible and for what, how much handholding or retaining ownership is required, etc.
- Identifying who the receiving party is (internal or external) as well as its scale (large organization, SME, startup, NGO, individual).
- What knowledge needs to be retained in the sending party.
- What knowledge, documents, prototypes, specifications, information should be provided to the receiving party.
- Remaining concept uncertainty level and development path with corresponding resources needed.
- Agreement outlining the rules governing the current and future interactions and responsibilities between the sending and receiving parties. For example, a collaboration agreement, see ISO 56003 for further guidance.

7. Evaluation

7.1 General

The organization should review and evaluate its idea management efforts to ensure their ongoing suitability, adequacy and success in contributing to the following outcomes and impacts:

- Identify, clarify and quantify learning and progress towards value realization.
- Recognize what worked and what did not; what to keep, to change, to add, remove etc.
- Apply that learning to future idea management, enabling refinement and development to continually realize value for the organization.
- Align future idea management efforts with the organization's strategy, ambitions and capabilities.
- Develop the contribution from idea management towards key value creation objectives, such as, return on investment, growth, sustainability, finances, learning, capabilities, social benefits, and the culture and perception of the organization.

Idea management evaluation extends to validated concepts only. When evaluating a comprehensive innovation management system, contributions to value realization can also be considered.

7.2 Inputs

Review and evaluation of idea management should include consideration of:

- The organisation's strategic intelligence
- Relevant elements from the organization's strategy and portfolio
- External considerations such as best practices and other knowledge sources, performance and other benchmarks
- Experience and perspectives from interested parties
- Experiences and outputs from idea management efforts to date from successes and failures
- Experience and learnings from those involved in and impacted by idea management efforts
- The organization's performance versus established performance indicators
- Achievements versus the organization's idea management objectives

7.3 Activities

The organization should consider the following to enable a useful and successful In evaluation of idea management:

- **Planning:** This involves criteria setting from the intent, the defined scope and previous experience. Organizations should consider what activities link most closely to or demonstrate impact relevant to the intent and scope. Organizations should also be guided by what is most relevant for a specific use case or organization rather than fully adopting a universal set. The "essential few" is a useful rule of thumb; pick a small number of activities of most relevance. This can simplify evaluation of actual progress versus the intended plan.

Pressures for efficiency in the deployment of resources for idea management are common. Organizations should consider measurement of inputs. Inadequate inputs or failure to deploy planned inputs can lead to problems with future performance and the sustainability of idea management.

- **Assessment:** This involves the documented analysis of users and their experience, outcomes, entities, and process(es). Organizations should monitor progress of activities against criteria to learn and evolve to other measures, as appropriate. They should be aware that if the monitoring and reporting requirements are too onerous, they can inhibit the idea management process itself.
- **Review:** This involves ensuring that idea management, and the progression of ideas within it, are meeting objectives with respect to learning and the ability to deliver on intended outcomes. Organizations should consider performance in terms of the process of how inputs are converted into outputs. This will enable determination of the suitability, adequacy, efficiency, or effectiveness of the idea and opportunity management tools and methods that have been used to achieve objectives for users and interested parties.

7.4 Outputs

The organization should document and share the results of idea management evaluation, identify opportunities for improvement, and prioritize needs for change and development, e.g., in terms of tools, methods, capabilities and strategic intent.

Evaluation serves to capture and advance the performance and capability to manage ideas on a sustained, successful basis.

In closing, idea management is by design an iterative, cyclical endeavour. Different idea management methods guide progression through idea management activities. Addressing people and organization considerations help to create the right environment for success. More practical guidance with respect to tools and methods is presented in the annexes within this document.

Annex A

(Informative)

Clause 4 – Idea Management Methods

This annex provides non-exhaustive lists of types of innovation and idea management methods. In addition, descriptions are provided for more commonly used idea management methods.

A.1 Types of innovation

1. Brand Innovation
2. Breakthrough Innovation
3. Business Model Innovation
4. Channel/Distribution Innovation
5. Customer Service Innovation
6. Disruptive Innovation
7. Derivative Innovation
8. Frugal Innovation (Cost-Driven Innovation)
9. Incremental/Evolutionary Innovation
10. Network
11. Performance Innovation
12. Process Innovation
13. Profit Model Innovation
14. Platform Innovation
15. Radical Innovation
16. Revenue/Cost Innovation
17. Service
18. Sibling Innovation (Product System Innovation)
19. Supply Chain Innovation
20. Sustainability/Eco Innovation
21. Technology/Manufacturer Push
22. Transformational Innovation
23. User Experience Innovation (UX)

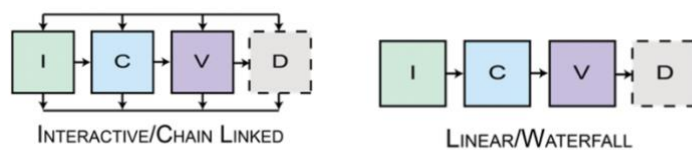
A.2 Idea management methods

1. Agile Model
2. Anticipatory Failure Determination (Pre-Mortem/Reverse Brainstorming)
3. Bottom-Up Model
4. Complementary Duo
5. Connect & Develop Model
6. Cross-Functional Teams
7. Crowdsourcing Model
8. Design Around
9. DIA Model (radical innovation)
10. Directed Evolution
11. Directed Funding Model
12. Gamification
13. Grand Challenge Model
14. Group of Innovation Champions
15. Ideality-First Model (Technically Focused Brainstorming)
16. Innovation Benchmarking
17. Innovation Funnel
18. Innovation Tunnel
19. Intellectual Property Protection Methodology
20. I-TRIZ Model (Innovative Problem Solving)
21. No one in charge
22. Nominal Group Technique
23. Open Innovation
24. Patent Fencing
25. Prototyping/Rapid Prototyping
26. Scenario Planning
27. Six Sigma (DMAIC/DMADV)
28. Social Network Innovation Models (Collaborative Innovation Networks)
29. Spiral Model
30. Top-Down Model (CEO, CTO, Innovation Czar)
31. TRIZ Model
32. Waterfall Model

A.3 Idea Management Method Description Examples

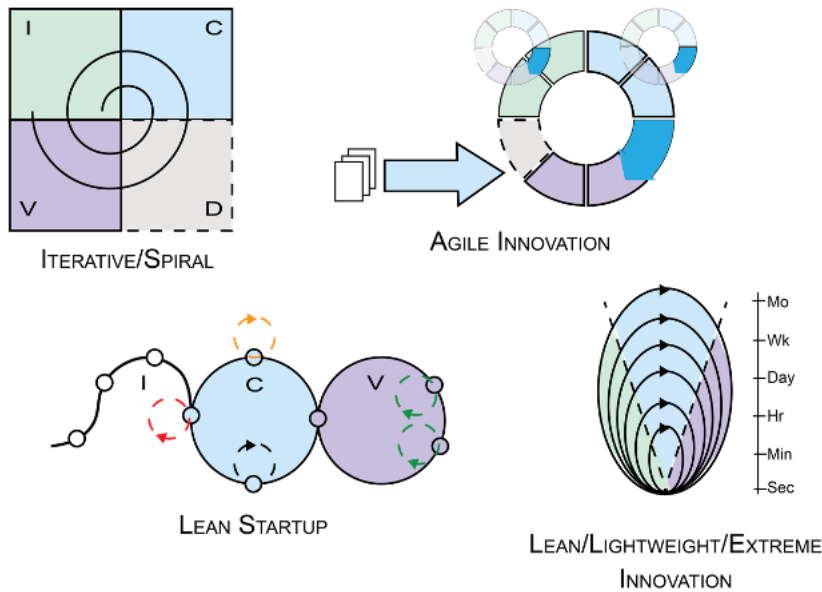
A 3.1 Linear methods

Some organizations prefer a linear process where the activities are partitioned into distinct phases with transitions from one phase to another governed by phase-gate decision points. Care must be given to identifying and preparing the people responsible for making the decisions and the criteria used for making the decisions at each phase. The controlled and easily measured nature of these methods can reduce and mitigate risk related to ideas and concepts. In these methods, ideas tend to come first and are vetted by meeting criteria set at each phase-gate with only the most promising surviving through to further development. Funnel-type methods are well suited for capturing many candidate ideas early (such as from a bottom-up process whereby anyone can make a suggestion) and are also well suited for collaboration with external interested parties throughout the process. Examples of these kinds of methods include Phase-Gate, Innovation Funnel, Open Innovation, and the Waterfall method.



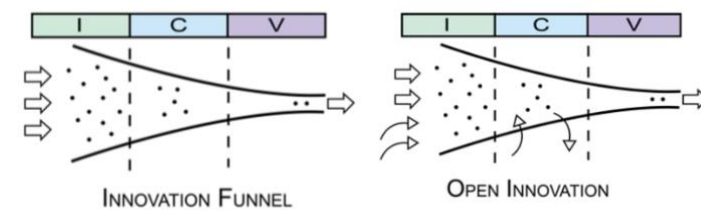
A 3.2 Non-linear methods

Many have found it difficult to manage and control creative activities like idea generation and concept formation and so have adopted non-sequential methods. These methods recognize a completed effort is not possible by one pass through a series of steps and therefore facilitate multiple iterations. In these methods, ideas evolve over time through the efforts of many people by releasing prototypes and minimum viable products to gather feedback from users and interested parties. Refining ideas in this way often increases the likelihood of a successful innovation. The iterative nature of these methods helps reduce uncertainty with each iteration. Examples of these kinds of methods include the Spiral Model, Agile Innovation, Lean Start-up, Extreme Innovation, and rapid prototyping methods.



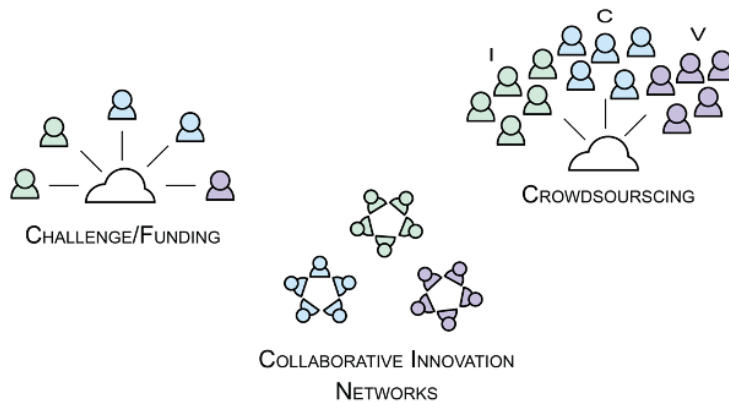
A 3.3 Funnel methods

Funnel methods seek to collect a large number of ideas which are then narrowed down via a series of screening and selection steps. Important is to generate as many ideas as possible then select only the best ideas for full development. For some, this is an internal method allowing no interaction with outside entities (Closed Innovation). For others, knowledge and information from outside entities are welcome and used to refine and select ideas (Open Innovation).



A 3.4 Online collaboration methods

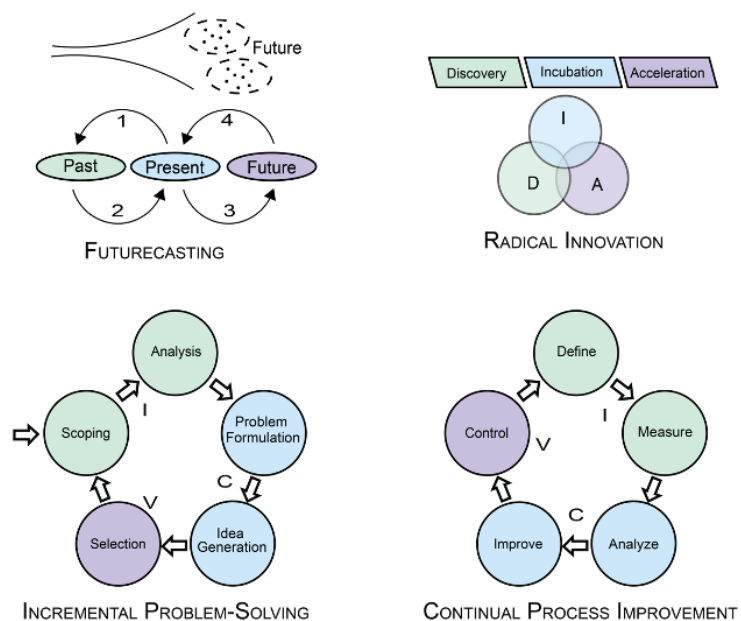
With increasing use of the Internet and social media platforms, some have turned to collaborative idea management methods. These involve enlisting the services of many people, even unpaid volunteers, employing the Internet as the communications medium. Typically, a goal is announced as a challenge to which innovators can respond. Sometimes the challenge is in the form of a Request for Proposal (RFP) and other times it is just a simple statement of need. Respondents conduct idea management activities in whatever manner they desire. Ideas are created by the masses in response to the overall directive often in isolation and in competition with each other. However, some forms of crowdsourcing encourage collaboration and partnership between the respondents. Examples of these kinds of methods include Collaborative Innovation Networks (COINs), crowdsourcing, grand challenges, and government funding agencies.



A 3.5 Scope and scale methods

Methods exist for creating different types of innovations. For example, cyclic methods all strive to seek near-term, incremental or sustaining innovations. Other methods seek to envision and attain a more distant future. Ideas in the near-term methods result from detailed analysis and problem-solving phases done in either linear or iterative fashion.

Ideas and opportunities in the long-term methods come from projecting the trajectory of existing trends into the future, back-casting from the future to the present, strategic envisioning, and systematic learning. Long-term methods are best suited to addressing high levels of uncertainty. Examples of these kinds of methods include incremental problem solving, future forecasting and Discovery-Incubation-Acceleration (DIA) model.



A 3.6 Bottom-up and top-down methods

Bottom-up methods depend on ideas coming from employees. Ideas can be either solicited or unsolicited where anyone can submit and champion an idea. These methods are particularly well suited for process improvement, where the front-line workers generate ideas for improving their portion of the process. Strong support is needed by

senior leaders in any organization to allow the entry of any new ideas and to bring a new idea from vision to reality.

Top-down methods are management-driven, depending on a single leader, small group of leaders, or an external entity to lead and stimulate idea management activities. A single leader might be the Chief Executive Officer/Founder of a company, the Chief Technology Officer, or an Innovation Champion. A single group of leaders might be an Innovation Committee, Cross Functional Team, Project Managers, or Unit Heads. External entities might be Government funding agencies, standards setting and policy organizations, such as, ISO, ANSI, CDC, WHO or other profit/non-profit organizations.

Other top-down methods involve new business creation or new business development. These are typically integrated within the organization as part of an innovation strategy and orchestrated within a management system. These are designed to achieve growth and renewal of the organization through a strategic ambition or innovation intent. Going beyond most strategy planning horizons, these often result in radical/breakthrough, business model, growth platform or capability types of innovations. These opportunities are characterized by higher uncertainty and can be sponsored by a business unit or a central function, depending on how much these opportunities stretch the organization.

A 3.7 Organizational set-up methods

Different organizational structures can be used to achieve different objectives for idea management. Internal or corporate venture methods involve installation of idea management and governance, alongside and in parallel with existing management structures, allowing the existing management structure to remain unchanged. Many entities use venturing approaches because they require the least time, money, and effort to implement. However, confusion, friction, and unrest can occur when interaction with the existing structure is required because the innovation initiative can become an intrusion and interruption to established business practices. As a result, new ideas and opportunities may be perceived as being a threat to the core business and potentially undermining the likelihood of success.

Embedded idea management methods involve installing innovative thinking as a core competency throughout the organization. In contrast to the bolt-on approach, the embedded approach seeks to change the existing management mindset and business processes. Entities having embedded idea management often incorporate change more easily and are prepared to accept the upfront cost and effort to change the status quo, often involving a culture change. Here, new ideas and opportunities are expected and even anticipated rather than being a threat.

Sometimes, more creativity and effectiveness are achieved if idea management is done in isolation (skunkworks fashion) and kept away from existing management, structures, and processes which could limit thinking. Idea management in isolation can result in interesting innovations without changing the company's culture or operating model. This approach requires the allocation of specific resources as well as focused teams of dedicated people and extraordinary support from the executive team. Also, a mechanism is needed for "spinning off" entities able to take on the development of new ideas and take advantage of new opportunities that might not be aligned with an organization's strategic intent.

A 3.8 Gamification

Gamification is about the application of game-design elements to motivate and stimulate problem-solving by users and other stakeholders. Gamification of innovation is becoming popular, either in software or physical on-site approaches. This innovation approach shows clear advantages on processes (more structured and organized) and teams (more engaged and aligned). Gamification is the process of making activities more game-like in non-game contexts, to encourage users' motivation and engagement in a particular task. By providing gamified experiences, such as having fun and gaining a feeling of mastery, organizations are making desired behaviours more engaging even in routine tasks and contexts. Gamification has the power to triggers people's curiosity about innovation, keeps people intrinsically motivated to engage continuously, enhances internal collaboration, promotes fun and commitment among employees, increases motivation to learn and grow, provides insights for future areas of product/service applications, increases the willingness to take risks, educates on how to accept failure, promotes openness to new ideas and technologies, among many other behaviours.

Annex B

(informative)

Clause 5 – People and organization

This Annex provides examples of specific methods and tools to describe uncertainty across organization, technical, resource, market/mission, organization and interested party categories as well as how to screen for and ask key questions based on levels of uncertainty.

B 1 Uncertainty categories and levels

Uncertainty can be categorized into 5 or more categories. The list below provides examples of these categories and the questions to ask:

- a. Organization – Where does the idea or opportunity fit? Is there a logical home? Who will champion the concept? How are decisions made when operating under conditions of uncertainty?
- b. Technical (or Implementation) – Is the concept feasible? Will it be economic to develop? Can the solution be scalable?
- c. Resource – Is there funding available for the idea or opportunity? Can it be resourced with the right people and capabilities, internally or externally? Can we find the right partners?
- d. Market (or Mission) – Is there a need or compelling vision for the business/mission? Are there multiple potential applications and/or business models? Is there a viable concept? Will it create sufficient value? Are there market, regulatory, environment and/or societal considerations that will help or hinder concept viability?
- e. Interested parties – How will the concept impact diverse interested parties? Which interested parties will support the concept? What resistances can prevent them from supporting the concept? Can these resistances be reduced?

An effective mechanism of screening for and identifying uncertainties is to describe them across three levels: low, medium, and high. Timing varies across industries and organizational contexts.

The three levels can be aligned to likely innovation types and uncertainty reduction requirements as follows:

- a. Low Uncertainty; shorter term (typically), incremental innovation
 - i. Significant information, understanding or knowledge is available for an individual or team.
 - ii. Ideas can be directed to phase gated or other serial methods for prioritization and development.
- b. Medium Uncertainty; mid-term, evolutionary or step change innovation
 - i. Some information, understanding or knowledge is available for an individual or team.

- ii. Ideas and opportunities can go through customized phase gates or exploration & experimentation iterative learning processes to reduce levels of uncertainty prior to prioritization and development.
- c. High Uncertainty; longer term, breakthrough or radical innovation
 - i. Limited or no information, understanding or knowledge is available for an individual or team.
 - ii. Ideas and opportunities can go through strategic visioning of future scenarios or strategic learning exploration & experimentation methods to reduce levels of uncertainty prior to prioritization, development and/or business build up.

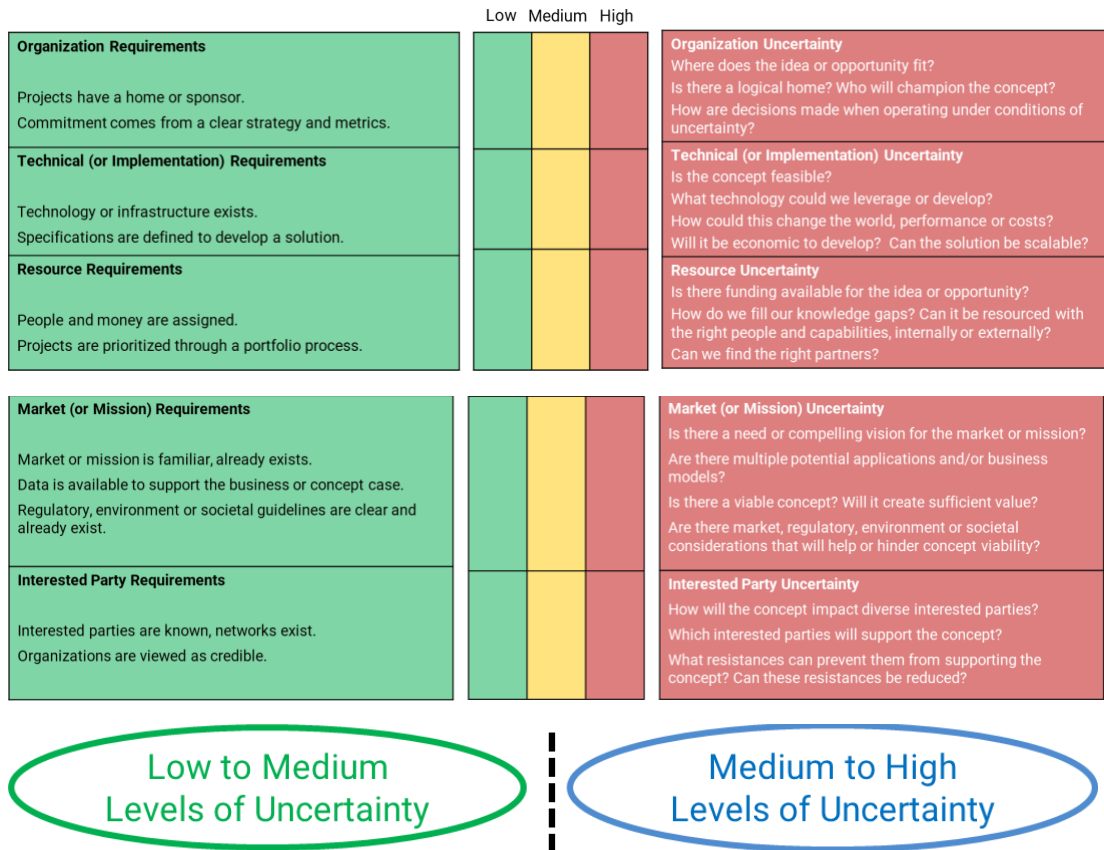
B 2 Example of uncertainty level screening tool by category

The purpose of this tool is to provide guidance for how to screen for levels of uncertainty by category.

- For low uncertainty, the requirements can be defined and there is a clear end game. Therefore, it is about statements of what is known or mostly known.
- As the levels of uncertainty increase, the end game becomes less clear and it is about questions to answer to fill gaps in information, understanding or knowledge. Therefore, it is about asking questions of what is not known yet.

Instructions for using this screening tool for levels of uncertainty are as follows:

- Consider the requirement statements on the left-hand side and uncertainty questions on the right-hand side.
- Place an 'X' in the box for each of the five categories of uncertainty to indicate level of uncertainty.
 - Low = If requirements are in place and all or most of the uncertainty questions can be answered.
 - Medium = If some of the questions can be answered.
 - High = If most of the questions cannot be answered.
- Next, look across the five categories of uncertainty.
 - If all are at medium to high levels of uncertainty, then the idea or opportunity clearly requires reducing uncertainty by applying different methods for learning to answer questions prior to development.
 - If there is a mix of low, medium, and high, this would also require reducing uncertainty prior to development.
 - If all are low, then the idea or opportunity could be ready for development. This would suggest that requirements can be defined or there are very few, if any, questions to address.



B 3 Example of such as questions by category of uncertainty

The purpose of these examples is to provide guidance across the 5 categories of uncertainty of questions to ask to help reduce levels of uncertainty.

Organization	Technical (or Implementation)	Resource
- Where does the idea or opportunity fit? Is there a logical home? Who will champion the concept? - Does the idea fit with our strategic intent? Do we have the capacity to pursue it? - How are decisions made when operating under conditions of uncertainty? - Can the action plan realistically deliver to the definition of success, or the minimum required? - Are the organizational risks for any remaining critical uncertainties acceptable? - Does the proposed solution fit into our DNA/capabilities as of today? Can our organization develop a solution to meet this need? - Can we provide the rationale for why it makes sense for our organization to pursue this idea or concept?	- Is the concept feasible? Have we demonstrated technical, business model and/or organizational feasibility? - Is there the potential for significant improvements and/or cost reductions in what already exists or the creation of something new to the world or market? - Do we have confidence that there is room to operate within the intellectual property landscape? - Do we have confidence that technology, process or other technical challenges can be overcome? - Can we develop a prototype for market learning? - Will the concept be economic to develop? Can the solution be scalable? - Do we know how to develop this product, service or solution?	- Is there funding available for the idea or opportunity to reduce uncertainty prior to development? - Do we have internal foundational competencies we can leverage to pursue this idea or opportunity? - Is the team capable and motivated enough to successfully deliver the definition of success? - Can this idea or concept be resourced with the right people and capabilities, internally or externally? - Can we find the right partners? Which competency gaps could be filled externally via strategic partnerships and competency-based acquisitions?

Market (or Mission)	Interested Parties
▪ Is there a need or compelling vision for the business/mission? ▪ Are there multiple potential applications and/or business models? ▪ Is it a viable concept? Will it create sufficient value? ▪ Are there stated or unstated pain/need/desire(s) for clearly identified customers? ▪ Is the proposed solution compelling? Is the market entry strategy clear? ▪ Will the target customer prefer this solution over the alternatives available to it and why? ▪ Do we have a sense of the potential for the market or mission and the window of opportunity? ▪ Are there market, regulatory, environment or societal considerations that will help or hinder concept viability?	▪ How will the concept impact diverse interested parties from policy makers to industry? ▪ Which interested parties will support the concept? ▪ What resistances could prevent interested parties from supporting the concept? Can these resistances be reduced? ▪ Are the targeted customer segments willing to pay for help in meeting their needs? ▪ Can we provide a clear value proposition (or hypothesis) for interested parties with different objectives? ▪ Are the targeted customer segments or interested parties willing to pay our organization to help them meet their needs? Are we credible enough to provide this solution? ▪ Does this project fit the investor's strategy + brand/image or is it essential for market positioning?

Annex C

(informative)

This annex is associated with Clause 6 – Idea management processes and activities. It provides additional detail on the following; where to look for ideas and opportunities, typical validation selection criteria, an example decision-tree based on these criteria and how to write a proposition.

C 1 Inspiration for ideas

Ideas and opportunities come from many different areas...

C 1.1 Customer/User-Focused Ideas

One way of recognizing needs and opportunities is by observing and analyzing customer/user motivation, behavior, and desires. There are many methods for analyzing customers/users. Understanding customer/user emotion and motivation when selecting a solution is important in generating great ideas. Some customers/users are drawn to new solutions because they perform better than existing models. Other customers/users are motivated only by cost and will opt for the less expensive version of a solution. Customers/users who already use a certain product or service will likely be motivated to adopt a solution complementing that product or service. Many customers/users are won over by the way a solution makes them feel.

Examples:

- In Design Thinking, one empathizes with the customer/user to better understand how they use and interact with the concept.
- In Jobs-to-be-Done Theory, the focus is on the reasons a customer/user invites the solution into their lives. Understanding customer/user motivation leads to new solution ideas.
- In Lead User Analysis, a subset of potential customers/users is studied of those ahead of the rest of the market.

- User Experience (UX) innovation focuses on the feeling a customer/user gets by interacting with the concept.
- In Focus Groups, the behavior and reactions of a small diverse group of potential customers/users are observed through a series of interactive discussions. Information obtained is used to create new ideas, to refine evolving ones or could even lead to new concepts.
- Crowdsourcing is used to gather idea, opportunities, or concepts from the public at large.

C 1.2 Market-Focused Ideas

Another way to identify opportunities is to analyze market forces and trends to predict the future and explain the past. One can endeavor to predict customer and market behavior in the near-term (typically months ahead) or in the long-term (years or decades).

Examples:

- In Scenario Planning, knowledge about future trends (e.g., demographics, resources, economics) and driving forces (e.g., social, cultural, political) are used to extend the present into the future. This allows one to visualize the future and identify how to evolve the present toward the future.
- Market Research involves qualitative and quantitative analysis of market data. This analysis becomes a key input to guide idea generation by discovering trends in market behavior.
- Brand positioning involves establishing a product or service's distinctive identity in the market and with customers/users.
- Demand-pull and market-pull innovations are those inspired by the market or by customers/users and then produced by companies or organizations.
- Finding new uses for existing products, services, or know-how is a way to discover new markets.
- New innovations cause changes in markets. Sometimes changes are small but sometimes new innovations cause disruptive changes to existing markets. Taking into consideration how disruptive a new idea might be can lead to recognition of new opportunities.

C 1.3 Product/Problem-Focused Ideas

Often, ideas arise to solve a real or perceived problem with an existing product, process, or service. Studying specific deficiencies of existing products and services, while analyzing them from a holistic systems viewpoint, leads to targeted solutions. There are many different problem-solving techniques.

Examples:

- In Brainstorming, a group works together to generate a list of ideas for potentially solving a specific problem.
- In Root Cause Analysis, the focus is on collecting data about a failure and identifying the fundamental causes of faults or problems.

- In Contradiction Analysis, the focus is on identifying one or more factors impeding or limiting a product or service's performance.
- Focusing on reducing the acquisition cost to the customer/user and the total cost of ownership leads to many innovations.
- Products and services are rarely successful without a host of other products/services to augment and accentuate the primary. Recognizing each product/service is a platform for others leads to the identification of new opportunities.

C 1.4 Impact-Focused Ideas

Analyzing the environmental, cultural, and societal impacts helps recognize opportunities. Every new solution affects the planet and people in various and complex ways.

Examples:

- Reducing the environmental footprint or improving the sustainability of an existing solution often requires new innovations.
- Analyzing issues of equality, diversity, and inclusiveness related to a concept leads to new opportunities.
- Addressing issues related to poverty and hunger affecting substantial percentage of the Earth's population leads to new opportunities.
- Recognizing how solutions affect the health and well-being of not only customers/users, but also of other interested parties, leads to new opportunities.

C 1.5 Future-Focused Ideas

Some organizations seek their inspiration through a purpose or strategic intent of what they aspire to be. They imagine future scenarios based on patterns and trends. They enroll futurists and thought leaders in generating ideas and opportunities. They are looking for ways to significantly change the game by redefining industries and markets. They can form novel partnerships to fill competency gaps, influence interested parties to reshape innovation ecosystems and communicate compelling visions of the future to enroll others.

Examples:

- Stating a vision or challenge for progression of humankind, such as the challenge to put humans on the moon, often leads to a host of new opportunities and even new industries. Similarly, a vision for a sustainable future is driving scientific investigation and political policies.
- Scenario Planning and Future-casting predict future occurrences employing knowledge of past trends (e.g., demographics, resources, economics) and driving forces (e.g., social, cultural, political)
- Directed Innovation and Back-casting, involve projecting scientific and technological trends into the future, allowing the identification of several possible futures. One or more of these futures can be chosen and used to stimulate the evolution of the present to the chosen future.
- Horizon Analysis allows the balancing of resources for the present, or near-term, versus the future.

C 1.6 Business-Focused Ideas

Organizations seek to improve themselves and how they do business. Every aspect of an entity is the subject for new ideas and potential innovations ranging from supply chain, production, and distribution to customer service. How an organization structures and organizes for innovation through its resources, processes, and governance can influence the manner which ideas are created and evolved.

Examples:

- In Supply Chain Innovation, many organizations rely on a system of other organizations, people, activities, and information to bring a product or service to market to improve the supply chain.
- For Business Model Innovation, rethinking elements of a supply chain and other components of the business model, such as interaction with customers and partners, leads to new value by creating new markets and even transforming industries.
- Quality and process management methods can provide the insights leading to ideas that can become innovations.
- In Profit Model Innovation, the focus is on finding new ways of obtaining revenue from existing products and services.
- Enhancing the intellectual property portfolio and seeking to overcome (Design Around) or prevent patent infringement issues leads to new opportunities.
- Return on Investment (ROI) analysis takes into account revenues offset by the cost and effort of production, distribution, and marketing and leads to the identification of new opportunities.
- Some organizations view new knowledge and new technologies as closely held intellectual property and refuse access to others (Closed Innovation). Others freely import from, and export knowledge and technology to outside entities to promote exploration, validation, selection and further development (Open Innovation).

C 1.7 Technology-Focused Ideas

Sometimes, new technology is created first and then applications of this technology are sought to create new solutions. In general, whenever a new technological discovery or invention inspires subsequent innovation, it is called the technology-push model. Often, customers are not able to express desires for these kinds of solutions because they do not know what the technology is capable of. Many organizations have focused research & development efforts narrowly targeted to an industry, but others perform basic research without specific targets. Sometimes, new technological discoveries lead to platform, radical, breakthrough, or disruptive innovations.

Examples:

- Invention of the point-contact transistor in 1947, enabled the entire microelectronics industry and derivative industries, such as, the personal computer industry, the software industry, the Internet/Web industry, and the social networking industry.

- Before the introduction of portable music-playing technology, no customer could have expressed the need for such a device. However, with its availability in the early 1980s, rapid customer adoption changed consumer behavior and expectations leading to many similar, and ever-improving, products over the next three decades. Digital music has even triggered the creation of radically new business models such as single-song purchases and on-demand streaming.
- Using drones is revolutionizing many sectors, e.g., agriculture, law enforcement, and even entertainment.
- The use of artificial intelligence for mapping the human genome and analyzing health data has spawned numerous healthcare applications, with many more to come.

C 2 Selection criteria recommended in 6.6.5.3

The following selection criteria should be considered. Judgement should nevertheless be exercised to ignore the criteria that may not be relevant in some specific circumstances:

A) Strategic fit

The decision-makers set the strategic objectives – see 5.4. Resources should be allocated in line with these objectives. Unless the decision-makers decide to change the strategy, they must assess if the idea or opportunity meets the mission, strategy, brand, concept, objectives, etc. Strategic fit could also include the ability to create barriers to entry blocking competitors.

B) Customer/user fit

It is important to establish if there is genuine demand for a potential innovation. Decision-makers should determine who the likely customer/user is and the level of their pain/need/desire that the idea addresses.

The next step is to understand if, and to what level, the new offering will be preferred in relation to current alternatives available to the customer/user.

C) Market fit

Markets and industries have conditions for entry, for example, regulation, price, performance level, standards. It is necessary to verify the relevant conditions and that the new offering can meet them, for example, access to distribution channels.

D) Business model fit

Decision-makers should verify the compatibility of new ideas with the organization's business model(s).

E) Scope fit

The scope of a project may be too small or too big or even be incompatible with the decision-makers' capabilities or objectives.

F) Definition of success/Return on investment

The decision-makers should determine the level of benefit/value/return on investment that should be achieved to align with the idea's initial objectives.

As the definition of success expresses the target objectives to be achieved, it might also be useful to define the minimum objectives below which the project should be stopped. By outlining these objectives at the selection stage, the consequences of having to stop the project down the road can be anticipated.

G) Resources fit

The resources required to develop an idea, money (skills, time, facilities etc.) need to be estimated as accurately as possible and selection made against the predetermined level agreed for each. The amount of necessary resources should be determined during the conceptualization and validation phases so that decisions can be made at selection stage by the decision-makers.

H) Availability of appropriate team

The best plan without a good and motivated team will rarely deliver the expected results. A cohesive, qualified and committed team will most likely correct the possible weaknesses of the plan. A good team is a critical success factor.

I) Interested party acceptance

It is rare that an idea can be implemented without involving others and obtaining their support. All internal and external interested parties should be identified together with their potential influence and level of material support.

J) Intellectual property protection

Decision-makers should consider the intellectual property (IP) issues related to the idea/opportunity, such as:

- ability to work around existing IP
- ability to obtain new intellectual property protection
- freedom to operate

Specific guidance regarding IP is available in ISO 56005

K) Idea pipeline and/or portfolio fit

A Go/No-go decision needs to be made in the context of other ideas in the portfolio. For example, to establish priority for development.

L) Timeline fit

Decision-makers should also verify that the timeline of the project is realistic and aligns with their agreed timescale objectives.

M) Risk exposure

Since evaluating individual risks in isolation can be misleading, it is recommended to also analyze multiple risks collectively. Evaluating the overall risk and the ability to mitigate it can also be a selection criterion.

N) Acceptability of other factors

Besides risks, there could be other factors influencing the viability of the concept. They could be barriers to entry (e.g., a patent or an exclusive agreement) or imposed constraints (e.g., an existing regulatory requirement) that are hurdles. However, they can also be positive elements that benefit the concept (e.g., a potential regulatory change that

would provide a competitive advantage to the offering). As such other factors can have a meaningful impact on the project, their assessment could also be a selection criterion.

O) Collateral effects

As most projects may induce externalities or even internal consequences of launching them, decision-makers should make sure that they are aware of them and willing to accept them. Some collateral effects will happen for sure while others are uncertain. Examples of collateral effects include environmental impact, displacement of other products, antagonizing interested parties, etc.

P) Sustainability and durability

In addition to the positive or negative impact on SDGs (which is also addressed above by the strategic fit and collateral effects criteria) that influence the sustainability of a project, its durability may also be influenced by its ability to evolve and even to create new opportunities. The ability to expand the offering range with multiple generations of a product can for instance be a decision criterion.

Q) Effort to reduce remaining uncertainties

Since innovation typically involves uncharted areas, uncertainty is at the core of innovation. Not all decision-makers have the same level of tolerance to uncertainty. Decision-makers should establish an overview of remaining critical uncertainties at selection stage:

- Can uncertainties be reduced and how?
- What effort (time, skills, money, and other resources) is necessary to reduce missing information, understanding, or knowledge to a level that is aligned with their tolerance to uncertainty?
- Is the level effort needed acceptable?

R) Feasibility of the potential action plan for development

Assuming the idea or opportunity meets all the above criteria, decision-makers should also feel comfortable enough that what must be done can realistically be done.

They can for instance evaluate the:

- feasibility of reducing remaining critical uncertainties
- risk management feasibility
- technical and R&D feasibility
- production feasibility
- marketing feasibility
- market penetration feasibility
- regulatory feasibility
- legal feasibility
- financial feasibility
- organizational feasibility
- human resources feasibility
- communication feasibility
- overall feasibility

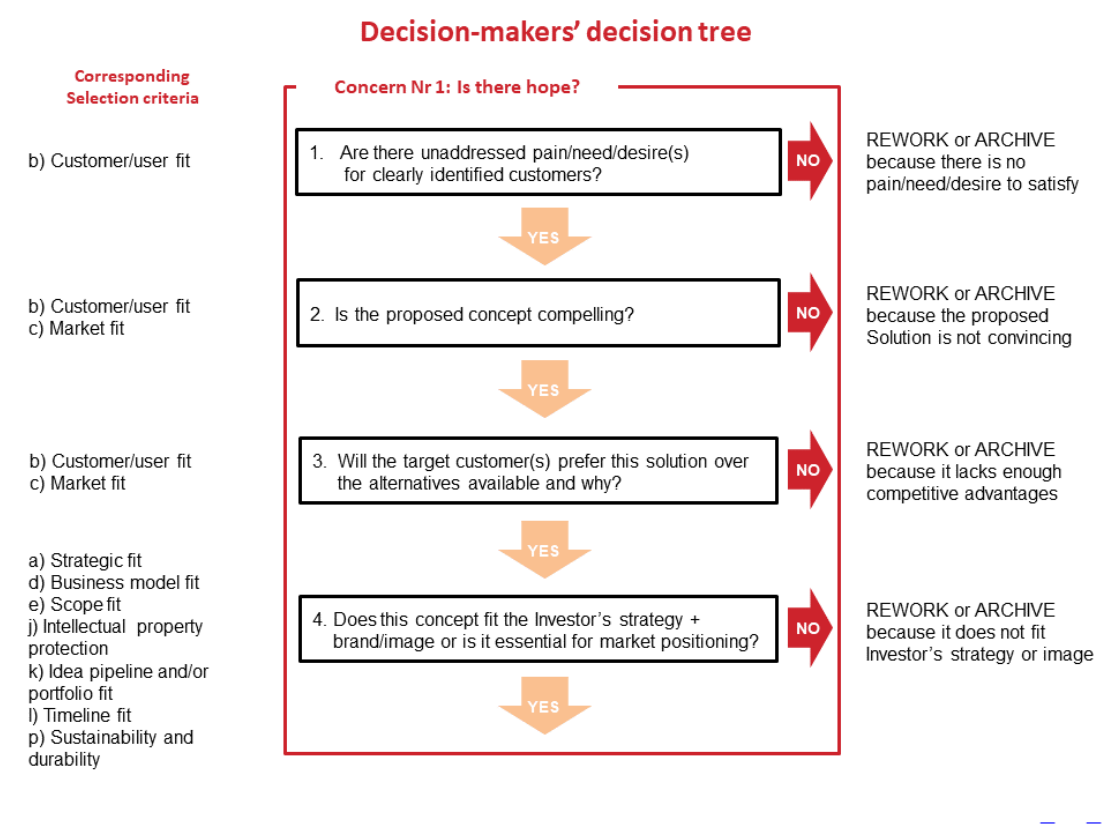
S) Overall coherence

Even if each of the above selection criteria is individually satisfactory, decision-makers should nevertheless also assess the overall coherence of all the parameters. The overall coherence might also include 'gut feel'.

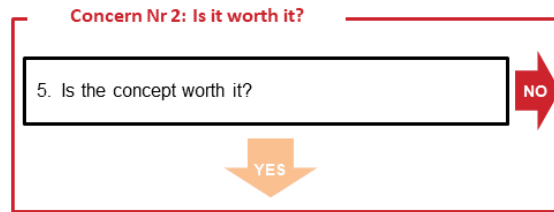
C 3 Example of a decision tree for go/no go selection - see 6.6.5.3

Following a suitable period of research, testing and iteration a decision must be made as to whether a concept is to be handed over for development, archived or submitted for further work. A helpful tool for this is a decision tree. The following example illustrates a sequence of 11 questions. Each question relates to one or more of the selection criteria listed in 6.6.5.3.

The number and order of the questions, and their related selection criteria, should be customised to suit specific industries and organizations.



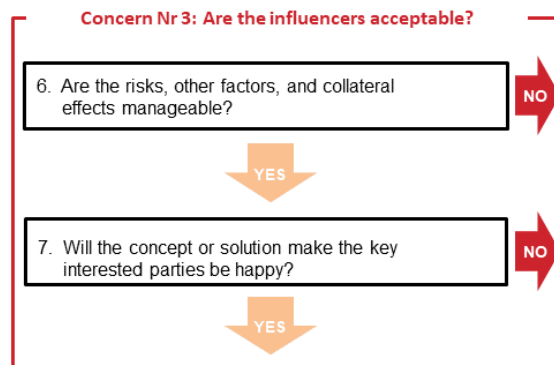
f) Definition of success /
Return on investment
g) Resources fit
l) Timeline fit



REWORK or ARCHIVE because the definition of success & the minimum required is not attractive enough to justify the effort and Investment

g) Intellectual property protection
m) Risk exposure
n) Acceptability of other factors
o) Collateral effects
p) Sustainability and durability

l) Interested parties fit



REWORK or ARCHIVE because this concept is too risky

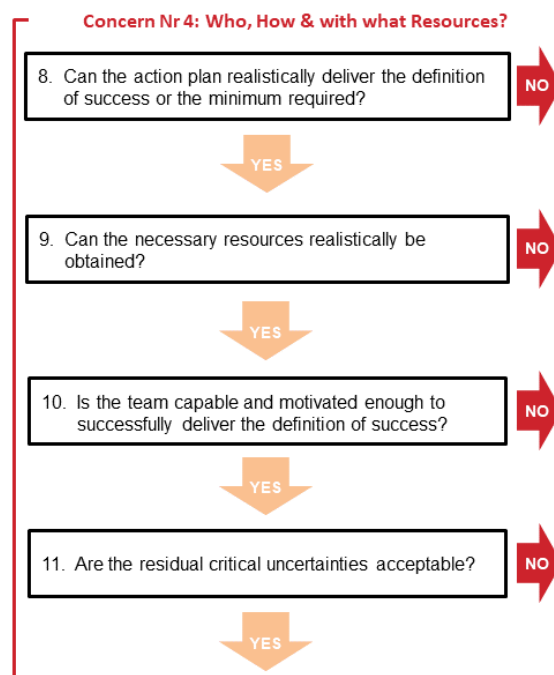
REWORK or ARCHIVE because there will be too much resistance from interested parties

j) Intellectual protection fit
l) Timeline fit
r) Feasibility of the potential action plan for development
s) Overall coherence

g) Resources fit

h) Availability of appropriate team

q) Effort required to reduce remaining uncertainties



LOOK FOR A BETTER PLAN

LOOK FOR RESOURCES

LOOK FOR THE RIGHT TEAM

OBTAIN THE INFORMATION necessary to reduce the residual critical uncertainties or REWORK or ARCHIVE because there is not enough reliable information / knowledge / understanding

Go to development

C 4 Writing a proposition

Examples of approaches for submitting a proposition

1. The two-documents approach to present a concept proposition.

This approach assumes that before considering how the concept should be developed or implemented decision-maker are primarily interested in the reasons justifying the development of that concept. To this effect the proposition is divided in two documents: one *concept case* that addresses the “why” of the concept and an *action plan* that outlines the plan of action for development (the “how”).

All the decisions criteria suggested in 6.4 and Annex C2 are therefore addressed in one or both of these two documents.

The template for the Concept Case is as follows. It is understood that this is a source of inspiration that needs to be customized for each concept:

A. Concept Case Template

1. Introduction/context and expected decision

Is there hope/enough appeal for the decision-makers and the customer?

1. Who is the target customer?
2. What are the pain/need/desire (s) for this Customer?
3. Why these pain/need/desire(s) have so far not been addressed?
4. What is the proposed solution to address those pain/need/desire(s)?
5. What are the market relative advantages and weaknesses of this solution? (customer benchmarking table showing the level of performance of each alternative on each customer decision criteria)
6. Does this opportunity fit corporate strategy and objectives?
7. Why is this the best way (decision-maker benchmarking showing the level of performance of each way of executing the concept on each decision-maker decision criteria)? The decision-maker decision criteria can include scope, fit with brand/image, impact on SDG, readiness level, I.P. considerations, ethical considerations,

Is it worth it?

8. What benefits are brought by the opportunity to the main interested parties?
9. What are the measurable objectives defining success for the concept? (definition of success)
10. What are the minimum objectives below which the concept will be considered to be unsuccessful and what will be the consequences of this lack of success?

11. What is the revenue model (where do the resources come from)?
12. What skills and Investment are required for development?

Are the influencers acceptable?

13. What are the risks?
14. What are the collateral damages of this concept (including externalities, environmental or social effects)?
15. What are the other important factors?
16. To what extent are interested parties committed to support this concept and how to deal with their resistances?
17. What are the remaining critical uncertainties, their level and what effort is needed to reduce them at an acceptable level?

This list should outline which uncertainties can be no-go criteria.

How, who, how much?

18. What barriers to entry must be overcome (including regulatory requirements)?
19. As protection what barriers to entry can be built?
20. Who will implement the project (which champion)?
21. Timeline for the action plan

Conclusion

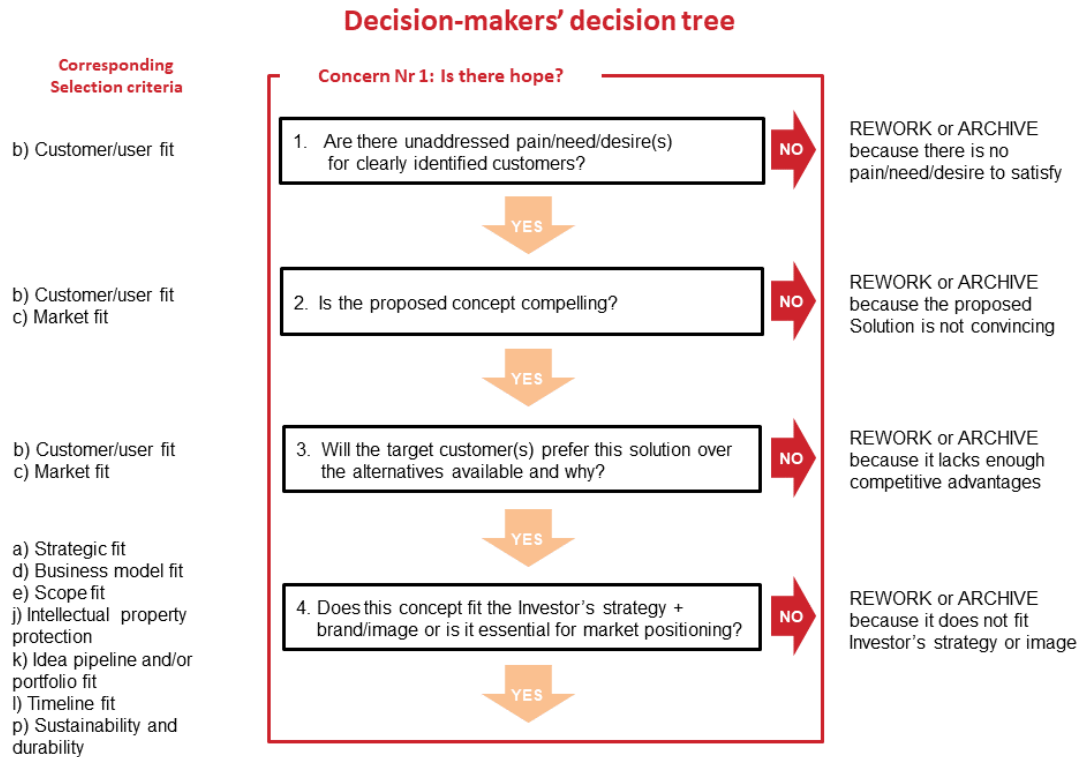
22. "Opportunity cost" (= what will happen if we do not do it)
23. Next steps

The Concept Case may be complemented by a set of supporting documents providing additional details and/or justification. Such documents can include canvases such as business model or value proposition, pitch for selling the idea to different interested parties, market research outcome, tests outcomes, proof of concept (PoC), etc.)

B. The Action plan

Depending on the level of details required, the action plan can include a:

- First roadmap or Gantt chart showing the sequence of the various actions required for reducing the remaining uncertainties (action plan 1).
- Second roadmap or Gantt chart showing the sequence of the various actions required for development (action plan 2).
- Budget detailing the resources required for implementing each of the two action plans.
- Third roadmap or Gantt chart showing milestone gate decisions.
- Responsibility chart outlining the role of each interested party.
- Etc.



2. The business plan

This approach assumes that one document should contain both justification and action plan. It is traditionally organized by function (market issues, distribution issues, production issues, finance issues, I.P. issues, HR issues, legal issues, etc.)

As many books describe how to write a business plan, no further guidance is provided here. See bibliography.

Bibliography

Further tools and methods will be referenced here in the next draft.

- [1] ISO #####-#, *General title — Part #: Title of part*
- [2] ISO #####-##:20##, *General title — Part ##: Title of part*